



Traditional Systems of Medicine of BIMSTEC Member States

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**Traditional Systems of Medicine of
BIMSTEC Member States**

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Traditional Systems of Medicine of BIMSTEC Member States

Advisor : Dr.Thavatchai Kamoltham

Editors : Dr. Anchalee Chuthaputti
Ms. Benjama Boonterm
Dr. Supattra Rungsimakan

Editorial Board : Ms. Porntip Termwiset
Ms. Supasinee Rattanaburi

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For inquiries, please contact:

Department of Thai Traditional and Complementary Medicine
Ministry of Public Health
Tiwonont Road, Muang Nonthaburi
Nonthaburi 11000 Thailand

Phone : (66 2) 591 4409, 590 2608

Fax : (66 2) 591 4409, 590 2608

E-mai : aseantradmed@gmail.com

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Foreword from the Secretary General of BIMSTEC

Foreword

I am delighted to be associated with the publication titled "Traditional Systems of Medicine of the BIMSTEC Member States" by the Department of Thai Traditional and Complementary Medicine, Ministry of Public Health, Government of Thailand. This is a compilation of the presentations on Traditional Systems of Medicine and the policies of the respective governments of the BIMSTEC Member States.

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) was established on 06 June 1997 through the Bangkok Declaration as a regional organization comprising above seven Countries lying in the littoral and adjacent areas of the Bay of Bengal constituting a contiguous regional unity. This regional Group constitutes a bridge between South and South East Asia and represents a reinforcement of relations among these countries. BIMSTEC is a sector driven organization which has so far prioritized 14 areas of cooperation. "Public Health" is one of the important priority areas which is led by Thailand. Under this sector, the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine was held in Thailand from 20-22 July 2015. The publication of the Book was a decision arrived at the Meeting.

Thoughtful integration of Traditional and Complementary Medicine in the BIMSTEC region requires establishment of evidence-based efficacy, safety and quality of Traditional Medicine practices and products. Traditional Medicine and Traditional Knowledge play very important role in addressing important health issues including non-communicable diseases. Therefore, in order to lead a healthy life, it is essential to have a holistic lifestyle approach with judicious use of Traditional Knowledge, Traditional Medicine and modern sciences.

It is important to incorporate basic medical sciences in the educational system of the Traditional Medicine and vice versa. To this end, this initiative will provide the learners, researchers and practitioners of Traditional Medicine as well as modern medicine an insight into the genesis, history, practice, educational system and contribution of the Traditional system of Medicine and relevant policies of the respective BIMSTEC Member States.

The practice of Traditional Medicine in the BIMSTEC region has been prevalent since archaic era. Different Member States of BIMSTEC have different system of Traditional Medicine practices while some similar practices have been prevalent in several Member States.

In certain cases, the Traditional Medicine practices have been integral part of the common cultural heritage in the Bay of Bengal Region. The main objective of this publication is to bring all those practices together on a single compilation as an instrument to exchange and sharing of information in Traditional Medicine and Traditional Knowledge among the BIMSTEC Member States which would eventually act as a catalyst to greater and deeper integration.

I hope that the publication will be significant milestone in enhancing regional cooperation in the Bay of Bengal region.



Sumith Nakandala
Secretary General

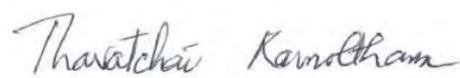
Preface

The Bay of Bengal region has been blessed with the abundance of flora and fauna that serve as valuable natural medicinal resources for our deep-rooted systems of traditional medicine practiced in BIMSTEC member countries. All of these systems of traditional medicine have long played a significant role in the health and well-being of the people in this region and have been a part of the health service system of each country. Therefore, the cooperation in the area of traditional medicine is quite appropriate and will be useful for BIMSTEC member countries as we share common herbal medicinal materials and similar systems of traditional medicine.

Thailand by the Department of Thai Traditional and Complementary Medicine (DTTCM), Ministry of Public Health, as the lead country of BIMSTEC cooperation in public health and traditional medicine, hosted the first and the second BIMSTEC meetings in traditional medicine in 2006 and 2010, respectively. The two meetings initiated BIMSTEC collaborative activities in traditional medicine in the Bay of Bengal region and the establishment of the “BIMSTEC Network of National Centers of Coordination in Traditional Medicine” of which our department serves as the Secretariat Office. In 2015, DTTCM has organized the third Meeting on the BIMSTEC Network of National Centers of Coordination in Traditional Medicine to follow up on the progress in traditional medicine each country has made and to develop work plan of future cooperative activities as well as to establish “BIMSTEC Task Force on Traditional Medicine (BTFTM)” under “BIMSTEC Network of National Centers of Coordination in Traditional Medicine” that will be responsible for the implementation of the work plan.

The book on “**Traditional Systems of Medicine of BIMSTEC Member States**” was one of the fruitful results under the agreed areas of cooperation between BIMSTEC Member States. This book consists of 7 Chapters, describing the Traditional Systems of Medicine in 7 BIMSTEC countries, namely, Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand, based on their country reports at the third Meeting on the BIMSTEC Network of National Centers of Coordination in Traditional Medicine.

DTTCM would like to thank all Member States for their contribution to this book. We are hopeful that this book will be useful for further development of traditional medicine in this region and can be used as a reference in this field. We also would like to thank the BIMSTEC Secretariat for their kind assistance and suggestion as well as the staffs of DTTCM for their hard-working that made the third meeting possible.



Adjunct Asst.Prof.Dr. Thavatchai Kamoltham, M.D.

Director-General

Department of Thai Traditional and Complementary Medicine

Chapter Authors

- Chapter 1** **Traditional Systems of Medicine of Bangladesh**
Dr. Md. Alamgir Hossain, Asst. Director (Unani), Government Unani and Ayurvedic Medical College and Hospital, Dhaka, Bangladesh
Dr. Md. Hassan Imam, Asst. Prof. (Unani Medicine), Government Unani and Ayurvedic Medical College and Hospital, Dhaka, Bangladesh
- Chapter 2** **Traditional Systems of Medicine of Bhutan**
Mr. Karma Gaylek, Chief Programme Officer, Department of Traditional Medicine Services, Ministry of Health, Thimphu, Bhutan
Mr. Sherab Tenzin, Deputy Chief Pharmacist, Department of Traditional Medicine Services, Ministry of Health, Thimphu, Bhutan
- Chapter 3** **Traditional Systems of Medicine of India**
Dr. Pradeep Dua, Research Officer, Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy, New Delhi, India
Mr. Rajinder Sood, Senior Consultant, Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy, New Delhi, India
- Chapter 4** **Traditional Systems of Medicine of Myanmar**
Mr. Myint Aung, Director (Medical Care), Department of Traditional Medicine, Ministry of Health, Nay Phi Taw, Myanmar
Mr. Maung Maung Thet, Professor and Head of Department, Department of Physical Medicine, University of Traditional Medicine, Mandalay, Myanmar
- Chapter 5** **Traditional Systems of Medicine of Nepal**
Dr. Debkala Bhandari, Director General, Department of Ayurveda, Ministry of Health and Population, Kathmandu, Nepal
Dr. Chandra Prasad Bhusal, Senior Consultant, Department of Ayurveda, Ministry of Health and Population, Kathmandu, Nepal
- Chapter 6** **Traditional Systems of Medicine of Sri Lanka**
Mr. P. S. K. R. Weerakoon, Commissioner, Department of Ayurveda, Ministry of Health and Indigenous Medicine, Colombo, Sri Lanka
Professor K. K. D. S. Ranaweera, Director, Bandaranayke Memorial Ayurvedic Research Institute, Nawinna, Sri Lanka
- Chapter 7** **Traditional Systems of Medicine of Thailand**
Dr. Anchalee Chuthaputti, Director, Office of International Cooperation, Department of Thai Traditional and Complementary Medicine (DTTCM), Ministry of Public Health, Nonthaburi, Thailand
Dr. Supattra Rungsimakan, Pharmacist, Office of International Cooperation, DTTCM, Ministry of Public Health, Nonthaburi, Thailand

Table of Contents

	Page
Foreword from the Secretary General of BIMSTEC	ii
Preface	iii
Traditional Systems of Medicine of BIMSTEC Member States	1
Chapter 1: Traditional Systems of Medicine of Bangladesh	3
Chapter 2: Traditional Systems of Medicine of Bhutan	6
Chapter 3: Traditional Systems of Medicine of India	17
Chapter 4: Traditional Systems of Medicine of Myanmar	40
Chapter 5: Traditional Systems of Medicine of Nepal	47
Chapter 6: Traditional Systems of Medicine of Sri Lanka	53
Chapter 7: Traditional Systems of Medicine of Thailand	66
Annex	79
Report of the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine	81
List of Delegates of the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine	90

Traditional Systems of Medicine of BIMSTEC Member States

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Chapter 1 Traditional Systems of Medicine of Bangladesh

1. Traditional Medicines in Bangladesh

- i) Unani System of Medicine
- ii) Ayurvedic System of Medicine

2. Traditional Medicine Education System and Regulation of Practitioners

Government and Private Institutes

- Directorate (H & TM) at DGHS.
- Registration council for TM doctors at DGHS.

i) Government Institutes

- Govt. Unani & Ayurvedic Medical College & Hospital, Dhaka.
Providing BUMS & BAMS Degree after completing 5 years academic course and one year internship)

- Govt. Tibbiya (Unani Diploma) college in Sylhet.
Providing DUMS Diploma certificates completing 4 years academic course and six months internship
- Eligibility for admission at GUAMC&H:
HSC (12 Class) or equivalent certificate with Science background and CGPA-8.0. The candidates must be below 18 years old.
- Eligibility for admission at GTC (Diploma): SSC (10 Class) or equivalent certificate.

ii) Private Institutes

- Graduate college:
Faculty of Unani & Ayurvedic Medicine, Hamdard University, Dhaka : 1
Providing BUMS & BAMS Degree after completing 5 years academic course and one year internship
- Eligibility for admission at FUAM: HSC (12 Class) or equivalent certificate with Science background and CGPA- 6.0.

- Unani and Ayurvedic Diploma Colleges: 22
Eligibility for admission at Unani, Ayurvedic & Diploma Colleges: SSC (10 Class) or equivalent certificate.

Number of Manufacturing Companies:

- Unani Medicine Manufacturing Companies: 269
- Ayurvedic Medicine Manufacturing Companies: 172
- Herbal Medicine Manufacturing Companies: 29

Regulation of practitioners

Registered practitioners

- BUMS: 350
- BAMS: 304
- DUMS: 1750
- DAMS: 800
- BUMS & BAMS certificates are provided by the University of Dhaka

DUMS & DAMS Certificates and registration are provided by the Board of Unani & Ayurvedic Systems of Medicine. The Board also regulates all Unani & Ayurvedic Diploma Colleges. Besides this, The Board also provides Short Course Certificates and the number is Unani-3580 & Ayurvedic-3200.

The Directorate General of Health Services under the Ministry of Health and Family Welfare regulates the Unani and Ayurvedic graduate doctors. The Registration Council under the Directorate General of Health Services gives registration of graduate Unani and Ayurvedic doctors. The Unani & Ayurvedic Board gives registration of diploma & short course certificate holders. Licenses for the manufacturer of Unani & Ayurvedic medicines are given by the Directorate General of Drug Administration under the MOH& FW.

Existing Manpower:

- Revenue-
 - I) Director's Office-9 (Director -1, DD-1, AD-1, MO-3, Staff-3)
 - II) GUAMCH-172 (Officer -27, Staff -145)
 - III) GTC-40

Development:

- AMC Total manpower : 777
- Officers : 246
- Supporting staff : 531
- Total Manpower in the OP : 1103
- Under process for recruitment : 80

3. Achievements:

- Recruited manpower: 777
- Established herbal garden: 467
- Conduction of orientation workshop, training for the TM personnel and District & Upazilla Health Managers.

Books Published:

- Bangladesh National Unani Formulary.
- Bangladesh National Ayurvedic Formulary.
- Bangladesh National Ayurvedic Pharmacopoeia.
- Bangladesh National Unani Pharmacopoeia.
- Treatment Guide line for Unani & Ayurvedic medicine.
- Medicinal Plants manual
- Service delivery: 26%(At the OPD)

4. Traditional Medicine – related initiatives

Initiatives:

The Government has taken up various programmes for implementation of Unani & Ayurvedic medicine giving priorities in the following areas:

- a) Strengthening of infrastructure
- b) Standardization of Education
- c) Propagation of Medicinal Plant Sector
- d) Research & Development
- e) Awareness building & International Collaboration
- f) Standardization and Quality Control of drugs
- g) Strengthening and enforcement of mechanism related to production and sale of drugs.
- h) Mainstreaming of Unani & Ayurvedic systems in National Health programme and health delivery system.
 - i) Creation newly posts for Traditional medicine doctors.
 - j) Process for establishment of Post-graduate institute on Unani & Ayurvedic system of medicine.
 - k) Establishment of national herbal garden, production & research centre.
 - l) To motivate the service-recipients about the Unani and Ayurvedic medicine and treatment along with the conventional allopathic treatment as it is cheap, affordable, cost-effective and free from side-effects.

Initiatives have been taken by the government and some private sectors to improve the traditional system of medicine. The Ministry of Forest & Environment and the Ministry of Hill Tracts affairs are facilitating in preservation and documentation of traditional medicine knowledge. Directorate General of Health Services and Ministry of Health & Family welfare are working together for the promotion, preservation and documentation of resources of traditional system of medicine.

Proposed Collaborative Activities for the Next Five Years:

- Exchange of human resources for skill development.
- Exchange of knowledge and skill in health care delivery system.
- Assistance to develop international standard pharmacopoeia .
- Development of curriculum and initiative for post graduate studies.
- Technology transfer.
- To build up the network among the manufacturers.
- Exchange of Traditional Medicines Teaching Personnel and Trade Delegates among the member countries.
- Product promotion by exporting.

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Chapter 2

Traditional Systems of Medicine of Bhutan

Introduction

Bhutan is a small mountainous and a land locked country with huge variation in altitudes, bringing almost tropical vegetation right to the base of glaciers. This difficult terrain has secured the country from foreign elements and their influences facilitating the development of rich biodiversity and uniquely rich culture and traditions including the indigenous traditional medical systems. Sometimes, Bhutan is referred by many synonyms such as a) “*Men-jong Gyal-khab*”, meaning the land of medicinal plants; b) “*Botanist’s paradise*” and recently as the c) “*Land of Gross National Happiness*” derived from its resounding policy called “Gross National Happiness” as opposed to “Gross National Products”.

From a single Indigenous Dispensary in 1968, the traditional medical service has grown rapidly over the years to cover the entire country. In 1979, this Indigenous Dispensary was upgraded to National Indigenous Hospital which was later renamed as the National Institute of Traditional Medicine (NITM) in 1988. In 1998, the NITM has been reconstituted as the Institute of Traditional Medicine Services. It was further re-organized with NITM as Faculty of Traditional Medicine under the Khesar Gyalpo University of Medical Sciences of Bhutan and the Menjong Sorig Pharmaceuticals (MSP), District Traditional Medicine units and the National hospital services re-grouped under the Department of Traditional Medicine Services.

1. Systems of Traditional Medicine, National Policy, Administrative System and National Office

1.1 Systems of Traditional medicine

Bhutan hosts two categories of traditional medical systems: gso-ba rig-pa based medical system popularly known as Bhutanese Traditional Medicine (BTM) and the local healing system. The local healing system is based on oral tradition and includes shamanism, herbalist and the pre-Buddhists (Bons) practitioners. While both these systems significantly contribute to the primary health care in Bhutan, the later one is not officially recognized by the government. However, there is a national policy in place to protect and guide access to Bhutan’s genetic resources and its associated traditional knowledge.

The gso-ba rig-pa on which the Bhutanese Traditional Medicine is based upon is more than 2500 years old and one of the oldest medical systems. Historically, it is believed that Lord Buddha first taught gso-ba rig-pa in India. Although Buddhist teachings had spread to many countries in Asia, the gso-ba rig-pa became prominent only in Bhutan and Tibet. The gso-ba rig-pa which means ‘the science of nourishment’ is a composite of science, philosophy and religion that blends culture and tradition. Therefore, this art of healing is holistic healthcare approach with health and spirituality inseparable in revealing the true origins of any sicknesses.

1.2 National Policy on Traditional Medicine

In recognition of the importance and enormous benefit that can be accrued from this ancient healing system, gso-ba rig-pa as Bhutanese Traditional Medicine is preserved, promoted and fully integrated into the healthcare delivery system of Bhutan since 1967. The Constitution of the Kingdom of Bhutan guarantees free access, equity and quality basic health services for both modern and traditional medicines to the people of Bhutan. Today, Bhutan has a unique healthcare system where people are provided with both modern and traditional healthcare services from the same window of hospitals spread across the country. This provision is further re-enforced in the National Health policy and the draft Health bill as follows:

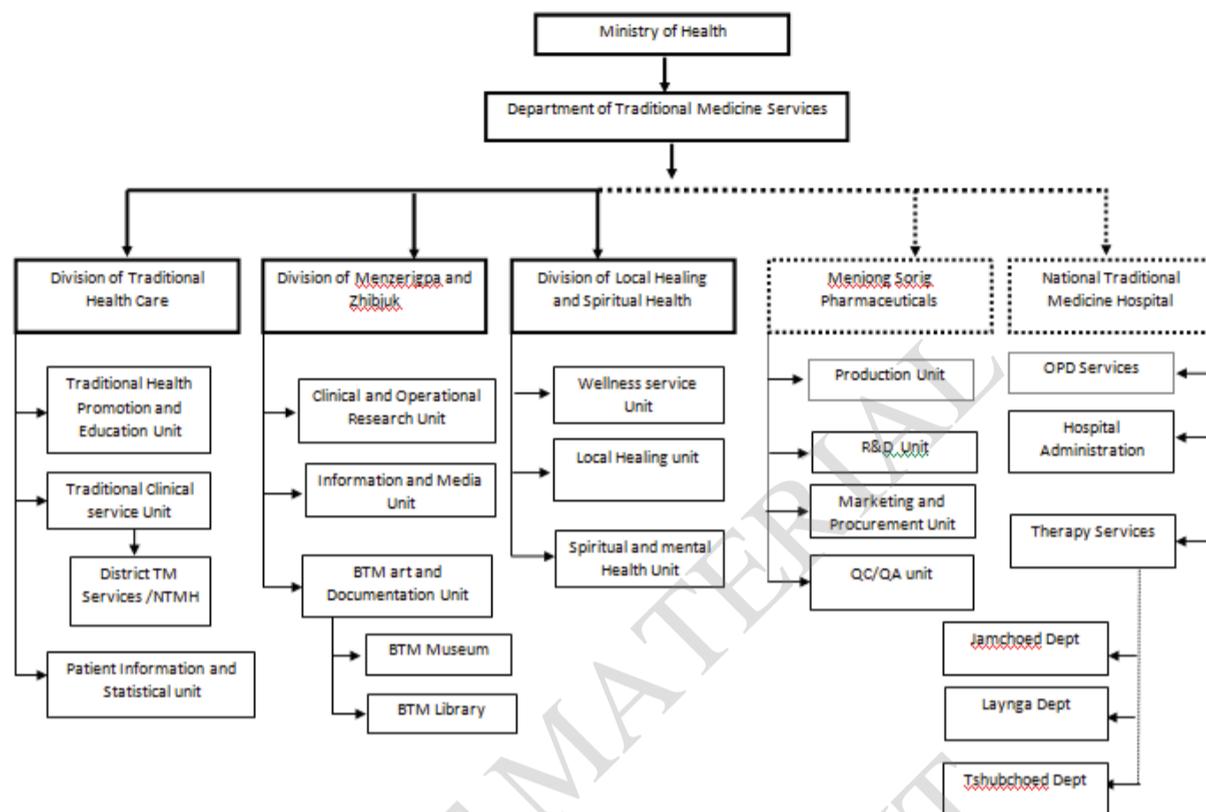
- The Royal Government of Bhutan shall continue to preserve and promote the traditional medicine system by effectively integrating it into the overall national health care delivery system.
- Focused efforts shall be directed towards making Bhutanese gso-ba rig-pa, the center of excellence in providing quality traditional medical services including wellness center that is recognizable at the international level.
- Identification, demarcation and protection of areas rich with medicinal products for care and management by relevant Dzongkhag Administration shall be instituted in conformity with Ministry of Agriculture and Forestry.

Health sector policies are derived from the National Development Plan Documents (five year plans), Bhutan 2020: A vision for Peace, Prosperity and Happiness, Enhancing Good Governance and Annual Health Conference Resolutions. All these policy documents of the government are based on the overall development philosophy of Gross National Happiness (GNH).

1.3 National Authority Responsible for Implementation of National Policy, Administrative Mechanisms and Organogram

One of the major achievements for the Bhutanese Traditional Medicine sector is an establishment of Department of Traditional Medicine Services under the Ministry of Health as a national authority to oversee the development of traditional medicine system in the country through policy support and guidance.

While the National Institute of Traditional Medicine has been re-organized as Faculty of Traditional Medicine under the autonomous Khesar Gyalpo University of Medical Sciences of Bhutan, the Department of Traditional Medicine Services currently has three functional divisions: a) Traditional Health care, b) Materia medica and Research, c) Local healing & Spiritual health divisions. Additionally, the Department also oversees the functions of National Traditional Medicine Hospital (NTMH) and Menjong Sorig Pharmaceuticals as highlighted in the organogram herein under.



2. Provision of Traditional Medicine Service

2.1 Integration of Traditional Medicine in the Health Care System

Bhutanese Traditional Medicine is practiced as an integral part of the national health care delivery system, which is a legal and credential framework, established by the Royal Government as the core activity of the Ministry of Health and is empowered by the Bhutan Medical and Health Council (BMHC). Except in national capital Thimphu, the district Traditional Medicine Units in all districts including sub-districts are housed under the same roof of district hospitals and basic health units for mutual consultation, treatment and cross-referrals complementing each other in treating the patients. There are referrals and integration in the areas of mental health, chronic conditions and some life-style related diseases. Even the distribution of Traditional medicines and other supplies are done through the same supply system of the Ministry. This national policy of integration have nurtured into the provision of holistic primary healthcare system.



National Traditional Medicine Hospital

2.2 Types of Services Provided

BTM is usually considered to be more effective for chronic diseases such as sinusitis, arthritis, asthma, rheumatism, liver problems and the diseases related to digestive and nervous system. In all District Traditional Medicine Units and in NTMH, following traditional medicine services are provided:

- a) Traditional medicine clinical OPD services.
- b) Therapy services such as cauterization (with gold and silver needles), moxibustion, herbal bath, herbal steaming, nasal irrigation and massage with medicated oils, bloodletting, etc.
- c) Spiritual and mental health services
- d) Advocacy services on dietary, behavioral and lifestyle modifications
- e) Out-reach services to religious and meditation centers.



Different Therapy Services

2.3 Standards of Service

The Department of Traditional Medicine Services has developed following service standards, guidance documents and monographs for the delivery of quality and effective Traditional medicine care as guided by the Quality Assurance and Standardization division of the Ministry of Health. This organization evaluates and oversees the implementation of quality standards within the health service centers.

- a) National Health and Traditional medicine policy
- b) Traditional Medicine Service standard and manual
- c) Treatment protocols and procedures
- d) Overall Therapy Guideline
- e) Guideline on Gold Needle Therapy
- f) Infection control guideline
- g) Dispensing procedure
- h) Traditional medicine health information and management system
- i) Traditional Medicine Formulary of Bhutan 1983 and 2007
- j) Monograph on Traditional Medicine of Bhutan 2015
- k) Monograph on selected High altitude medicinal plants - 2 volumes (2009 & 2011)
- l) Monograph on Traditional medicine for primary healthcare

3. Education and Training, Human Resource and Regulation in Traditional Medicine

3.1 Education, Curricula in Schools or Universities

The Faculty of Traditional Medicine under the Khesar Gyalpo University of Medical Sciences of Bhutan is responsible for the development of human resources required for the delivery of traditional medicine services in the country. The faculty shoulders the responsibility of preserving and promoting the unique system of gso-ba rig-pa through education and practice. The faculty develops the curricula

required for the two regular programs as well as other short term programs in line with the university validation requirements and based on ancient medical texts called rgyud-zhi (four medical tantras), materia medica and pharmacopoeias that are in clinical use for thousands of years. Currently, the curricula for Drungtsho and Menpa courses are validated by the Royal University of Bhutan and Khesar Gyalpo University of Medical Sciences of Bhutan and as well recognized by the Bhutan Medical and Health Council.

3.2 Academic and Training Courses

Once the programs are validated by the University, the faculty of 8 Drungtshos mostly with master degree and supported by other faculty members from Research, Botany, Languages, Science, Astrology and ICT field of study delivers the program as per the university requirements using modern pedagogy. The Faculty of Traditional Medicine currently offers two regular programs and tailored made courses in the following areas of study:

- a) Bachelor's Degree in Traditional Medicine - Drungtsho program for 5 years after class 12 completion.
- b) Diploma in Traditional Medicine - Menpa program for 3 years after class 10 completion.
- c) Diploma in Pharmaceutical Science integrated with Traditional medicine - Pharmacy Technicians/Research Technicians program for 3 years after class 12 completions.

3.3 Laws and Regulation on Traditional Medicine Practice and Licensing System

Traditional Medicine falls under the regulatory framework of Bhutan Medical and Health Council Act and the Medicines Act of the Kingdom of Bhutan. All Traditional Medical practitioners are registered with Bhutan Medical and Health Council to ensure safety of public health and discourage the practice of quackery in the field of medical and health professions. All Drungtshos and Menpas must follow the Standard Code of Medical Ethics and Conduct as per the Regulations of the Bhutan Medical and Health Council, under clauses 4.1, 4.2, 4.3, 4.4 and 4.5 while discharging their professional duties. All foreign medical and health professionals including volunteers practicing in Bhutan are required to be registered as temporary professionals and be liable to the same disciplinary procedures under the BMHC regulations as other professionals. Every medical and health professionals declares before the registrar and solemnly pledges to abide by its regulations. The Registrar, after satisfying that the applicant has complied with all the requirements grants a certificate of registration and maintains a record in the system. The revalidation is done every five years after evaluating the competency through fulfillment of minimum 30 credit hours of continuing medical education during the last five years. With regard to licensing of private clinics, the government as of now allows the establishment of diagnostics centers only and not the curative clinics.

4. Traditional and Herbal Medicines

4.1 Manufacturing (Plant Materials Preparation/Harvesting/Raw Material Management), Manufacturers

The traditional texts and the pharmacopoeia of BTM recorded the use of more than 2990 different types of raw materials. However, the current National Traditional Medicine Formulary of Bhutan describes about 300 ingredients used for formulating 95 Essential Traditional Medicines and 11 commercial products. Of this about 85% of the materials (mostly high altitude medicinal plant) are sourced within the Country. As per the sources of origin, the materials are classified into following seven categories:

- a) Vegetable origin, which is further classified into three sub categories:
 - High Altitude Medicinal Plants that grows above 3500-5000 meters above sea level (masl).
 - Low Altitude Medicinal Plants that grows between 200-1500 masl.
 - Rtsi-sman (exudates) that includes rock exudates resins and plant extracts.
- b) Mineral origin, which is further classified into three sub-categories:
 - Rin-po-che-sman (precious stones/gems/precious metals)
 - Rdo-sman (base minerals/stone)
 - Sa-sman (medicinal soils)
- c) Animal origin (srog-chags-sman), which also includes marine organisms.

The medicinal plants are collected as whole plants (40 species), fruits (26 species), seeds (20), roots/bulbs (31 species), stems (12 species), flowers (9 species), leaves (7 species), extracts/resins (7 species) and bark/cambium (3 species) by involving local community groups.

Menjong Sorig Pharmaceuticals annually procures or collects around 13.5 metric tons of raw ingredients on the average to manufacture around 106 products. The medicinal herbs are selected as per



Medicinal herbs drying center at Lingzhi

the traditional texts and pharmacopoeia and the samples are identified by traditional medicine experts. The collection coordination and quality team from MSP visits the collection sites to monitor the quality of medicinal plants collected by the farmers. While in the field, the collected materials are subjected to organoleptic examination such as appearance, damages, size, color, and to certain extent taste and odor prior to primary processing of washing, sizing and drying. The primary

processed raw ingredients are then packed, labeled, and stored for transportation. To aid farmers with the post-harvest care and minimize wastages, two small drying units one for high altitude medicinal plants and another for low altitude medicinal plants were established at the collection sites. At the manufacturing site, the Quality control section further subjects these collected herbs to a routine quality assessment and retains a sample of those materials/products screened for the quality. To help

authenticate the species at this stage, the medicinal plants herbarium has been established. In case any complaints are received from the customers, the quality control personnel retrieve the complaint sample(s) and the comparative analysis is done to find out the root cause.

The sources of raw materials for the production of traditional medicine have to be assured for the sustainable production and ultimately for sustainable delivery of Traditional medicine services. Since the bulk of these ingredients are medicinal plant species, the conservation of medicinal plants resources has become concern and has been accorded top priority. To address this concern and promote the judicious use of medicinal plant resources, the Community Based Sustainable Management of Medicinal Plants has been established and some species introduced for cultivation/domestication in collaboration with the Medicinal and Aromatic Plants (MAP) division of Ministry of Agriculture and Forestry. Only local community groups and those residing in local communities are registered as authorized collectors and their collection sold to MSP either at the drying centers or at the factory site. These farmers groups are regularly trained in sustainable collection methods and good collection practices including some aspects of plant biology. Additionally, the alternative collection sites are being surveyed for the collection of medicinal herbs on rotation basis for the sustainable management of medicinal plants in the wild.



Transportation of medicinal herbs

Since the establishment of MSP as the sole manufacturer in the country, all traditional medicines are produced using modern science and technology based on principles of GMP and Quality assurance system while not deviating from the principles and concepts of gso-ba rig-pa. These medicines are strictly monitored for their quality, safety and efficacy and are registered with the Drug Regulatory Authority (DRA) of Bhutan.

4.2 Production Standard/Quality Controls

The Quality of Bhutanese Traditional Medicine has been given due credence ever since its inception. The government has recognized BTM as an important cultural heritage and felt the need to protect, preserve, promote, and propagate it for the benefit of the people. However, preserving and promoting it can be difficult if the quality of the traditional medical system is compromised. In fact, compromising the quality (efficacy and safety) would undermine the long term sustainability of the Bhutanese traditional medicine. As mandated by the World Health Organization and the national regulatory agency, MSP has developed formulary and monograph on traditional medicine, monograph on high altitude medicinal plants and quality control test protocols/manuals to be used as in-house production standards for quality assessment. MSP also conducts research to validate efficacy and safety and to ensure and enhance the quality and stability of traditional medicine production.

An independent Quality Control Section in order to ensure and assess the traditional herbal drugs for their qualities, carries out: a) routine quality assessments on raw materials, packaging and

printed matters and finished products; b) develops quality control test parameters and standards for starting materials, printed matter and finished products. Both the raw materials and finished products are strictly monitored for their qualities using the test parameters and reference materials established and maintained in-house with the help of technical assistances from two successive EU projects (1994-2009). For those raw materials which are collected in-country, the quality is determined right from the source of collection encompassing selection, identification, authentication, post-harvest care and even determining the right season for collection in line with the WHO's Guidelines on Good Collection/Harvesting Practice. Through these works, the ancient tradition of gso-ba rig-pa production is gradually becoming more standardized and scientific.

4.3 Laws and Regulation on Traditional and Herbal Medicine

The quality of the traditional and herbal medicine are guided by the Ministry of Health's policy of safer pharmaceutical products, Medicine Act of the Kingdom of Bhutan 2003 and Bhutan Medicine rules and regulation 2012, and WHO's guidelines on Good Manufacturing Practices (GMP). As mandated, all the essential traditional medicines produced by MSP are registered with the Drug Regulatory Authority of Bhutan and its manufacturing facility regularly audited for the compliance.

As bulk of the raw materials required for Traditional Medicine production are composed of bio-resources especially the medicinal herbs, the collection, conservation and sustainable utilization of medicinal and aromatic plants in Bhutan are guided by sound legal frameworks and acts: Forest Act 1969, Plant Quarantine Act of Bhutan 1993, Forest and Nature Conservation Act of Bhutan 1995, Environmental Assessment Act 2000 and Biodiversity Act and Framework of Bhutan 2003 and 2006.

4.4 Product Registration/Licensing (office responsible, information on safety, efficacy and quality required)

The Drug Regulatory Authority (DRA) of Bhutan is responsible for the registration and licensing of medicinal products and facilities as mandated by the Medicine Act of the Kingdom of Bhutan 2003 and Bhutan Medicine Board. All the medicinal products including essential traditional medicine produced by MSP have to be registered and its manufacturing facility must fulfill all the regulatory and licensing requirements. In addition to this, DRA also mandates all the key production and QC personnel to be registered as a competent person and must regularly update their skills and knowledge as a part of continuous improvement program. The manufacturer as a regulatory requirement must ensure that medicinal products are being produced as per the marketing/technical authorization, and that the products are of safe, efficacious and of required quality.

Besides registration and licensing, DRA also monitors the safety, efficacy and quality of medicinal products in the market through inspection, pre-marketing and post-marketing control activities. Further, to monitor the safety and Adverse Drug Reactions (ADRs), DRA has established Pharmacovigilance center and two sub-centers for reporting adverse reaction related to veterinary and traditional medicines in the view of increasing rate of ADR reports from herbal medicines in other countries.

4.5 Herbal pharmacopoeia or monographs

The Bhutanese Traditional Medicine is one of the oldest medical traditions and has been in clinical use for thousands of years. This clinical use is being supported by ancient medical texts called rgyud-zhi (four medical tantras) and pharmacopoeias. Based on those ancient classical texts, the Traditional Medicine sector with technical assistances from WHO and two European Union Medicinal Plants projects, has developed this formularies and monographs on traditional medicine: a) Formulary of Traditional Medicine of Bhutan 1983, b) Traditional Medicine Formulary of Bhutan 2007, c) Monograph on Traditional Medicine of Bhutan 2015 and as well as published two volumes of monographs on high altitude medicinal plants that are being used in the BTM. The efforts will be continued to complete the development of monographs on all the remaining 100 high altitude medicinal plants and 30 or so low altitude medicinal plants. The Materia Medica of Indo-Tibetan Medicine by Vaidya Bhagwan Dash and his English version of Pharmacopoeias for Bhutanese and Tibetan Medicines developed through WHO assistance also serves as an important reference material for the development of Bhutanese Traditional Medicine system.

4.6 National List of Essential Traditional Medicines

The current traditional medicine national list consists of 95 products catering to 54 Traditional medicine units establishment across the country. This national essential traditional medicine list are reviewed and revised after every 3 years by the review committee constituted under Essential Medicine and Technology division of the Ministry in consultation with the department of Traditional Medicine services. Like Essential Drug list and Bhutan National Formulary of biomedicine, the Traditional Medicine Formulary of Bhutan is regularly updated with more information. However, in view of the need to streamline like modern medicine list as per the Essential Drug Programme, the categorization of Essential Traditional Medicine list was also undertaken with the following objectives: a) to ensure a regular supply of safe, effective and need-based medicine of acceptable quality at reasonable cost to the majority of the population and b) to promote and monitor rational prescribing and good storage and dispensing practices.

4.7 Patenting of Traditional Medicine Products and Intellectual Property Rights Protection

Patent laws and Industrial Property Act of the Kingdom of Bhutan, 2001, which is aligned with the TRIPS Agreement of the WTO has the provision to protect and grant intellectual property rights related to Traditional Medicine and Traditional Knowledge so long as it fulfills the patent definition as well as has the penal provisions for the infringement of patents. While the Medical & Health Council Act (2002) officially recognizes practitioners of traditional medicines and defines “traditional medicines” as indigenous medicine recognized as a full-fledged branch of medical science and the Medicines Act (2003) defines “medicinal products” to include “any other substance or device declared by the (Bhutanese Medicines) Board to be a medicinal product or a medicine or a drug and this may belong either to modern or traditional system of medicine”, the Traditional healers who are outside the purview of this two acts could protect their TK under article 39 of TRIPS agreement. Additionally, TK holders can secure economic benefits through Access and Benefit Sharing policy developed by National Biodiversity Center to guide access to Bhutan’s genetic resources and associated traditional

knowledge which ensures fair and equitable sharing of benefits arising from their research and commercial utilization.

5. Knowledge Management in Traditional Medicine and Research

5.1 National Research Institutes

Realizing the fact that research on BTM is quintessential, a separate Research and Development Section under MSP was established with the objectives to scientifically validate the efficacy and safety of traditional medicine; to ensure and enhance the quality and stability of traditional medicine; to explore the opportunities for new products using natural resources to combat existing and emerging health problems; to improve production methodologies; to build monographs on raw materials and finished products; documentation of medicinal plants including herbarium development; documentation of medicinal waters and hot springs in the country; documentation of local healing system in the country and new product development based on ancient formularies. While Bhutan does not have separate research institutes for traditional medicine as such, the faculty of Traditional Medicine under Khesar Gyalpo University of Medical Sciences of Bhutan, and Materia Medica and Research division of DTMS also carry out research on traditional medicine.

5.2 Research Institutes at the Universities and Other Schools

Besides the Faculty of Traditional Medicine and the Khesar Gyalpo University of Medical Sciences of Bhutan, other colleges and institutes like College of Natural Resources and Ugyen Wangchuk Institute for Conservation and Environment also conducts research on medicinal plants development, conservation and sustainable utilization. The other organizations of the government such as National Biodiversity Center, Medicinal and Aromatic Plants division and the Non-wood forest division also conducts research on traditional knowledge, conservation and utilization.

5.3 National Traditional Medicine Textbooks

The main textbook for the Bhutanese traditional medicine education is this ancient medical text called rgyud-zhi or the four medical tantras and the following classical books on traditional medicine:

- a) rTsa-rGyud (Root Tantra)
- b) bShed-rGyud (Explanatory Tantra)
- c) sMan-Ngag-rGud (Secret Tantra)
- d) Phyema-rGyud (Later Tantra)
- e) Shed-Jud Drelpa
- f) Shel-gong and Shel-threng
- g) Zin-tig
- h) Tsi (Astrology)
- i) sMengi-Phen-nue Jor-dey
- j) History of gso-ba rig-pa
- k) Chidoen



Ancient gso-ba rig-pa medical text

5.4 Traditional/Herbal Medicine Database

The documentation was realized as the stepping stone of the BTM. Beside the rich ancient texts, commentaries, formularies and pharmacopoeias, a good source of documents and information related to gso-ba rigpa, alternative medicines, natural products and WHO publications have been acquired. The center has published few books and papers on BTM and related subjects and has also carried out the documentation of the local healing practices and the hot springs and medicinal water of the country. There are many visual documentaries on the Bhutanese Traditional Medicines prepared by the foreigners and Bhutan Broadcasting Service. All this documentation and publications are archived in the libraries as well as also managed through Traditional Medicine Information and Management System. Some of the notable publications in a form of books are:

- a) An introduction to traditional medicine services in Bhutan
- b) Manual on the use of traditional medicine
- c) Traditional classification of diseases & related health problems
- d) History of gso-ba rig-pa
- e) Formulary of traditional medicine of Bhutan,
- f) Medicinal flora of Bhutan
- g) A guide to detecting and reporting adverse drug reactions in traditional medicine
- h) Monographs of high altitude Medicinal plants (Volume 1 & 2)
- i) National traditional medicine professional service standard
- j) Menjong sorig journal.

Other scientific and review papers published in the national, regional and international journals are:

- a) Traditional Medicine in Bhutan published in *Asian Medicine: Tradition and Modernity*.
- b) Hetisine-type Diterpenoid Alkaloids from the Bhutanese Medicinal Plant *Aconitum orochryseum* published in the *Journal of Natural Products*.
- c) Traditional Bhutanese Medicine (*gso.ba.rig.pa*): An Integrated Part of the Formal Health Care Services, published in the *South East Asian Journal of Tropical Medicine and Public Health*.
- d) Chemical constituents of *Pedicularis longiflora* var. *Tubiformis* and Anxiolytic effect of *Ranunculus brotherusii* both published in the *Fitoterapia*.
- e) Platelet aggregation inhibitors in a Bhutanese medicinal plant Shug Chher published in *Chemical Pharmaceutical Bulletin*.

There are lots of scope for publication on BTM and related areas. Staff is encouraged to publish their ideas in the form of books and papers. Bhutan Health Journal and Menjong Sorig Journal provide a platform for such paper publications. While the BTM has lots of opportunities to harness and bio-prospect to yield new drug leads, it is also increasingly facing a number of challenges in today's modern age of science and technology. Research on traditional medicine is resource intensive, time consuming and complex due to their multi-ingredient formulations. Research on BTM also requires highly sophisticated equipment's and expertise.



Chapter 3 Traditional Systems of Medicine of India

1. Systems of Traditional Medicine, Policy and Administration, National Office

1.1 Systems of Traditional Medicine

The Indian Systems of Medicine also called Traditional Systems of Medicine of India are of great antiquity. These are the culmination of Indian thoughts of medicine which represent a way of healthy living valued with a long and unique cultural history, as also amalgamating the best of influences that came in from contact with other civilizations be it Greece (resulting in Unani Medicine) or Germany (Homeopathy) or our scriptures/sages which gave us the science of Ayurveda, Siddha, Yoga & Naturopathy. Like the multifaceted culture in our country, traditional medicines have evolved over centuries blessed with a plethora of traditional medicaments and practices.

The Traditional Systems of Medicine of India, are well organized, codified, well documented and professionally practiced, comprises of Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy (AYUSH). Recently, Sowa-Rigpa has also been included as one of the recognized systems of traditional medicine.

Ayurveda

Among the AYUSH systems, Ayurveda is the most ancient and well documented system. The word 'Ayurveda' has been derived from- 'Áyu' i.e. life and 'veda' i.e. knowledge. Thus in literal meaning Ayurveda is the 'science of life'. Ayurveda is a classical system of preventive, promotive and curative healthcare originating from the Vedas documented around 5000 years ago and currently recognized and practiced in India and many countries in the world. Rigveda and Atharveda, the most ancient compendia of Indian culture and wisdom are replete with references of health, diseases and treatment with natural resources & medicinal plants, which subsequently developed in to an organised body of knowledge called Samihtas. Charak Samhita was the first compendium of Ayurveda written around 3000 years back containing systematic description of fundamental principles, basic concepts, causation & genesis of diseases, diagnosis, prognosis and modes & modalities of treatment.

According to Ayurveda, health is considered as a basic pre-requisite for achieving the goals of life - Dharma (duties), Arth (finance), Kama (materialistic desires) and Moksha (salvation). As per the fundamental basis of Ayurveda, all objects and living bodies are composed of five basic elements, called the Pancha Mahabhootas, namely: Prithvi (earth), Jal (water), Agni (fire), Vayu (air) and Akash (ether). The philosophy of Ayurveda is based on the fundamental correlation between the universe and the man. Ayurveda emphasizes on the humoral theory of Tridosha- the Vata (ether + air), Pitta (fire) and Kapha (earth + water), which are considered as the three physiological entities in living beings responsible for all metabolic functions. The mental characters of human beings are attributable to Satva, Rajas and Tamas, which are the psychological properties of life collectively termed as 'Triguna'. Ayurveda aims to keep structural and functional entities in a state of equilibrium, which signifies good health (Swasthya). Any imbalance in the body humors due to internal or external factors leads to disease. Treatment consists of restoring the equilibrium through various procedures, regimen,



Bahya Snehana, Vashpa Sweda, Akshi Tarpan, Shirodhara, and Ksharasutra

diet, medicines and behavior change. The treatment approach in the Ayurveda system is holistic and individualized having preventive, curative, mitigative, recuperative and rehabilitative aspects.

Eight disciplines of clinical medicine are well described in Charak Samhita as Kayachikitsa (Internal Medicine), Shalya Chikitsa (Surgery), Shalakya Chikitsa (Ophthalmology & Otorhinolaryngology), Kaumarbhritya (Paediatrics), Bhoota Vidya (Psychiatry), Agad Tantra (Toxicology), Rasayana (Geriatrics) and Vajeeekarana (Eugenics & aphrodisiacs). Other major classical treatises of Ayurveda include Sushruta Samhita and Vagbhata Samhita. Over a period of time, Ayurveda has come up to provide twenty two specialized courses of study at post-graduation level. These specialties are -- Ayurveda Sidhanta (Fundamental Principles of Ayurveda), Ayurveda Samhita (Classical Texts of Ayurveda), Rachna Sharira (Anatomy), Kriya Sharira (Physiology), Dravya Guna Vigyan (Materia medica and Pharmacology), Rasa-Shastra (Pharmaceuticals using minerals and metals), Bhaishajya Kalpana (Pharmaceuticals), Kaumar Bhritya or - Bala Roga (Pediatrics), Prasuti Tantra avum Stri Roga (Obstetrics and Gynecology), Swasth-Vritta (Social and Preventive Medicine), Kayachikitsa (Internal Medicine), Rog Nidan avum Vikriti Vigyan (Diagnostics & Pathology), Shalya Tantra-Samanya (Surgery), Shalya Tantra – Kshar Karma avum Anushastra Karma (Para-surgical interventions & procedures), Shalakya Tantra - Netra Roga (Ophthalmology), Shalakya Tantra – Shiro-Nasa-Karna Avum Kantha Roga (Treatment of diseases of Head and ENT), Shalakya Tantra – Danta Avum Mukha Roga (Dentistry), Manovigyana avum Manas Roga (Psychology & Psychiatry), Panchakarma (Bio-purification), Agad Tantra avum Vidhi Vaidyaka (Toxicology and Medical Jurisprudence), Sangyahaarana (Anesthesiology) and Chhaya avum Vikiran Vigyan (Radiology).

Ayurveda holds the strength to treat diseases from holistic angle in accordance with the body-mind constitution and other physico-psychological attributes of the patients and as such is proven to be effective in the

treatment of chronic, metabolic and life style diseases for which satisfactory solutions are not available in conventional allopathy medicine. Over the years, Kshar Sutra and Panchakarma therapies of Ayurveda have become very popular among the public. Kshar Sutra is a para-surgical intervention using an alkaline thread for cauterization, which is scientifically validated to be effective in the treatment of fistula-in-ano and such surgical conditions as require excision of overgrown soft tissue like polyps, warts, non-healing chronic ulcers, sinuses and papillae. Panchakarma is a unique therapeutic procedure for the radical elimination of disease-causing factors and to maintain the equilibrium of tridosha. The Panchakarma therapy minimizes the chances of recurrence of the diseases and promotes positive health by rejuvenating body tissues and bio-purification.

Siddha

The Siddha system of medicine is akin to Ayurveda in principles and origin but different in making comparatively large use of Mercurial and mineral preparations. Eighteen Siddhars are said to have contributed towards the systematic development of this system and recorded their experiences in Tamil language.

The Siddha system of Medicine emphasizes on the patient, environment, age, sex, race, habits, mental frame work, habitat, diet, appetite, physical condition, physiological constitution of the diseases for its treatment which is individualistic in nature. Diagnosis of diseases are done through examination of pulse, urine, eyes, study of voice, colour of body, tongue and status of the digestion of individual patients. It is more prevalent in Southern part of India.



Chuttigai Therapy



Varmam Therapy, Kattu / Bandaging, and Patru / Poultice Therapy

Unani

The Unani system of medicine which originated in Greece, amply augmented in India since 9th century with the arrival of Arabs. Based on the concept of humors promulgated by Hippocrates and Galen during 4-5th Century BC, the Unani system of medicine involves diagnosis through Pulse (Nabz), Urine (Baul) and Stool (Baraz). The temperament of a person can accordingly be sanguine, phlegmatic, choleric and melancholic depending on the presence and combination of humors. According to Unani theory, the humors and medicinal plants themselves are assigned temperaments. Any change in quantity and quality of the humors, brings about a change in the status of health of the human body. A proper balance of humors is required for the maintenance of health.



Cupping



Leeching and Hammam

Yoga and Naturopathy

Yoga and Naturopathy are drugless therapies having a long documented history of use that dates back to the Vedic period. Based on natural laws & moieties for balancing the psychophysical equilibrium of patients in physical, physiological and psychological health issues, Yoga and Naturopathy are being acclaimed now world over as scientific systems. The word "Yoga" comes from the Sanskrit word "yuj" which means "to unite or integrate." Yoga is about the union of a person's own consciousness and the universal consciousness. It is primarily a way of life, first propounded by Maharshi Patanjali in systematic form Yogsutra. The discipline of Yoga consists of eight components namely, restraint (Yama), observance of austerity (Niyama), physical postures (Asana), breathing control (Pranayam), restraining of sense organs (Pratyahar), contemplation (Dharna), meditation (Dhyan) and Deep meditation (Samadhi). These steps in the practice of Yoga have the potential to elevate social and personal behavior and to promote physical health by better circulation of oxygenated blood in the body, restraining the sense organs and thereby inducing tranquility and serenity of mind and spirit. Recently, the world over, 21st June has been celebrated as International Day of Yoga to create awareness about this art of healthy living.

Naturopathy is rooted in the healing wisdom of many cultures and times based on principal of natural healing. Naturopathy is a cost effective drugless, non-invasive therapy involving the use of natural materials for health care and healthy living. It is based on the theories of vitality, boosting the self-healing capacity of the body and the principles of healthy living. Naturopathy is a system of natural treatment and also a way of life widely practiced, globally accepted and recognized for health preservation and management of illnesses without medicines. Naturopathy advocates living in harmony with constructive principles of Nature on the physical, mental, social and spiritual planes. It has great promotive, preventive, curative as well as restorative potentials. It is a call to "Return to Nature" and to resort to a simple way of living in harmony with the self, society and environment.

Homoeopathy

Homoeopathy is of German origin, was introduced in India in 1810 and got official recognition in 1948. The system is based on the principles formulated by Dr. Christian Friedrich Samuel Hahnemann (1755-1843). The origin of the word 'Homoeopathy' is from Greek words hómoios (similar) and páthos (suffering), i.e. 'Similar sufferings'. The basic concept hypothesizes that a substance which can induce a set of symptoms in healthy individuals, is capable of curing similar set of symptoms in diseased state. The core principle of Homoeopathy is Similia Similibus Curentur, while the other principles are Doctrine of Drug-proving, Doctrine of drug- dynamisation , Theory of

chronic diseases, Totality of symptoms, Direction of cure and the supporting principles are Vital force / dynamism, Single remedy, and Susceptibility / individualization. The system emphasizes on individualized approach for treatment.

Sowa-Rigpa

The Sowa-Rigpa, commonly known as Amchi medicine, is the traditional medicine of many parts of the Himalayan region used mainly by the Tribal and bhot people. Sowa-Rig-pa (Bodh-Kyi) means 'science of healing' and the practitioners of this medicine are known as Amchi. Sowa-Rigpa is originated out of Ayurveda and is based mainly on the 'Ástanga Hridaya' treaty which one of the three main Compendia of Ayurveda, was translated in to Tibetan language in 4th century.

In India, this system of medicine has been popularly practiced in Ladakh and Paddar-Pangay regions of Jammu and Kashmir, Lahul-spiti, Pangi, Dhramshala and Kinnar region of Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim, Darjeeling-Kalingpong (West Bengal).

Sowa-Rig-pa is a science, art and philosophy that provide a holistic approach to health care on the basis of harmony and understanding of human being and universe i.e. the environment. It uses diagnostic techniques for examples pulse and urine examination (eight fold examination) and it embraces the key Buddhist principles of altruism, karma and ethics. According to the Amchi system, proper alignment of the three Dosha, seven body Tissue (seven Dhatus) and three excretory products (Malas) in the state of equilibrium constitutes a healthy body. Any disequilibrium in any of these energies leads to disease or ill-health. Amachi medical theory states that everything in the universe is made up of the five basic elements, namely, sa (Earth), chu (Water), me (Fire), rLung (Wind), Nam-mkha (Space).

The diagnostic techniques in Sowa-Rigpa include visual observation, touch and interrogation. For treatment of health problems, the system makes use of herbs, minerals, animal products, spring and mineral water, moxibuxtion mysticism and spiritual power. The medicines are used usually in the form of decoctions, powders, pills and syrups etc. Mantra and tantra components are also very important of Sowa-rig-pa.

At present, Indian systems of medicine, particularly Ayurveda is well set to re-orient itself to modern scientific parameters and poised to emerge globally as evidence based system for the management of lifestyle-related disorders, degenerative diseases and psycho-somatic health problems.

1.2 National Policy on Traditional Medicines

There has been a constant policy support to the Indian systems of medicine ever since independence in 1947. However, in order to augment the development of these traditional systems of medicine in a systematic manner, the Government of India put in place a separate National Policy on Indian Systems of Medicine & Homeopathy-2002. The strategies outlined in this policy are in line to that encompassed in the WHO strategy for Traditional Medicine. Major objectives of the national policy are:

- i) To promote holistic health and expand the outreach of health care to people, particularly those not provided health cover, by means of preventive, promotive, mitigative and curative intervention through AYUSH;
- ii) To ensure affordable AYUSH services & drugs which are safe and efficacious;

iii) To facilitate availability of raw drugs which are authentic and contain essential components complying to pharmacopoeial standards to help improve quality of drugs, for domestic consumption and export;

iv) To integrate AYUSH in health care delivery system and national health programmes and ensure optimal use of the vast infrastructure of hospitals, dispensaries and physicians;

v) To provide full opportunity for the growth and development of these systems and utilization of the potentiality, strength and revival of their glory.

Strategies outlined for achieving the aforesaid objectives are being vigorously pursued with emphasis on quality education, health care, research and awareness generation about the potentials & strengths, scope and opportunities of growth and development.

Apart from this, the National Population Policy 2000 emphasizes on utilization of AYUSH practitioners in the population stabilization programmes. Prior to this, the National Health Policy 1983 envisaged optimal utilization of AYUSH in health delivery.

1.3 National Officer Responsible and Administration

India has a federal set up of Governance. Health is on the concurrent list, on which both Central and State Government are empowered to make legislation.

At the level of Central Administration, the Department of Indian Medicine and Homoeopathy (ISM&H) was created in March 1995 and renamed as Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in November 2003.

Recently, the Department of AYUSH has been elevated to a full fledged separate Ministry and renamed as the 'Ministry of AYUSH' on 9th November 2014. The Ministry has the following mandate:

- To upgrade the educational standards in Indian Systems of Medicine and Homoeopathy (ISM&H) colleges in the country.
- To strengthen the existing research institutions and ensure a time bound research programme on identified diseases for which these systems have an effective treatment.
- To draw up schemes for promotion, cultivation and regeneration of medicinal plants used in these systems
- To evolve pharmacopoeial standards for Indian Systems of Medicine & Homoeopathy drugs.

At the level of State Administration, the programmes and policies are implemented by the respective Directorates of the Indian Systems of Medicine.

2. Provision of Traditional Medicine Service

2.1 Integration of Traditional Medicine in the Health Care System

In due appreciation of the strengths & potentials of Indian medicine and their acceptability among the population, Government of India has been supporting mainstreaming & integration of Ayurveda and other systems of Indian medicine in to National Health care delivery. The following major steps have been taken in this regards:

1. National Rural health Mission (NRHM) initiated in 2005 has formulated 'revitalizing local health traditions and Mainstreaming of AYUSH' at the primary and secondary levels as one of the strategies to strengthen the public health services.

As on March, 2014 there were 659 districts, 5564 blocks and 640867 villages incorporating 748 District Hospitals (DHs), 5187 Community Health Centres (CHCs) and 24448 Primary Health Centres (PHCs) in India. The rural population of India for 31st March, 2014 has been estimated as 8646.34 lakhs. On an average, 11.6 lakhs, 1.7 lakhs and 0.4 lakhs rural population had been served per District hospital, Community Health Centre, Primary Health Centre respectively.

AYUSH facilities had been co-located with 331 District Hospitals, 1885 Community Health Centre's and 8461 Primary Health Centre's in the country in 2014. About 44.3% District hospitals had been co-located with AYUSH facilities till 2014.

About 26.1 lakhs of rural population were being served by each District hospital co-located with AYUSH facilities in the country as on 31.03.2014. On an average, 1.0 lakh of rural population were being served per Primary Health Centre co-located with AYUSH facilities in the country in 2014.

2. The National AYUSH Mission (NAM) was notified by the Government of India on 29-09-2014. NAM envisages better access to AYUSH services through-

- increase in number of AYUSH Hospitals and Dispensaries;
- ensuring availability of AYUSH drugs;
- ensuring availability of trained manpower;
- improvement in quality of AYUSH Education through upgradation of educational Institutions;
- sustained availability of Quality Raw materials;
- improvement in the availability of quality Ayurveda, Siddha, Unani and Homoeopathy (ASU &H) drugs by increasing the number of Pharmacies and setting up of Drug Laboratories in the states;
- thrust on preventive and promotive healthcare;
- school health programme through AYUSH;
- public health outreach activity to increase awareness about AYUSH strengths;
- adoption of villages for propagating AYUSH way of life and interventions of health care through AYUSH Gram;
- prevention of non-communicable diseases and promotion of health care by way of Behaviour Change Communication (BCC) integrated with the principles and practices of AYUSH systems and Yoga and Naturopathy wellness centres;
- tele-medicine and Sports Medicine through AYUSH;
- innovations in AYUSH including Public Private Partnerships;
- research & development activities in areas related to the Medicinal Plants; and
- IEC activities;

Under National AYUSH Mission, Ministry of AYUSH has released financial assistance of Rs. 183.78 Crores to 25 States/Union Territories against their submitted State Annual Action Plan (SAAP) for the year 2014-15.

3. Central Government Health Scheme (CGHS) implemented by the Central Government for the health care of central government employees and pensioners is inclusive of Ayurveda, Siddha, Unani and Homoeopathy facilities. This process started in 1964 and presently there are 86 units in different parts of the country.

4. Status, selection, pay scales, working conditions, promotion avenues etc of Indian medicine doctors are same as for allopathic doctors.

5. Other Central Ministries like Labour, Railways, Coal & Mines, Defence also have set up Ayurveda units of health care.

6. The referral and reimbursement facilities for undertaking treatment in Ayurveda etc. are by and large at par with allopathic system.

7. The Clinical Trials Registry, India (CTRI), an online forum for registration of clinical trials in allopathy system of medicine provides a platform for registration of the clinical trials of Indian Systems of Medicine also thereby providing a great impetus to research and development related activities by increasing the visibility of latest researches on global databases such as that of WHO.

8. Negotiations are on for bringing the treatments of AYUSH systems of medicine under the ambit of insurance coverage.

9. The Government has decided that all the upcoming AIIMS like institutions located across the country would have a dedicated AYUSH wing to provide indoor as well as outdoor services. All the other tertiary care Government Hospitals have AYUSH facilities in their premises. In the private sector, several tertiary care hospitals like Sir Ganga Ram Hospital, Medanta-the Medicity, etc. already have AYUSH treatment facilities.

2.2 Types of Services Provided

Providing cost effective AYUSH services, with a universal access is one of the strategies of the Government of India to improve the quality and outreach of Health of Care Services.

The AYUSH services are being provided to through an ever expanding pan-India network of 3631 Hospitals having 57733 beds, 26102 Dispensaries and a qualified manpower of 736538 AYUSH professionals.

The convergence of AYUSH with the Allopathic health services is meant to:

- (a) Provide choice of treatment systems to the patients
- (b) Strengthen facility functionality
- (c) Strengthen implementation of the National Health Programmes.

Government of India supports for provision of adequate space, manpower, drugs, and equipments for co-locating AYUSH units at the same premises of Public Health facilities such as Primary Health Centres (PHCs), Community Health Centres (CHCs), and District Hospitals (DHs). These Indian medicine facilities at outdoor as well as indoor levels facilitate provisioning of comprehensive health care from common premises and enable people to avail treatment of their choice.

In order to orient the Health workers on AYUSH systems trainings are also being imparted. Efforts are also being done for skill based training of AYUSH doctors on National Health Programmes.

2.3 Standards of Service

The Indian Public Health Standards (IPHS) have included the minimum requirement of human resources, infrastructure, drugs and logistics for implementation of the Mainstreaming of AYUSH component, from the sub-centre level up to the district hospital with 500 beds.

‘The Clinical Establishments (Registration and Regulation) Act’ also provides minimum standards regarding AYUSH professionals and infrastructure requirements for centres providing AYUSH treatment services.

The Government of India has notified Minimum Standard Requirements for AYUSH educational institutions towards infrastructure facilities and qualified manpower.

The Government of India has also launched a scheme for voluntary NABH accreditation of AYUSH hospitals to ensure standardized care for patients visiting such facilities.

2.4 Number of Hospitals Providing Traditional Medicine Services

The Government of India has left no stone unturned in ensuring the availability of AYUSH health care services to every nook and corner of the country with a strong manpower of 736538 registered practitioners and through a network of 3631 hospitals and 26102 dispensaries with a provision of 57733 beds for providing indoor treatment facilities.

	Ayurveda	Yoga	Naturopathy	Unani	Siddha	Sowa-Rigpa	Homoeopathy	Total
Registered Practitioners	399400	X	1764	47683	8173	X	279518	736538
Hospitals	2842	07	35	260	265	01	221	3631
Dispensaries	15794	138	123	1485	845	22	7695	26102
Beds in Hospitals	43569	85	1022	3569	2305	10	7173	57733

To improve access to Indian Systems of Medicine, 15525 AYUSH facilities are located at various healthcare facilities including PHCs, CHCs and Districts Hospitals engaging 11925 AYUSH doctors and 4785 AYUSH paramedics as an activity towards ‘Mainstreaming of AYUSH’ under the National Rural Health Mission.

The number of AYUSH treatment facilities in the Private sector is in addition to the numbers mentioned above. Moreover, most of the Government Hospitals have AYUSH facilities in their premises.

3. Education and Training, Human Resource and Regulation

3.1 Education, Curricula & Schools or Universities

The Central Council of Indian medicine (CCIM) is the statutory body constituted under the ‘Indian Medicine Central Council Act 1970’ which lays down the standards of medical education in Ayurved, Siddha and Unani through its various regulations. Similarly, Homoeopathy medical education is being regulated by Central Council of Homoeopathy (CCH) through its various regulations under the ‘Homoeopathy Central Council Act, 1973. For medical education in Yoga &

Naturopathy, no such governing body exists. Following are some of the courses being offered in these Traditional Systems of Medicine:

- Undergraduate Degree course – (BAMS/BUMS/BSMS/BHMS)
5½ years including one year compulsory internship / training
- Post Graduate Degree course – (MD/MS) 3 years
- Post Doctorate Course – (Ph.D.) minimum 2 years
- Short & mid-term courses – (Certificate and Diploma courses)
2 months to 2 years

With the enactment of Indian Medicine Central Council Act in 1970 and Homeopathy Central Council Act in 1973, graduate and postgraduate courses of Ayurveda, Siddha, Unani and Homeopathy are recognized by the respective regulatory central councils and there is a uniform course curriculum of each system throughout the country. A few premier institutions, particularly Gujarat Ayurveda University, Jamnagar and Banaras Hindu University, Varanasi are conducting short & midterm as well as full-fledged courses to foreign and medical students. Apart from general procedure of admission to various courses of study, the Government has earmarked certain seats in government institutions for admission of foreign students and wards of non-resident Indians.

The details regarding the Government recognized Colleges imparting education in Indian Systems of Medicine are as follows:

	Ayurveda	Unani	Siddha	Homoeopathy	Total
UG Colleges	279	43	08	189	519
UG Admission Capacity / year	15087	2131	410	13138	30766
UG / PG + Only PG colleges	112	09	03	42	166
PG Admission Capacity / year	3089	147	140	898	4274

With a view to standardize the education and health care facilities related to AYUSH systems of medicine, the apex regulatory body, Central Council of Indian Medicine has notified 'Minimum Standard Requirements' regarding the infrastructure, manpower and health care facilities.

3.2 Training Courses

For conducting Para-medical education under various systems of AYUSH, there had been 84 institutions with admission capacity of 3421 students as on 01.04.2014. 61.9% institutions with 60.8% admission capacity belong to Government sector, whereas, 1.2% institutions with 1.5% admission capacity were owned by local bodies and 36.9% institutions with 37.7% admission capacity being managed by private sector.

3.3 Law and Regulation on Traditional Medicine Practice, Licensing System

For regulation of education and practice of Ayurveda, Siddha and Unani systems there is a statutory body - Central Council of Indian Medicine (CCIM) constituted under the Parliamentary Act-

Indian Medicine Central Council Act, 1970 (IMCC). Similarly, for regulation of education and practice of Homoeopathy there is a statutory body - Central Council of Homoeopathy (CCH) constituted under the Homoeopathy Central council Act, 1973 (HCC).

The CCIM / CCH are responsible –

- a) To lay down standards of education, syllabi & course curricula, minimum requirements of hospitals, faculties, equipment, clinical exposure and examination pattern;
- b) To ensure adherence to laid down standards of education;
- c) To maintain a Central Register of practitioners;
- d) To recommend to the Central Government for recognition and withdrawal of medical qualifications awarded by Universities;
- e) To lay down code of conduct, ethics and etiquette of practitioners;

In order to ensure uniform enforcement of legal provisions for maintenance of educational standards, the Central Government is vested with the powers of granting permission for opening of new colleges, increase of admission capacity and starting of new or higher courses of study. Steps are also being taken to bring Yoga & Naturopathy and Pharmacy education under a regulatory framework.

Recently, in 2013, the erstwhile Department of AYUSH released the Good Clinical Practice Guidelines for practitioners and researchers of Ayurveda, Siddha and Unani Systems of medicine. ASU-GCP is a set of guidelines which encompasses the design, conduct, termination, audit, analysis, reporting and documentation of the studies involving human subjects. It aims to ensure that the studies are scientifically and ethically sound and that the clinical properties of the ASU medicine under investigation are properly documented. The guidelines seek to establish two cardinal principles: protection of the rights of human subjects and authenticity of ASU medicine clinical trial data generated.

3.4 Number of Registered Practitioners and Trained Personnel

The Government of India provides AYUSH health care services across the country with the help of 785185 registered practitioners as follows:

Number of Registered Practitioners	
Ayurveda	399400
Naturopathy	1764
Unani	47683
Siddha	8173
Homoeopathy	279518
TOTAL	736538

4. Traditional / Herbal Medicines

4.1 Manufacturing (Plant Materials Preparation / Harvesting / Raw Materials Management), Manufacturers

During the recent past, inclination of populace towards AYUSH System of medicine has been observed. To meet the increasing demand of AYUSH medicines, and to provide AYUSH medicines of reasonably good quality, a need was felt to have licensed pharmacies for AYUSH medicines with compliance to Good Manufacturing Practices. Prior to 2007, Good Manufacturing Practices (GMP) was mandatory for the Ayurveda, Siddha and Unani (ASU) drug manufacturing units only. It was also made mandatory for Homoeopathy in 2007.

Number of Manufacturing Units	
Ayurveda	7835
Unani	511
Siddha	379
Homoeopathy	319
TOTAL	9044

The resource base of AYUSH medicines is largely plants. Increasing global interest in natural remedies has increased the demand for medicinal plants which are mainly sourced from the wild areas. This has led to the emergence of a number of issues like sustainability, conservation, cultivation, quality assurance, protection of Traditional Knowledge, issues related of access and benefit sharing etc. To coordinate all these matters relating to medicinal plants, Government of India has established the National Medicinal Plants Board (NMPB) under the Ministry of AYUSH, NMPB is the apex national body which coordinates all matters relating to medicinal plants in the country. The Board was established in November, 2000 and acts as advisory body to the concerned Ministries, Departments and Agencies in strategic planning for medicinal plants related initiatives and to take measures to provide financial support to programmes relating to conservation, cultivation and the all-round development of the medicinal plants sector.

Functions of the NMPB:

- I. Assessment of demand/supply of medicinal plants both within the country & abroad.
- II. Advise concerned Ministries/ Depts./ Organisation / State/ UT Governments on policy matters relating to schemes and programmes for development of medicinal plants.
- III. Provide guidance in the formulation of proposals, schemes and programmes etc. to be taken-up by agencies having access to land for cultivation and infrastructure for collection, storage and transportation of medicinal plants.
- IV. Identification, inventory and quantification of medicinal plants.
- V. Promotion of ex-situ/in-situ cultivation and conservation of medicinal plants.
- VI. Promotion of co-operative efforts among collectors and growers and assisting them to store, transport and market their produce effectively.
- VII. Setting up of data-base system for inventory, dissemination of information and facilitating prevention of patents on medicinal use of plants, information on which is already in the public domain.

VIII. Matters relating to import/export of raw material, as well as value added products either as medicine, food supplements or as herbal cosmetics including adoption of better techniques for marketing of produce to increase their reputation for quality and reliability within the country and abroad.

IX. Undertaking and awarding of studies leading to scientific, technological research and promoting cost-effective practices for the development of medicinal plants.

X. Development of protocols for cultivation and quality control.

XI. Encouraging protection of Patent Rights and IPR.

Schemes of NMPB:

Currently, NMPB is implementing two schemes viz:-

(a) Central Sector Scheme for Conservation, Development and Sustainable Management of Medicinal Plants with the following objectives:

- To promote in-situ / ex-situ conservation of medicinal plants which are critical components of the AYUSH and Folk systems of medicine by supporting such programmes in forest/ public/ non-public/ institutional lands.

- To promote R&D for domestication of wild medicinal plants, development of agro-techniques and post-harvest management storage and processing.

- To promote quality assurance and standardization through development of Good Agriculture Practices (GAP), Good Collection Practices (GCP), and Good Storage Practices (GSP) and through development of monographs of medicinal plants.

- To develop, implement and support certification mechanism for quality standards, Good Agriculture Practices (GAP), Good Collection Practices (GCP), and Good Storage Practices (GSP).

- To promote sustainable harvesting protocols of medicinal plants from forest areas and certification thereof.

- To support Survey, inventory and documentation of endangered medicinal plants through periodic surveys and inventory.

- Creating Gene banks/ Seed orchards to create an authentic source of seed and germ plasm for future.

- Promote capacity building and human resource development at all levels.

- Adopt a coordinated approach and promotion of partnership, convergence and synergy among R&D; processing and marketing in public as well as private sector at national, regional, state and sub state levels.

- To provide Information, Education and Communication through organization of seminars, trainings and exposure visits within the country and abroad.

- Function as clearinghouse of information on medicinal plants including their occurrence, usage, ethno-botanical uses, cultivation practices and post-harvest practices, markets etc. and dissemination thereof through print and electronic media, printing of brochures, posters and other publicity material.

(b) Centrally Sponsored Scheme of National Mission on Medicinal Plants

The Scheme is primarily aimed at supporting market driven medicinal plants cultivation on agricultural land with backward linkages for establishment of nurseries, for supply of quality planting

material and forward linkages for post-harvest management, marketing infrastructure, certification and crop-insurance in a Mission mode. The scheme has the following objectives:

- To support cultivation of identified medicinal plants through their integration in the farming system and offer an option for crop diversification and enhance income of farmers.
- To support cultivation of medicinal plants following Good Agricultural and Collection Practices (GACPs) for increasing availability of quality raw material
- To support setting up of processing zones/clusters through convergence of cultivation, warehousing, value addition and marketing and development of infrastructure for entrepreneurs to set up units in such zones/clusters.
- To support cultivation mechanism for quality standards, Good Agriculture Practices (GAPs), Good Collection Practices (GCPs), and Good Storage Practices (GSPs).
- To adopt a Mission approach and promote partnership, convergence and synergy among stake holders involved in R&D, processing and marketing in public as well as private sector at national, regional, state and sub state level.

Mission Strategy:

- The Mission aims at adopting an end-to-end approach covering production, post-harvest management, processing and marketing. This is sought to be achieved by promoting cultivation of medicinal plants in identified clusters/zones within selected districts of states having potential for medicinal plants cultivation and to promote such cultivation following Good Agriculture and Collection Practices (GACPs) through synergistic linkage with production and supply of quality planting material, processing, quality testing, certification, warehousing and marketing for meeting the demands of the AYUSH industry and for exports of value added items.

- The Mission also seeks to promote medicinal plants as an alternative crop to the farmers through increased coverage of medicinal plants and with linkages for processing, marketing and testing, offer remunerative prices to the growers/farmers. This will also reduce pressure on forests on account of wild collection.

- Mission seeks to adopt communication through print and electronic media as a strong component of its strategy to promote integration of medicinal plants farming in the agriculture/horticulture systems with emphasis on quality and standardization through appropriate pre and post-harvest linkages.

- Promote and support collective efforts at cultivation and processing in clusters through Self Help Groups, growers cooperatives/associations, producer companies and such other organizations with strong linkages to manufacturers/traders and R&D institutions.

The quality of AYUSH products is critically dependent upon the quality of raw material used for their manufacture. The quality of raw material used, is generally assessed with reference to the adoption of Good Agricultural & Collection Practices. The NMPB has already evolved guidelines on Good Agricultural and Collection Practices (GACPs) based on WHO guidelines. The National Medicinal Plants Board has developed the Certification Standards and procedures and Scheme of Certification through Quality council of India (QCI).

The Good Manufacturing Practices (GMP) pertaining to the Ayurvedic, Siddha and Unani Medicines as described in the Schedule 'T' of the Drugs and Cosmetics Act, 1940 are prescribed to ensure that:

- (i) Raw materials used in the manufacture of drugs are authentic, of prescribed quality and are free from contamination;
- (ii) The manufacturing process is as has been prescribed to maintain the standards;
- (iii) Adequate quality control measures are adopted;
- (iv) The manufactured drug which is released for sale is of acceptable quality;
- (v) To achieve the objectives listed above, each licensee shall evolve methodology and procedures for following the prescribed process of manufacture of drugs which should be documented as a manual and kept for reference and inspection. However, under IMCC Act 1970 registered Vaidyas, Siddhas and Hakeems who prepare medicines on their own to dispense to their patients and not selling such drugs in the market are exempted from the purview of G.M.P.

4.2 Production Standard / Quality Controls

Pharmacopoeial standards are important and are mandatory for the implementation of the drug testing provisions under the Drugs and Cosmetics Act, 1940 and Rules there under. These standards are also essential to check samples of drugs available in the market for their safety and efficacy. Government of India had taken up the task of developing Pharmacopoeial standards through Pharmacopoeia Committees. Four different Pharmacopoeia Committees are working for preparing official formularies/ pharmacopoeias of Ayurveda, Siddha, Unani and Homoeopathy drugs. These committees are engaged in evolving uniform standards for preparation of drugs of and in prescribing working standards for single drugs as well as compound formulations.

Standardization of Raw drugs / formulations (finished products) involves:

- Botanical authentication
- Foreign matter assessment
- Assessment of adulterants
- Organoleptic evaluation
- Macroscopic analysis
- Microscopic analysis
- Assessment of volatile matter
- Assessment of ash value
- Assessment of extractive value
- Chromatographic profile
- Identification and assessment of the marker compound
- Assessment of the pesticide residue
- Assessment of the microbial count
- Assessment of the heavy metal contents and other contaminants

Drug Control Cell (AYUSH) is working in the Department to deal with the matters pertaining to Drug Quality Control and the regulation of Ayurveda, Siddha and Unani drugs under the provisions of the Drugs and Cosmetics Act, 1940 and Rules, 1945. The Cell is looking after the activities of

Ayurveda, Siddha, Unani Drug Technical Advisory Board (ASUDTAB) and Ayurveda, Siddha, Unani Drugs Consultative Committee (ASUDCC). Besides, Pharmacopoeial Laboratory for Indian Medicine (PLIM) and Homoeopathic Pharmacopoeia Laboratory (HPL) are Standard-setting-cum-Drug-Testing-Laboratories at National level functioning at Ghaziabad (Uttar Pradesh). A public sector undertaking 'Indian Medicines Pharmaceutical Corporation Limited (IMPCL)' is engaged in manufacturing and marketing of Ayurveda and Unani products.

The Pharmacopoeia Commission for Indian Medicine (PCIM) was set up as an independent autonomous body under the erstwhile Department of AYUSH with the approval of Cabinet at its meeting held on 13th May 2010. PCIM has been renamed as PCIM & H after inclusion of Homeopathic system of medicine. The APC, UPC, SPC & HPC are functioning under the umbrella coverage of PCIM & H which has been involved in making Pharmacopoeial standards for Ayurveda, Siddha and Unani medicine, both for single and compound drugs which are important and mandatory for the implementation of the drug testing provisions under the Drugs and Cosmetics Act, 1940 and Rules there under. These standards are also essential to check the market for their quality parameters.

4.3 Law and Regulation on Traditional and Herbal Medicine

A separate chapter for Ayurveda, Siddha and Unani medicines was introduced since 1982 in the Drugs & Cosmetics Act, 1940.

The Act regulates manufacturing & sale of drugs, pharmacopoeial standards of drugs, methods of testing & analysis, GMP, packaging & labeling, recognition of public & private drug testing labs, etc.

The Act was enforced through State Drugs Licensing and Control Authorities. Drug Controller cum Licensing Authorities are available in the States.

Drugs Technical Advisory Board is established to advise the Govt. on all aspects related to Quality Control and standardization of Ayurveda, Siddha and Unani drugs.

Independent Drugs Consultative Committees comprising State Drugs Licensing Authorities are set up to secure uniformity in the administration of Act.

The Drugs & Magic Remedies Act, 1954 prohibits advertisements of certain drugs & magic remedies.

Traditional Vs Herbal Products:

- Traditional Medicine products are based on sound fundamental principles and well documented whereas Herbal products are Empirical and experimental based
- Traditional Medicine products are time tested on human being for safety and efficacy, however, products are subjected to reverse pharmacological trials whereas Herbal products are based on in-vivo and in-vitro trials.
- Traditional Medicine products are based on wholesome ingredients whereas Herbal products are based on Isolated or extracted materials.
- Traditional Medicine products are Holistic in nature and have a comprehensive approach of use for health whereas Herbal products are used empirically or for general use.
- A Traditional Medicine product is developed and tested in the manner it is used whereas a Herbal product is developed and tested on the basis of analytical parameters.

- For development of traditional products, the psychophysical characteristics of patients are also taken into consideration whereas development of Herbal products is based on analytical approach only.

Pharmacovigilance:

Ayurveda, Siddha, Unani & Homoeopathy are codified knowledge systems containing wealth of information. These systems are becoming increasingly popular among the people for their preventive as well as therapeutic potential. Classical texts of Ayurveda, Siddha, Unani and Homoeopathy describe in detail the drug-drug and drug-diet incompatibilities based on quantitative proportions or qualitative differences in ingredients. In December 2007, with a view to spread the awareness regarding the need for Pharmacovigilance and scientifically document the ADRs, WHO sponsored the Institute of Post Graduate Teaching and Research in Ayurveda (IPGTRA), at Gujarat Ayurveda University, Jamnagar, to organize a workshop on the possibility of implementing pharmacovigilance programs for Ayurvedic medicine. IPGTRA prepared a protocol and ADR reporting format to implement pharmacovigilance for Ayurveda, Siddha, and Unani drugs. IPGTRA was subsequently declared National Pharmacovigilance Resource Centre for ASU Drugs. The project entitled ‘National Pharmacovigilance Programme for ASU Drugs (NPPASU)’ was started under “Centre of excellence scheme” by Department of AYUSH in 2008.

Concerted efforts are being made to formulate and implement a Central Sector Scheme of Pharmacovigilance of Ayurveda, Siddha, Unani and Homoeopathy drugs as another step to ensure Safety and efficacy of Ayurveda, Siddha, Unani and Homoeopathy drugs by meticulous documentation and analyses of any untoward or noxious effects of the ASU&H medicines occurring in the consumers. This will not only help in enrichment of the science but also would be guiding tool for the Ministry of AYUSH to issue appropriate advisories to enlighten the consumers.

Regulatory Laws and other measures taken to ensure the availability of standardised and safe Traditional Medicines include:

- Food Safety and Standards Act administered by the Food Safety and Standards Authority of India
- Drugs & Magic Remedies (Objectionable Advertisements) Act, 1954
- Biological-diversity Act, 2002
- Wild Life Protection Act, 1972
- Indian Forests Act, 1927
- Narcotics Drugs and Psychotropic Substances Act, 1985
- The Medicinal And Toilet Preparation (Excise Duties) Act, 1955
- The standards of Weights and Measures Act, 1956
- Licensing of Traditional Drug Manufacturing Units is Mandatory
- Central Government is empowered to prohibit manufacture and sale of certain Traditional drugs in public interest.
- Government Drug Analysts and Drug Inspectors have been notified and their Qualifications and Duties prescribed.
- Publication of Pharmacopoeial standards of A.S.U. drugs

- Enforcement of GMP as Schedule ‘T’ of the drugs and Cosmetics Act, 1940 and Rules therein
- Notification of Schedule “E (1)” of the Drugs and Cosmetics Act which provides list of poisonous and potentially poisonous materials used in Ayurveda (21 drugs), Siddha (17 drugs) and Unani (19 drugs).
 - Publication of Ayurvedic Formulary of drugs
 - Publication of Essential Drugs Lists of ASU systems
 - Provision of Punitive action in the Act for dealing in misbranded, adulterated and spurious drugs of ASU systems
 - Provision of Mandatory Testing of Heavy metals of ASU medicines for export.
 - Launch and implementation of Schemes to provide financial assistance for strengthening of infrastructure, functional capacity of Pharmacies & Drug Testing Laboratories
 - Specifications have been outlined for Labeling/ Packing provisions for Export / Domestic use of Traditional drugs.
 - Recognition of private and public drug testing laboratories for sample analysis.

4.4 Product Registration / Licensing (Office responsible, information on safety, efficacy & quality required)

The Drugs and Cosmetics Act, 1940 prescribes two separate categories of Traditional Ayurveda, Siddha and Unani drugs viz: Classical drugs as outlined in section 3 (a) and Patent or Proprietary medicines as outlined in section 3 (h). The Licensing for the manufacture of Ayurveda, Siddha and Unani drugs is under the purview of the State Licensing Authorities in accordance with the provisions outlined in the drugs and Cosmetics rules 1945. Recently, vide a Gazette Notification, Rule 158-B has been included in the Drugs and Cosmetics Act. This rule pertains to ‘guidelines for issue of license with respect to Ayurveda, Siddha or Unani drugs’.

4.5 Herbal Pharmacopoeia or Monographs / National List of Essential Traditional Medicines

Essential Drug Lists for Ayurveda (277 drugs), Siddha (302 drugs), Unani (288 drugs) and Homoeopathic Medicines (257 drugs) have been published by the erstwhile Department of AYUSH in 2013.

The Ayurvedic Pharmacopoeia Committee, Unani Pharmacopoeia Committee, Siddha Pharmacopoeia Committee & Homoeopathic Pharmacopoeia Committee are functioning under the umbrella coverage of Pharmacopoeia Commission of Indian Medicine & Homoeopathy which has been involved in making Pharmacopoeial standards for Ayurveda, Siddha, Unani and homoeopathic medicines, both for single and compound drugs which are important and mandatory for the implementation of the drug testing provisions under the Drugs and Cosmetics Act, 1940 and Rules there under.

The details of the Monographs published by the respective Pharmacopoeia Committees is as follows:

Ayurvedic pharmacopoeia- Part-I (Single Drugs)	No. of Monographs
Ayurvedic Pharmacopoeia of India Pt. I, Vol. I, 1990	80
Ayurvedic Pharmacopoeia of Pt. I, Vol. II, 1999	78
Ayurvedic Pharmacopoeia of Pt. I, Vol. III, 2001	100
Ayurvedic Pharmacopoeia of Pt. I, Vol. IV, 2004	68
Ayurvedic Pharmacopoeia of Pt. I, Vol. V, 2006	92
Ayurvedic Pharmacopoeia of Pt. I, Vol. VI, 2008	101
Ayurvedic Pharmacopoeia of Pt. I, Vol. VII, 2008 (Minerals and Metals)	21
Ayurvedic Pharmacopoeia of Pt. I, Vol. VIII, 2011 (Aqueous & Hydroalcoholic extracts)	60
	Total=600

Ayurvedic pharmacopoeia- Part-II (Compound Formulations)	No. of Monographs
Ayurvedic Pharmacopoeia of Pt. II, Vol. I, 2008	50
Ayurvedic Pharmacopoeia of Pt. II, Vol. II, 2009	51
Ayurvedic Pharmacopoeia of Pt. II, Vol. III, 2010	51
	Total=152

Supporting Ayurvedic pharmacopoeial Publications	No. of Monographs
TLC Atlas of Ayurvedic Pharmacopoeial Drugs Pt.I, Vol. I, 2009	80
Macroscopy and Microscopy Atlas of API Drugs Pt.-I Vol. V, 2009	92
Macroscopy and Microscopy Atlas of API Drugs Pt.-I Vol. I, 2011	80
	Total=252

Unani pharmacopoeia- Part-I (Single Drugs)	No. of Monographs
Unani Pharmacopoeia of India, Part-I, Vol-I(1998)	45
Unani Pharmacopoeia of India, Part-I, Vol-II(2007)	50
Unani Pharmacopoeia of India, Part-I, Vol-III(2007)	53
Unani Pharmacopoeia of India, Part-I, Vol-IV(2007)	50
Unani Pharmacopoeia of , Part-I, Vol. V(2008)	52
Unani Pharmacopoeia of , Part-I, Vol. VI(2009)	48
	Total=298

Unani pharmacopoeia- Part-II (Compound Formulations)	No. of Monographs
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Unani Pharmacopoeia of , Part-II, Vol. I (2009)	50
Unani Pharmacopoeia of , Part-II, Vol. II (2010)	50
	Total=100

Siddha pharmacopoeia- Part-I (Single Drugs)	No. of Monographs
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The Siddha Pharmacopoeia of , Part-I, Vol-I, 2008	73
The Siddha Pharmacopoeia of Part-I, Vol-II, 2011	66
	Total=139

Homoeopathic pharmacopoeia of India	No. of Monographs
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Homoeopathic Pharmacopoeia of India, Vol.-I (1971)	180
Homoeopathic Pharmacopoeia of India, Vol. -II (1974)	100
Homoeopathic Pharmacopoeia of India, Vol. III (1978)	105
Homoeopathic Pharmacopoeia of India, Vol. IV (1984)	107
Homoeopathic Pharmacopoeia of India, Vol. V (1987)	114
Homoeopathic Pharmacopoeia of India, Vol. VI (1990)	104
Homoeopathic Pharmacopoeia of India, Vol. VII (1999)	105
Homoeopathic Pharmacopoeia of India, Vol. VIII (2000)	101
Homoeopathic Pharmacopoeia of India, Vol. IX (2006)	100
	Total=1016

Pharmacopoeial Laboratory for Indian Medicine (PLIM) is a subordinate office of the Ministry of Health & Family Welfare, (Deptt. of AYUSH), Govt. of India. This laboratory is a Standards Setting cum Drugs Testing Laboratory at National Level for Indian Medicines which include drugs of Ayurveda, Unani and Siddha systems.

PLIM is apex Lab of the country for the purpose of testing ASU drugs with following objectives.

- To lay down standards of single drugs to be incorporated Ayurvedic, Unani and Siddha Pharmacopoeia.
- To lay down standards of compound formulations included in Ayurvedic, Unani and Siddha Formularies.
- To analyse the survey, official samples and samples received form Drug Control Authorities.
- To collect the genuine samples of crude drugs from different Afro-Climatic Zones of the country for Pharmacopoeial Standardization.
- To maintain a Medicinal Plants Garden and find out indigenous substitutes for exotic plants.
- To organize Orientation Lecture Programmes for Drugs Inspectors/Drug Analysts.

- To organize Training Programmes for Scientists working in the Pharmaceutical Industry of ISM.
- To preserve standard and authentic specimen in Herbarium and Museum.
- To establish a Drug Depot of genuine crude drug samples.
- To develop a Computerized Documentation Section having latest ISM Information

5. Traditional Medicine Knowledge Management / Research

5.1 National Research Institutes

The Central Council for Research in Indian Medicine and Homoeopathy (CCRIMH) was established in 1969 to carry out research in Ayurveda, Siddha, Unani, Yoga and Homoeopathy under the Ministry of Health and Family Welfare. Later, in 1978, this composite Council was dissolved to pave the way for the formation of four independent Research Councils, one each for Ayurveda and Siddha, Unani, Homoeopathy and Yoga and Naturopathy. The four successor Research Councils were established as autonomous organizations registered under Societies Act, to initiate, guide, develop and coordinate scientific research, both fundamental and applied, in different aspects of their respective systems. The Research Councils, which are fully financed by the Government of India, are the apex bodies for scientific research in the concerned systems of medicine.

(i) Central Council for Research in Ayurvedic Sciences (CCRAS):

The Central Council for Research in Ayurvedic sciences (CCRAS) is an autonomous body for undertaking, coordinating, formulating, developing and promoting research in Ayurveda on scientific lines. The activities are carried out through its thirty peripheral Institutes/Centres/Units located at different states across the Country and also in collaboration with reputed academic and research organizations.

(ii) Central Council for Research in Siddha (CCRS):

The Central Council for Research in Siddha (CCRS) is an autonomous body for undertaking, coordinating, formulating, developing and promoting research in Siddha system of medicine on scientific lines. The Council was formed in September 2010. The activities are carried out through its five peripheral institutes located at different states across the Country and also in collaboration with reputed academic and research organizations.

(iii) Central Council for Research in Unani Medicine (CCRUM):

The Central Council for Research in Unani Medicine (CCRUM) established in March 1978 is an autonomous body for undertaking, coordinating, formulating, developing and promoting research in Unani medicine on scientific lines. The activities are carried out through its twenty three peripheral Institutes/Centres/Units located across the Country.

(iv) Central Council for Research in Yoga & Naturopathy (CCRYN):

The Central Council for Research in Yoga and Naturopathy (CCRYN) established in March 1978 is an autonomous body for undertaking, coordinating, formulating, developing and promoting research in Yoga and Naturopathy in collaboration with reputed academic and research organizations.

(V) Central Council for Research in Homoeopathy (CCRH):

The Central council for Research in Homoeopathy, an autonomous research organization came in to existence in 1978. Over the years, the Council has involve into a premier Research Organization

with the objective of undertaking research in Homoeopathy in the fundamental and applied aspects on modern parameters. The Council has been carrying out the scientific research through its network of thirty three research institutes/units including four independent extension units nationwide and in collaboration with other institutes of excellence of allied sciences.

Apart from these apex research organizations, the following National Institutes are existing under the Ministry of AYUSH at National level for teaching, research and clinical practices in AYUSH systems of medicine:

1. North Eastern Institute of Folk Medicine
ASSA Diagnostic Centre, Pasighat, Arunachal Pradesh
2. All India Institute of Ayurveda
Gautam Puri, Mathura Road, Sarita Vihar, New Delhi – 110076
3. Institute of Post Graduate Teaching & Research in Ayurveda
Gujarat Ayurveda University, Administrative Bhavan, Hospital Road, Jamnagar, Gujarat
4. National Institute of Ayurveda
Madhav Vikas Palace, Amer Road, Jaipur, Rajasthan
5. North Eastern Institute on Ayurveda & Homeopathy
North Eastern Indira Gandhi Regional Institute of Health & Medical Sciences,
Mawdiangdian, Shilong, Meghalaya
6. Rashtriya Ayurveda Vidyapeeth
Dhanvantri Bhavan, Road No. 66, Punjabi Bagh (West), New Delhi
7. National Institute of Siddha
Tambaram Sanatorium, Chennai, Tamil Nadu
8. National Institute of Homeopathy
GE Block, Sector III, Salt Lake, Kolkata, West Bengal
9. National Institute of Unani Medicine
Kottige Palya, Magadi Main Road, Bangalore, Karnataka
10. Morarji Desai National Institute of Yoga
68, Ashok Road, Near Gole Dak Khana, New Delhi
11. National Institute of Naturopathy
Bapu Bhavan, Tadiwala Road, Pune, Maharashtra

5.2 National Traditional Medicine Textbooks

Standard Textbooks have been prescribed by the Central Council of Indian Medicine (CCIM) and Central Council of Homoeopathy (CCH) for Ayurveda / Siddha / Unani and Homoeopathy, respectively.

From the Regulatory point of view, the First Schedule of the drugs and Cosmetics Act enlists the Authoritative books of Ayurveda (58 books), Siddha (36 books), Unani (14 books).

5.3 Traditional / Herbal Medicine Database

Quality Standards of Indian medicinal Plants (thirteen volumes), Reviews on Indian medicinal Plants (thirteen volumes), and Phytochemical Reference Standards of Selected Indian Medicinal Plants (four volumes) are some of the important publications from the Indian Council of Medical Research.

“Comprehensive Database on Some Important Medicinal Plants having High Trade Value” a project sponsored by National Medicinal Plants Board, erstwhile Department of AYUSH was executed by Central Council for Research in Ayurvedic Science. The data is displayed in the form of an e-portal entitled “Database on Medicinal Plants” that is uploaded on webpage <http://www.nmpb-mpdb.nic.in>.

Traditional Knowledge Digital Library (TKDL) is a collaborative project between Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology and the erstwhile Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH).

TKDL involves documentation of the knowledge available in public domain on traditional knowledge from the existing literature related to Ayurveda, Unani and Siddha in digitized format, in five international languages which are English, French, German, Spanish and Japanese. Creation of TKDL– Yoga is also under process.

The Government of India has approved to provide the access of TKDL database to International Patent Offices, under Non-disclosure Agreement, between CSIR and respective International Patent Office. India has signed such agreements with the following nine Patents Offices:

- i. European Patent Office (February, 2009)
- ii. Indian Patent Office (CGPDTM) (July, 2009)
- iii. German Patent and Trademark Office (October, 2009)
- iv. United States Patent and Trademark Office (November, 2009)
- v. United Kingdom Intellectual Property Office (February, 2010)
- vi. Canadian Intellectual Property Office (September, 2010)
- vii. Intellectual Property Australia (January, 2011)
- viii. Japan Patent Office (April, 2011)
- ix. Chile Patent Office (INAPI) (May, 2014)



Chapter 4 Traditional Systems of Medicine of Myanmar

1. Systems of Traditional Medicine, National Policy, Administrative System and National Office

1.1 Systems of Traditional Medicine

Myanmar Traditional Medicine is a broad, deep and delicate branch of science covering various basic knowledge, different treaties, a diverse array of therapies and potent medicine. There are four principles (also named as Naya) of Myanmar Traditional Medicine and they can be stated as follows

- (a) Desana System of Medicine
- (b) Bhesijja System of Medicine
- (c) Vijjadhara System of Medicine
- (d) Netkhatta System of Medicine

Desana System of Medicine

As stated above, Myanmar Traditional Medicine currently practiced in Myanmar, has four components and Desana Naya (Desana System of Medicine) is based on Buddhist philosophy with the therapeutic use of herbal and mineral compounds and diet. Desana Naya was invented by U Hmont, royal physician of King Min Dong in 18th century and is the system that is still widely used at present time. In Desana Naya it considers that Human body is an aggregation of mind and matter and it holds that all the inanimate objects in the universe and bodies of living creatures including man composed of the permutation and combination of Mahabhutas (basic elements).

Principle of Desana Naya is defined that all physical phenomena are changed by heat (Ushna) and cold (Sita). Properties and function of Mahabhutas in nature keep on changing their nature continuously by the influence of Kamma (volitional action), Citta (psychological factors), Utu (environmental factors) and Ahara (diet).

The Mahabhutas (basic elements) in nature keep on changing their nature continuously. Therefore physiological function of man has to struggle and adapt continuously. Health can be defined as a state of perfect balance between the Mahabhutas (basic elements) both quantitatively and qualitatively and also Citta (psychological factors).

The diseased state results from a change in the composition, i.e. the balance of the Mahabhutas in man either quantitatively or qualitatively or both. In diagnostic purpose it is divided into eight patterns of syndrome by making analysis of the state of the body and mind. By doing so, It can be ascertained which Mahabhutas (element or elements) are diminished or increased and prescribe accordingly to restore the normal health condition. Therapeutic procedure consists of medication, prescription of diet, exercise and instruction of lifestyle.

Bhesijja System of Medicine

This system is a system of medical based on Ayurvedic medicine but there is somewhat difference in some medical terms, concepts and therapeutic procedures according to culture and environmental conditions.

In this principle, our body is believed as "Sharira" and is composed of the following. Dosas, Sapta Dhatus, Malas, agni, pranrti and Ojah. According to Ayurvedic system, Dosas are responsible for physico-chemical and physiological activities of the body. They are also bio-elements of the body. The diagnosis system is on the basis of equilibrium state of Tri Dosa and disharmony of Tri (three) Dosas.

Vijjadhara System of Medicine

Vijjadhara Naya is a system of Psycho spiritual therapy and metallic medicine. In psycho-spiritual therapy, the TMMp has to recite pali verse which is from Buddhist teachings to ward off evil or harm.

In Metallic medicine, some metals such as gold, silver, mercury, copper, arsenic, yellow orpiment are prepared by ancient alchemy method to get medicine in the form of liquid, powder and philosopher's stone.

Netkhatta System of Medicine

Netkhatta Naya can be defined as medical astrology. The astrological calculations are used to select diet prescription, diagnosis & prognosis of certain diseases and life-expectancy of an individual.

According to this system, the vocation of planets in the universe at the time of one's birth influences the nature of constitution of five elements in his/her body. An individual's health can be calculated on the base of date, time and place of birth.

1.2 National Policy on Traditional Medicine

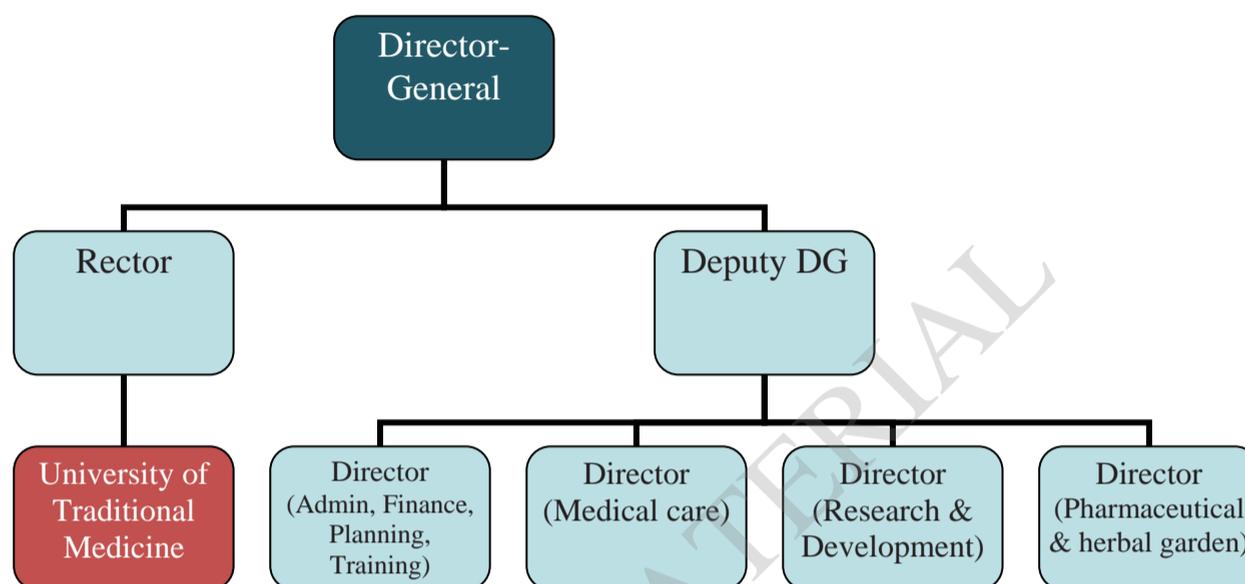
The National Health Policy was developed with the initiation and guidance of the National Health Committee in 1993. The National Health Policy has placed the Health For All goal as a prime objective using Primary Health Care approach.

In National Health Policy 1993, there are 15 items and the item that concerns National Policy on Traditional Medicine is "To reinforce the service and research activities of indigenous medicine to international level and to involve in community health care activities"

1.3 National Authority Responsible for Implementation National Policy, Administrative Mechanism and Organogram

Under the umbrella of Ministry of Health, Traditional Medicine promotion office was established in 1953. It was organized as a division in 1972 managed by an Assistant Director who was responsible for the development of the services under the technical guidance of the State Traditional Medicine Council. It became the focal point for all the activities related to traditional medicine. The Government upgraded the division to a separate Department in August 1989. It was reorganized and expanded in 1998, to provide comprehensive traditional medicine services through existing health care system in line with the National Health Plan. The other objectives of the department are to review and explore means to develop safe and efficacious new therapeutic agents and medicine and to produce competent traditional medicine practitioners.

This is organogram of Department of Traditional Medicine (DTM) under the Ministry of Health.



The set-up and function of DTM can be seen in this diagram, regarding human resource development, medical care by TM, Res & Development and production of TM drug and medicinal plant conservation in gardens.

2. Provision of Traditional Medicine Service

2.1 Integration of Traditional Medicine in the Health Care System

Standing at the threshold of the twenty-first century, the traditional system medicine is playing a significant role in keeping the Myanmar's primary health care system. One unique and important feature of Myanmar health system is the existence of traditional medicine along with allopathic medicine.

In Myanmar, TM has been already integrated into Primary Health Care since 1989. Department of TM is providing health care service through TM as a responsible department, under the Ministry of Health.

2.2 Types of Service Provided

There are providing promotive, preventive, curative and rehabilitative services by the Department of Traditional Medicine for health development of a country. Promotive, preventive, curative and rehabilitative services are provided by various categories of traditional medicine institutions. There are traditional medicine teaching hospitals, Region/State traditional medicine hospitals, Districts traditional medicine hospitals in urban area and Township traditional medicine clinics for both rural and urban people.

2.3 Standards of Service

With the aim of extending the scope of health care services for both rural and urban areas, provision of health care by Myanmar Traditional Medicine services is provided through Myanmar Traditional Medicine hospitals and clinics in all states and regions. All of in-service traditional medicine practitioners have been trained at an Institute of Traditional Medicine and University of Traditional Medicine and they can provide quality assurance medical care. As in the allopathic medicine there are a quite number of private traditional practitioners and they are licensed and regulated in accordance with the provisions of related laws. The practitioners are also trained personnel under department of traditional medicine. Coverage of TMPs population ratio both public and private sectors is 1: 8400.

2.4 Number of Hospitals Providing Traditional Medicine Services

With the aim to extend the scope of health care services for both rural and urban areas by Myanmar Traditional Medicine, three (100) bedded Traditional Medicine Hospitals, three (50) bedded TM hospitals, ten (16) bedded TM hospitals and total number of (237) township Traditional medicine clinics are established.

3. Education and Training, Human Resource and Regulation

3.1 Education, Curricula & Schools or Universities

Before 1976, the knowledge of Myanmar Traditional Medicine was handed down from one generation to another. In 1976, with the aim of preventing unqualified traditional medicine practitioners, the Institute of Myanmar Traditional Medicine was established and systematic training program had been started to produce competent Traditional Medicine Practitioners. It is a three year course conferring Diploma in Myanmar Traditional Medicine .Yearly intake is about 100. The University of Traditional Medicine was established in 2001, using modern teaching learning methodologies in accordance with the systematic curricula, developed by the joint efforts of Traditional Medicine Practitioners and medical educationists.



University of Traditional Medicine in Mandalay

The curriculum covers all the Traditional Medicine subjects of the four Nayas (four systems of medicine used in Myanmar), basic science and basic concepts of western medicine .It is a five year course including one year internship and confers Bachelor of Myanmar Traditional Medicine (BMTM) degree. The yearly intake is 175.

3.2 Training Courses

The University of Traditional Medicine provides the following courses.

(1) Regular BMTM course

The regular course of BMTM was started in 2001 and the degree holders are 1140.

(2) BMTM bridge course

The bridge course of BMTM was started in 2012 and the degree holders are 80.

(3) Master Course of MMTM

The master degree course of MMTM was started in 2012 and the master degree holders are 16.

(4) Introductory Course of Myanmar Traditional Medicine

Introductory Course of Myanmar Traditional Medicine has been introduced to the curriculum of 3rd year M.B, B.S medical students since 2003. A module, comprising 36 hours of teaching and learning sessions of traditional medicine was developed and incorporated together with assessment for completion. A certificate was presented to all successful candidates and the main aim of the courses is to familiarize medical students with Myanmar Traditional Medicine. This is first of its kind where traditional medicine is integrated into western medicine teaching program in the world. Moreover the introductory course of Myanmar Traditional Medicine is provided other government or non-government institution.



Students of University of Traditional Medicine

3.3 Law & Regulation on Traditional Medicine Practices, Licensing System

Government was enacted Myanmar Traditional Medicine Council Law in 2001. The law describes formation, duties and powers of traditional medical council, registration as the traditional medical practitioners and duties and registration of the traditional medical practitioners. According to the law, the licenses for practicing are issued to persons who have diploma in Myanmar Traditional Medicine or Bachelor of Myanmar Traditional Medicine.

3.4 Number of Registered Practitioners and Trained Personnel

There are total 6966 registered traditional medicine practitioners.

4. Traditional / Herbal Medicine

4.1 Manufacturing (Plant Materials Preparation /Harvesting /Raw Material Management), Manufacturers

Traditional Medicines have been manufactured by both public and private sectors. The Department of Traditional Medicine is responsible for manufacturing in the public sector and owns two pharmaceutical factories. In private sectors, raw material management such as plant materials preparation, harvesting and quality control of raw materials are supervised by Township Traditional Medicine Drug Supervisory Committee.

The private Traditional Medicine industry is also developing and undertaking mass production of potent and registered medicines according to the GMP standard. Some private industries are now exporting traditional medicines to neighboring countries. Due to the encouragement and assistance of the government and manufacturing of standardized traditional medicine under GMP, public trust and consumption of TM have greatly been enhanced.

4.2 Production Standard/ Herbal Medicine

Medicines are produced according to national formulary and Good Manufacturing Practice (GMP) standards. These two factories manufacture twenty one kinds of Traditional Medicine powders which are provided free of charge to be dispensed in public Traditional Medicine facilities, and the factories also produce 12 kinds of Traditional Medicine drugs in tablet form for commercial purpose.

4.3 Law & Regulation on Traditional & Herbal Medicine

Government has enacted Myanmar Traditional Drug Law in 1996. The law describes concern with labeling, licensing and advertisement of traditional drugs to consume genuine quality, safe and efficacious drugs. The law also deals with registration and control of traditional drugs and formation of Board of Authority and its functions.

4.4 Products Registration / Licensing

According to the law, all the traditional medicine drugs produced in the country have to be registered and the manufacturer must have a license to produce them. This has been done since 1996 after the promulgation of this law. There are altogether 12712 registered items of drugs and 2578 manufacturers have already got the licenses for production. Good manufacturing Practices are considered before giving license. In the addition, the Department of Traditional Medicine is also involved in the control of advertisement of these commodities.

4.5 Herbal Pharmacopoeia or Monographs / National List of Essential Traditional Medicines

The monographs of Myanmar medicinal plants were being compiled and published in order to disseminate the knowledge of Myanmar Traditional Medicine throughout the world.

5. Traditional Medicine Knowledge Management / Research

5.1 National Research Institute

At the Department of Traditional Medicine, the Research & Development Division provides scientific analysis that involves implementation of research projects such as botanical, chemical, pharmaceutical, pharmacological and clinical investigations on traditional herbal drugs, and routine analysis on traditional drug samples for registration purposes, post-market drug survey and quality control for traditional medicine drug factories. Scientific research and analysis usually target to distribute safe and effective traditional medicines among people.

Scientific research has been continuously carried out at the Department of Traditional Medicine in collaboration with the Departments of Medical Research under the Ministry of Health.

5.2 National Traditional Medicine Textbooks

There are many prescribed books for diploma course, undergraduate course, postgraduate course as national traditional medicine textbooks. Moreover, there are also the ancient traditional medicine books and palm leaf writings.

5.3 Traditional / Herbal Medicine Database

Ministry of Health, Department of Traditional Medicine has established a website namely www.DepartmentofTraditionalMedicine.gov.mm.



Chapter 5 Traditional Systems of Medicine of Nepal

1. Systems of Traditional Medicine, Policy & Administration, National Office

1.1 Systems of Traditional Medicine

Main Stream: Ayurveda System

“Ayu” means *Life* and “Veda” means *scientific knowledge*. In the world when living being emerge and various diseases also originated then Bramha suggested "Hetur, Lingau, Aushadh, Gyanam, Swastha, Atur, Parayanam" to prevent cure the diseases also for longevity.

The necessary components for treatment are "Vishak, Drabya, Upasthata, Rogi. It is mentioned in Atharbaved since 5000 years ago.

Ayurveda is the most ancient medical system based on the herbs, minerals, animals and metals products. Thousands of ancient Ayurvedic manuscripts are found in Nepal.

Ayurveda is an integral part of national medical system and widely practiced in Nepal. More than 75 percent of the population use Traditional Medicine mainly based on Ayurveda Medicine (legal status, WHO, 2001).

Ayurveda medicine is popular because of its efficacy, accessibility, safety and affordability. It advocates simple preventive, promotive and curative aspects for restoring good health.



Dhanwantari - God of Ayurveda and Father of Medicine



Ayurveda services

The basic principle of Ayurveda is Body balance system. Body is made by **VATA, PITTA** and **KAPHA**. The property of **Vata** is similar of electron; **Pitta** means Proton and **Kapha** means Neutron. Vata is movable, Pitta generates heat of body and the solid part of body is Kapha

The system of balance runs through Daivabyapashraya, Satwajaya and Yuktibyapashraya.

Daivabyapashraya

- Spiritual Health

Satwajaya

- Yogabhyas
- Meditation and use of Rasayan & Vajikaran

Yuktibyapashraya

- Diagnosis and treatment is Important
- Interrogation with Patient
- Examination of Patient
- Investigation of Patient

Alternative System: Homeopathy, Unani and Naturopathy

1.2 National Policy on Traditional Medicine

Different policy of government has addressed Ayurveda. e.g. National Constitution 2015, National Health Policy 2014, National Ayurveda Policy 2998.

Ayurveda and other Traditional Health systems

(i) The Ayurvedic system shall be developed in a systematic gradual manner. Organizational structures for different levels shall be prepared separately. In this sector, medicine shall be developed and expanded on the basis of evaluation of quality of services through research.

(ii) Encouragement shall be provided, as far as possible, to other traditional health services such as Unani, Homeopathic and Naturopathy.

(iii) Research and Higher level Human Resources in the Ayurveda sector shall be encouraged.

1.3 National Office Responsible and Administration

There are 3 departments under the Ministry of health and population among them Department of Ayurveda, namely: -

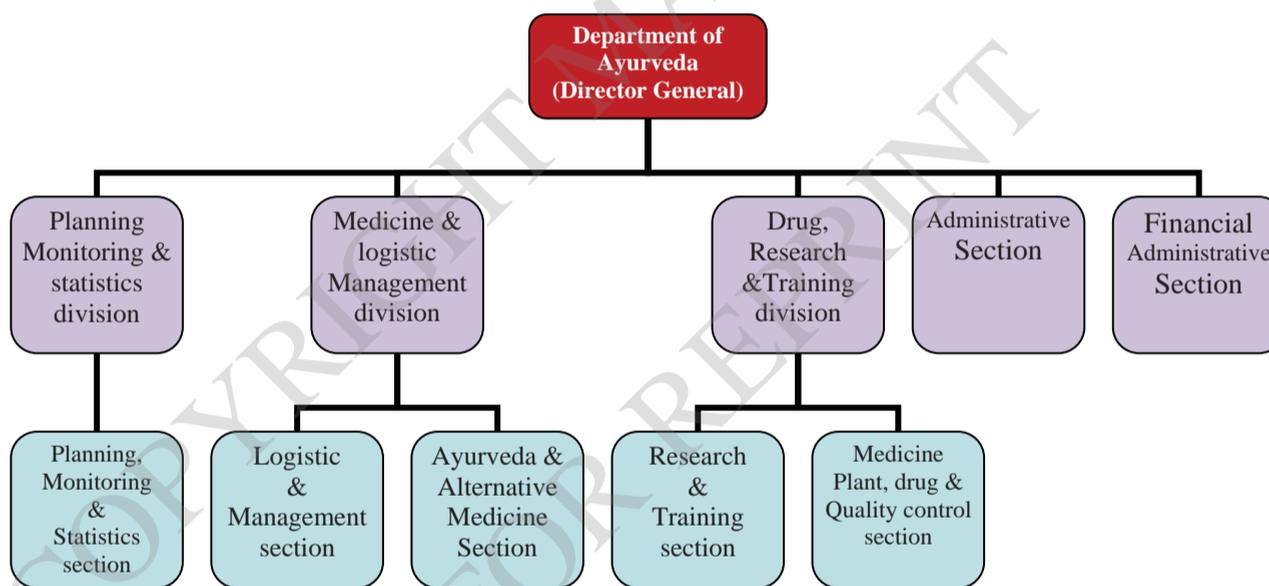
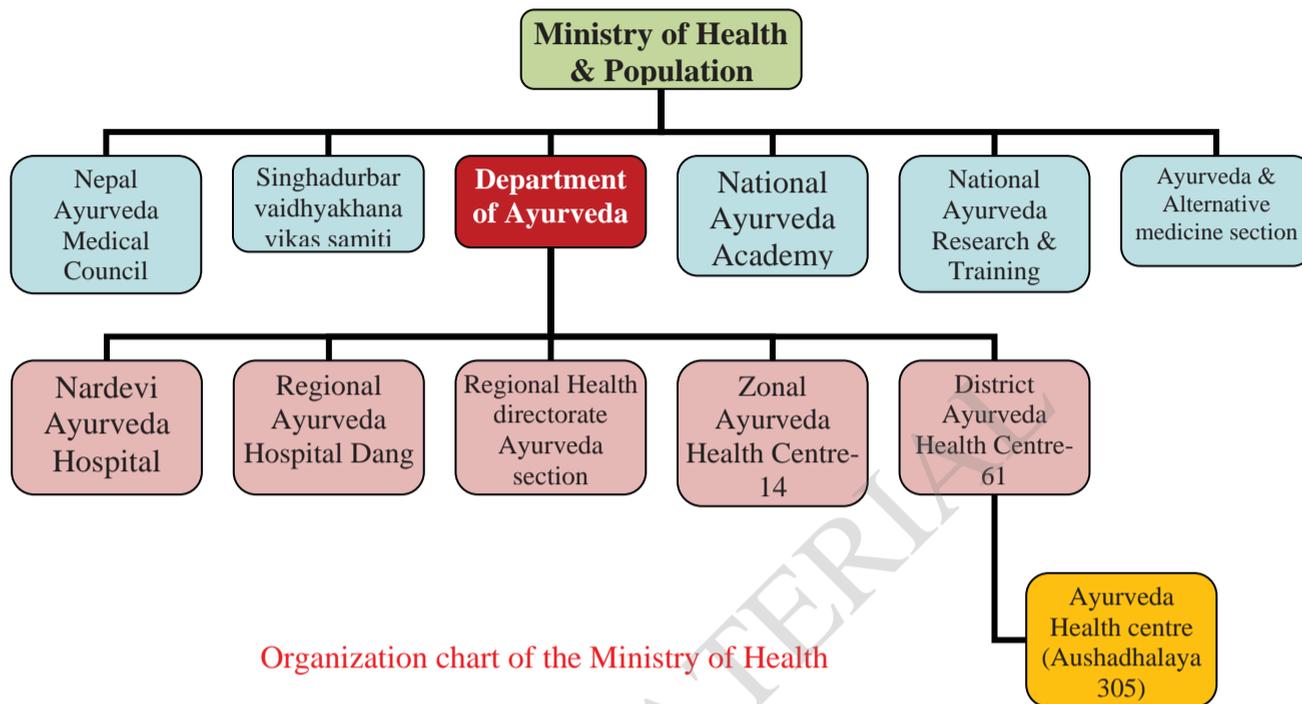
- 1) Department of Health service;
- 2) Department of Ayurveda; and
- 3) Department of Drug administration.

In the ministry of health and population, there is also an unit of Ayurveda and Alternative medicine which regulates traditional medicine related policies.

Department of Ayurveda is responsible body for Traditional medicinal service in Public sector as well as monitor private institutions.



Department of Ayurveda



Followings are on the process to be established.

- 3 Regional Ayurveda Hospitals
- 12 District Ayurveda Hospitals
- 1 National Ayurveda Herberium, Collection & Processing Center
- International Drug Quality Assurance lab & Alternative Medicine Unit in Department of Ayurveda

2. Provision of Traditional Medicine Service

2.1 Integration of Traditional Medicine in the Health Care System

Ayurveda is based on balance theory, so communicable and non communicable diseases going to control, health promotion with preventive, curative and promotive is its provision. National Health Care system is separate from Ayurvedic service. National Ayurvedic medical system is developing an independently as a naturopathic system. In Ayurveda Nepali traditional medicine, specially use herbal drug.

2.2 Types of Service Provided

- (a) Preventive Health - Life style maintaining & healthy behavior, NCD, control
- (b) Curative Health - Emergency care, service in OPD, IPD, through kaya chikitsa (general medicine), Stri & Prasuti (Gyn & obst), Balroga (Paediatric) Rasayan, vajikaran
- (c) Promotive Health- For the purpose of longevity, Balancing all the measure including Vata, Pitta, Kapha.

2.3 Standards of Service

Equivalent to modern medicine in OPD, IPD, Emergency services, Surgery, Gynae etc., there are some separate manner in Ayurveda for pre-operative and post-operative management.

2.4 Number of Hospitals Providing Traditional Medicine Services

Under the Government level

- (a) Ayurveda
 - Central Hospital -1
 - Regional Hospital -1 (3 on the process)
 - Zonal Dispensary -14
 - District Health central -61
 - General Ayurveda Dispensary -305
 - Rural and urban clinic -150
- (b) Homeopathy Hospital - 1
- (c) Unani clinic -1

Private sector

- Ay. Hospital -5
- Ay & Naturopathy Clinic -24
- Acupuncture -3

3. Education and Training, Human Resource and Regulation

3.1 Education, Curriculum & Schools or Universities

There are two types of Manpower in Traditional Medicine: Academic manpower and traditional healers.

Academic manpower:

- (a) Tribhuwan University - Bachelor Level in Ayurveda
- (b) Nepal Sanskrit University - Intermediate in Ayurveda, Bachelor Level in Ayurveda
- (c) CTEVT - Intermediate in Ayurveda

3.2 Training Courses

- (a) Ph.D in Ayurveda after MD/MS three to seven Years.
- (b) Bachelor in Ayurveda - (After I.sc level)- 5½ yrs.
- (c) MD/MS after Bachelor three years.
- (d) Certificate in Ayurveda (After matriculation) - 3 yrs.
- (e) AHW (After matriculation) - 1½ yrs.

3.3 Law & Regulation on Traditional Medicine practice, Licensing system

Law & regulation on TM practice are same as modern medicine. After finishing training course, candidates will be licensed by the Ayurveda Council without examination while the traditional healers can use some herbs for their herbal remedies traditionally, according to their experience.

3.4 Number of Registered Practitioners and Trained Personnel

- (a) Ph.D scholar in Ayurveda - 3
- (b) Master degree in Ayurveda - 42
- (c) Bachelor in Ayurveda -500
- (d) General Health workers -2400
- (e) Traditional healers about -550
- (f) Other cross manpower – 45

4. Traditional/Herbal Medicines

4.1 Manufacturing (Plant Materials Preparation/Harvesting/Raw Material Management), Manufacturer

Manufacturers - Among 56 manufacturers. there is only one government's company that is Singh Durbar Baidhyakhana.

4.2 Production Standard/Quality Controls

- (a) Department of Ayurveda
- (b) Department of Drug Administration
- (c) Both

4.3 Law & Regulation on Traditional & Herbal Medicine

They are same as modern medicine as well as classical references or text books.

4.4 Product Registration/Licensing

Department of Drug Administration takes the responsibility of drugs registration.

4.5 Herbal Pharmacopoeia or Monographs/National List of Essential Traditional Medicines

National list of essential traditional medicines provided by Department of Ayurveda in these current situations.

5. Traditional Medicine Knowledge Management/Research

5.1 National Research Institute

- National Ayurveda Research and Training Center
- National Research Laboratory is in process

5.2 National Traditional Medicine Textbooks

Atharvaveda, Chandra Nighantu, Kashyapa shamhita, Himali Charak Dharvaygun Bigyan (CD), etc.

There are 550 traditional medicinal plants in *Chandra Nighantu* which had been mentioned since 2500 years ago.

5.3 Traditional/Herbal Medicine Database

Database is not available now.



Chapter 6 Traditional Systems of Medicine of Sri Lanka

1. Preamble

Sri Lanka is a country of rich heritage, one of which is its indigenous system of Medicine, which has been practiced by the people since time immemorial. Sri Lankan indigenous system of Medicines consists of the Ayurveda system of medicine which came from North India, the Siddha system of medicine from South India, the Unani system of medicine of Arabs, Homeopathy which originally came from Germany and Traditional Medicine system owned by traditional medical practitioners which is also called Desheeya Chikitsa.

Sri Lanka is well known for practising nature-friendly treatment methods of indigenous Medicine system. The Western world has shown great interest towards nature-friendly treatment methods practised in the country and that has made the country a preferred destination among International communities.

Hence, the traditional health system in Sri Lanka existed for more than 5000 years and is being enriched with other medicine systems referred to the above. Therefore, Indigenous System of Medicine in Sri Lanka has its own identity. Desheeya Chikitsa is mainly about the balance within our bodies, and describes a complete system for restoring, maintaining and enhancing health, advocating the use of natural healing methods tailored to the individual - such as diet and life style changes. Treatment may also involve a variety of herbal remedies made according to lore handed down from ancient times. The glorious history that Sri Lankan Ayurveda enjoys in the country is not only due to its perfection through the years but Sri Lankan Ayurveda is made unique because of the distinctive culture and environment prevalent in the small island nation.

Historically Ayurvedic physicians enjoyed a noble position in the country's social hierarchy due to their royal patronage. It is said that many of the ancient kings dedicated their services to the development of Ayurveda medicine in Sri Lanka. King Buddhadasa was himself a renowned physician skilled in general medicine, surgery, midwifery and veterinary medicine. His expertise was sought far and widened by those from all walks of life. The King faithfully and dutifully attended to each of those in need. The King Aggabodhi the 7th even went to the extent of undertaking extensive research pertaining to medicinal substances across the island. King Parakramabahu was also well versed in medicine and helped qualified physicians practice their skills by providing them with due maintenance.

Evidence unearthed at historical sites speaks of the ancient practices of Ayurveda across Anuradhapura, Polonnaruwa, Madirigiriya, etc. The only structural remains of ancient hospitals that have so far come to light are those established in the old monasteries of Mihintale, Madirigiriya and Alahana in Polonnaruwa. The identity of those hospitals has been established with the help of inscriptions and discovery of medicine and other equipment.

The 9th Century Mihintale hospital which has the distinction of being the oldest hospital yet discovered in any part of the world was a complex structure. The hospital, believed to have been

founded by King Sena the 2nd comprised of an outer court which was used for the preparation and storage of medicine as well as the hot water bath whilst the inner court rooms appears to have been where patients were treated.

Excavations at medieval hospital sites in Sri Lanka have revealed stone medicine troughs, querns for grinding medicine, and medical equipment.

2. Systems of Traditional Policy and Administration, National Office

Indigenous System of Medicine in Sri Lanka suffered and was neglected during the period of colonial domination. As a result, it lost its due recognition in the community and instead the Western medical practice became dominant in the national health care system. However, the government of Sri Lanka established a separate Department for the revival of the indigenous medical system and the Ayurveda under the Ministry of Health, and thereby ensured the survival of these medical systems. Next important landmark was the enactment of Ayurveda Act. In 1961 which accepted indigenous system of medicine as a parallel system of medicine in the health care of the population. The Ministry of Health was re-named the Ministry of Health and Indigenous Medicine. Later in 1980, the Ministry of Indigenous Medicine was established as an independent Ministry. The next most important development was the creation of a separate Cabinet ministry on 19th Oct. 2000 for the promotion or indigenous medicine. The Ministry of Indigenous Medicine was started to be headed by a Cabinet Minister and a Deputy Minister. The responsibilities of the Ministry were the following;

1. To deliver a healthy nation by the use of the indigenous system of medicine and the Homoeopathic system of medicine;
2. To preserve and promote the Traditional System of Medicine;
3. To step up cultivation of medicinal crops and production of Ayurvedic medicinal drugs;
4. To develop Tourist Industry by boosting up the Ayurvedic Medical Practices
5. To promote the Homoeopathic Medical System

Role of the Ministry

The role played by the Ministry of Indigenous Medicine for realization of the Vision and the Mission of the Ministry can be spelt out as follows:

1. Policy Planning and implementation of programmes on Indigenous Medicine;
2. Development of the Ayurveda, Siddha and Unani medical systems;
3. Importation, marketing and distribution of medicinal drugs required for the Ayurveda, Siddha and Unani medical systems, both in raw form and as finished products;
4. Regulation of exportation of medicinal herbs and finished products of Ayurvedic, Siddha and Unani medicinal drugs, promotion of cultivation of medicinal herbs and extension of the related activities;
5. Administration of the Ayurvedic Research Institute and the Training Institute, and maintenance and promotion of the Herbal Gardens;
6. Registration of Ayurvedic medical professionals and Ayurvedic paramedics, and regulation of their professional standards;

7. Regulation of the activities of the Ayurvedic Medical Council, educational activities, activities of the Hospital Boards, activities of producers of Ayurvedic medicinal drugs, and establishment and management of Homoeopathic medical systems.

Government commitments to develop the traditional medicine

At the two day International Conference on Traditional Medicine for South -East Asian Countries that was held in New Delhi in February 2013, the Delhi Declaration was announced by the Ministers of Sri Lanka, India, Bangladesh, Nepal, Bhutan as well as WHO representatives and experts from different parts of the world attended the Conference. The spirit behind the Delhi Declaration is to foster development of traditional medicine across the region and to share with each other the expertise, technologies, best practices and to extend support and cooperation on the basis of mutual interests and needs.

In January 2015, by the Gazette notification No. 1897/15, JANUARY 18, 2015, the Ministry of Health and the Ministry of Indigenous Medicine were merged into a single ministry called Ministry of Health and Indigenous Medicine. Since then, the Ministry of Health and Indigenous Medicine is the central government ministry of Sri Lanka responsible for health. The ministry is responsible for formulating and implementing national policy on health, nutrition, disease prevention, indigenous medicine and other subjects which come under its purview. Under the Constitution of Sri Lanka provincial councils are responsible for running public hospitals but some hospitals, known as line ministry hospitals, are the responsibility of the Ministry of Health in Colombo. The current Minister of Health and Indigenous Medicine and State Minister of Health are Hon. Rajitha Senarathne and Hon. Hasen Ali respectively. The ministry's secretary is Dr. D. M. R. B. Dissanayake.

Duties and functions of the Ministry

Formulation of policies, programmes and projects in regard to the subjects of Health, Nutrition, Disease Prevention and Indigenous Medicine and all subjects that come under the purview of Departments, Statutory Institutions and Corporations are regulated by the Ministry. Registration of Ayurvedic product manufacturers, Ayurvedic Practitioners and Ayurvedic paramedical personnel, Establishment, operation and promotion of Ayurvedic Hospitals, Ayurvedic Research

Institutes, Training Institutes and Pharmacies, Regulation of Ayurvedic drug manufacturers are some other functions of the Ministry. The Department of Ayurveda is the responsible body to implement the policies.

Department of Ayurveda

The Department of Ayurveda which was incorporated under the Ayurveda Act No. 31 of 1961 functions under the administration of the Commissioner of Ayurveda and in addition to the head office of the Department, administrative functions are carried out by several subordinate institutions. They are:

- 1) Head Office
 - a. Establishment and administrative division
 - b. Accounts Division
 - c. Technical Division
 - d. Development Division
 - e. Examinations Division

- 2) Bandaranaike Memorial Ayurveda Research Institute, Nawinna
- 3) National Institute of Traditional Medicine
- 4) Ayurveda Teaching Hospital, Borella
- 5) Ayurveda Teaching Hospital, Kaithady
- 6) Gampaha Wickremaarachchi Ayurveda Teaching Hospital, Yakkala
- 7) Ampara Ayurveda Hospital
- 8) Ayurveda Hospital, Manchanthuduwa
- 9) Siddha Medical Teaching Hospital, Trincomalee
- 10) Chamal Rajapaksa Ayurveda Research Institute, Hambantota
- 11) Herbal gardens of the Department
- 12) Ayurveda Medical Council
- 13) Ancillary committees
 - a. Ayurvedic Medical Council
 - b. Ayurvedic Education and Hospital Board
 - c. Ayurveda Research Committee
 - d. Formulary committee

The following are the major functions expected to be carried out by the Department. Subject to the availability of moneys granted from the Consolidated Fund of Sri Lanka, the Department shall be responsible for carrying out the following objects:

- (a) the provision of establishments and services necessary for the treatment of disease, and generally for the preservation and promotion of the health of the people according to Ayurveda;
- (b) the encouragement of the study of, and research in, Ayurveda by the grant of scholarships and other facilities to persons employed or proposed to be employed in the Department and by the grant of financial aid and other assistance to institutions providing courses of study or engaged in research in Ayurveda; and
- (c) the taking, development or encouragement of measures for the investigation of disease, and for the improvement of public health, according to Ayurveda

In addition, the role of the Department of Ayurveda has been extended towards various development and welfare measures in keeping with the needs of the hour.

Ayurvedic Medical Council

Indigenous Medical board established in 1927 on a recommendation made by a Sub Committee of the State Council of 1927 was the first legally authorized establishment in the Sri Lankan Ayurvedic field. Subsequently, the Ayurvedic Medical Council was established in terms of the Ceylon Ayurveda Medical Council Ordinance No. 46 of 1935 was re-established under the provisions of the Indigenous Medical Council Ordinance No.17 of 1941 (amended by No.49 of 1945 and No.49 of 1949). The Ayurvedic Medical Council functioning now is an organization established under the Ayurveda Act No.31 of 1961.

Purpose

Confer the legal authority on professionals who have the knowledge, attitudes and skills and experience necessary to provide qualitative services in the field of Ayurveda in accordance with the provisions of the Ayurveda Act No.31 of Sri Lanka.

Objectives

1. To enforce the powers conferred to the Council in accordance with the provisions of the Ayurveda Act
2. To determine and maintain standards/criteria to uplift professional competency in the field of Ayurveda
3. To implement ethics and standards required for the systematic maintaining of the conduct of the Ayurveda professionals
4. To determine and control the professional conduct in the field of Ayurveda
5. To improve the performance of the Ayurveda Medical Council by updating its resources and facilities

Introduction and role of the Ayurvedic Medical Council established under the Ayurveda Act No.31 of 1961

The role of the Ayurvedic Medical Council is as follows:

- a. To make recommendations to the Minister as to whether any institute of teaching Ayurveda should be approved by the Minister for the purposes of the Act,
- b. To register names of persons as Ayurveda Practitioners,
- c. To register names of persons as Ayurveda Dispensers,
- d. To register names of persons as Ayurveda Nurses
- e. To cancel or suspend such registrations
- f. To make regulations for regularization and control of professional behavior of Ayurvedic physicians, Ayurvedic dispensers and Ayurvedic nurses for any matter referred to from (a) to (f) in this section
- g. To investigate public complaints made against registered Ayurvedic physicians.
- h. To investigate institutional complaints made against registered Ayurvedic physicians
- i. To receive Ola books belonging to families of hereditary physicians for conservation
- j. To gather information about registered hereditary Ayurvedic physician and their special medical practices

In 2011, the Ayurvedic Medical Council implemented the following subcommittee and workshops, i.e.

- Examination Management Board - “ Standing sub committee
- Committee on Punitive Measures - “ Standing sub committee
- Professional development workshops

3. Provision of Traditional Medicine Service

Indigenous system of Medicine has also proven to be highly effective against Non Communicable diseases. This is mainly due to the fact that the practice at its root, is holistic: It never loses sight of the situation as a whole and is therefore able to address the root cause of the disease and bring about a balance that counteracts the Non Communicable Disease.

In its own terms, expertly practiced Ayurveda can definitely yield reliable, effective results when applied to all manner of chronic diseases. This theory is based on the concept of ‘Tri-dosha’ or

the three doshas, namely, - Vata, Pitta and Kapha, and their role and balance in various physical activities within our body.

There are many secrets behind the holistic power that Sri Lankan Ayurveda possesses. Firstly it is based on the belief that health and wellness depend on a delicate balance between the mind, body and spirit. The primary focus of Ayurvedic medicine is to promote good health, rather than fight disease. Secondly the remedies go hand in hand with the natural balance of Mother Nature and, thirdly the practices have been perfected through centuries.

There are 07 Teaching Hospitals attached to different Universities to train undergraduates and Research Hospitals administered by the Department of Ayurveda;

1. Ayurvedic Teaching Hospital, Borella
2. Siddhayurveda Teaching Hospital, Kaithady

This is the Ayurveda Hospital for providing residential and OPD curative services to patients in the Northern region. It also makes available opportunities for administrative training for the students of the Siddha University, Jaffna.

3. Wickramarachchi Ayurvedic Hospital, Gampaha
4. Ayurvedic Research Hospital, Navinna
5. Ayurvedic Research Hospital, Manchanthudai
6. Ayurvedic Research Hospital, Ampara
7. Siddha Medical Teaching Hospital, Trincomalee

There are 67 hospitals operating under Provincial councils. In addition Central Ayurvedic Dispensaries in the country are 211. In addition, there are 231 Free Ayurvedic Dispensaries operating across the island.

Table1. Provincial institutions offering Ayurvedic Services under the direction of the Ministry of Indigenous Medicine

Administrative Unit	Ayurvedic Hospital	Ayurvedic Central Dispensaries
Provincial Department of Ayurveda, Western Province	09	16
Provincial Department of Ayurveda, Sabaragamuwa Province	09	10
Provincial Department of Ayurveda, Uva Province	03	20
Provincial Department of Ayurveda, Central Province	09	21
Provincial Department of Ayurveda, North Central Province	07	30
Provincial Department of Ayurveda, Eastern Province	05	40
Provincial Department of Ayurveda, Northern Province	06	18
Provincial Department of Ayurveda, Southern	09	25

Province		
Provincial Department of Ayurveda, North Western Province	10	31
Total	67	211

4. Implementation of Community Health Promotion Programmes

Community Health Promotion Programme of Anuradhapura

There are 324 Community Medical Officers (CMO) working for Provincial Community base health service. In addition about 300 Assistant Community Medical Officers were upgraded to COMs in August 2014 with a view to strengthen the Community Health Service as grass roots level.

The Community Health Promotion Programme of Anuradhapura has been in operation since the year, 2005, and its main objective is to enhance the health status of the people through awareness creation and raising their living standards thereby. This programme is in implementation covering 22 Divisional Secretariat areas of the District of Anuradhapura.

5. Education and Training, Human Resources and Regulations

Institute of Indigenous Medicine

The sense of traditional healing, wellness and all round care which was practiced many years ago is still taught and inculcated in all Ayurvedic physicians in Sri Lanka.

The Institute of Indigenous Medicine of the University of Colombo is one of the Higher Educational Institutes in Sri Lanka that provides instructions in Indigenous systems of medicine. The origin of the Institute dates back to 1929 with its commencement as the Government College of Indigenous Medicine. The Government College of Indigenous Medicine was elevated to the status of a Higher Educational Institute in 1977. Its Academic programmes are regulated by the University of Colombo. The Institute is governed by a Board of Management vested with powers, duties and functions in respect of academic, administrative and financial matters set out in terms of provisions of the Institute of Indigenous Medicine Ordinance No. 7 of 1979.

The IIM offers two degree programmes; Bachelor in Ayurveda Medicine and Surgery (BAMS) and Bachelor in Unani Medicine and Surgery (BUMS). Annual intake to both programmes is approximately 200. It also offers an MD programme, Postgraduate programmes leading to Master of Philosophy in Ayurveda/ Unani Medicine, postgraduate Diploma programme in Ayurveda and Unani Medicine by course work.

Gampaha Wickramarachchi Ayurveda Institute (GWAI)

The Gampaha Sri Siddhayurveda Medical School upgraded to Gampaha Wikkramarachchi Ayurveda Institute in 1995, affiliating to the University of Kelaniya. Gampaha Wickramarachchi Ayurveda Institute (GWAI) is one of the two University institutes of Ayurveda education in Sri Lanka. Currently the Bachelor of Ayurveda Medicine and Surgery (BAMS) degree programme is conducted by five departments of study, namely the Department of Ayurveda Basic Principles, Department of Dravyaguna Vinyana, Department of Shalya Shalakya, Department of Kaumarabhritya and Stree Roga and the Department of Cikitsa. Further the institute provides the facility for Ayurveda graduates to

upgrade their administrative and academic capabilities by conducting Master, Postgraduate Diploma and Certificate courses. Annual undergraduate student intake is about 120.



Mission of the hospital

Providing curative services for patients using Ayurveda and indigenous systems of medicine, educating people on good food and life practices for sustaining a good health

Sidda Unit, University of Jaffna

Number of students admitted annually are about 25.



Siddha Medicine Unit, Trincomali campus, Eastern University of Sri Lanka

The new discipline Bachelor of Siddha Medicine and Surgery (BSMS) Degree Course was introduced from 2008/2009.



National Institute of Traditional Medicine (NITM)

The National Institute of Traditional Medicine (NITM) was established to Human Resource development in Traditional Medicinal Systems with public in 1984. Accordingly, the NITM is mainly involved in updating the knowledge of traditional practitioners.

Mission of the Institute

Steering the institutional resources towards the expansion of an active, optimally communicative human society, utilizing the investigative, traditional Ayurveda medical knowledge and

innovative technological know-how, developing knowledge, attitude and skills of the of the indigenous medical and supplementary medical services

Siddha Teaching Hospital- Kaithadi

This is the Ayurveda Hospital for providing residential and OPD curative services to patients in the Northern region. It also makes available opportunities for administrative training for the students of the Siddha University, Jaffna.

There are 4 beds in this hospital with 30 beds and another 30 beds in the maternity ward. The OPD was opened on 02.10.1978 and was opened for public on 02.10.1978. Five wards of the Kaithadi which were destroyed during the 30 years of brutal war were renovated and vested with the people.

Hambantota Chamal Rajapaksa Ayurveda Reserch Hospital

The hospital was constructed by the Southern Province Rural Economic Promotion Project under the program to rebuild the areas devastated by the Tsunami. The project which cost Rs.110.05 million was funded by the Asian Development Bank. The work was completed ion 30.09.2010 and handed over to the Department on 31.10.2010. Since then it functions catering to the people of the area.

6. Traditional/Herbal Medicine

Sri Lanka is world renowned for its valued spices and healing herbs. Around 104 Ayurveda drug manufacturers have registered with the Department of Ayurveda for the production of traditional drugs. In addition to this most of the traditional physicians prepare the medicines by themselves that they need for their patients who visit their clinic. About 1500 species of medicinal plants are used in Sri Lanka and 208 of them are frequently used. The knowledge of the people about many hereditary medicinal plants is very poor. These are the problems in identifying the medicinal value of the so used 208 species of medicinal plants.

Research Herbal Gardens

The Department of Ayurveda is the key public sector institution responsible for propagating Ayurveda system of medicine among people, started establishing herbal gardens covering all ecological regions of the island in 1964.

The number of herbal gardens established by the Department so far is 6.

1. Nawinna - Herbal Garden at Bandaranaike Memorial Ayurveda Research Institute
2. Giradurukotte - Herbal garden
3. Pattipola - Kandulesiya herbal gardens
4. Pallekele - National research herbal garden
5. Haldummulla (Bathgoda) - Malitha herbal garden
6. Pinnaduwa

Functions performed by herbal gardens

- Supplying medicinal herbs and the required instructions in establishing herbal gardens in schools, temples and other public sector institutions.
- Selling herbal plants at herbal gardens
- Dedicated centers in herbal gardens to impart knowledge on herbs, cultivation and conservation.

Table2. Extent of Herbal gardens

Gardens	Cultivated acres
Haldummulla	65
Girandurukotte	165
Pattipola	25
Pallekele	05
Navinna	15

Ayurvedic Research Medicinal Plants Garden, Haldummulla

Haldummulla Ayurvedic Herbal Research Medicinal Plants Garden is located in, in the Badulla District of Uva Province. This Herbal Research Medicinal garden is run under the Department of Ayurveda, of the Ministry of Health and Indigenous Medicine. Its extent is about 65 acres.

Indigenous medical practitioners should collect particulars and arrive at a decision in this connection. If these types of cultivation projects are implemented to establish national level medicinal plants garden to preserve ancient medicinal plant gardens and to propagate medicinal plant cultivation.

7. Traditional Medical Knowledge Management

The World Health Organization (WHO) defines traditional medicine as “the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses”

Government of Sri Lanka recognizes the importance and value of traditional knowledge in all the fields of human endeavour and the necessity to promote the protection, development, conservation and preservation of traditional knowledge. On the other hand, traditional medical knowledge faces an increased attention worldwide in light of global health care demand and the significant role of traditional medicine in meeting the public health needs of developing countries.

Database for traditional knowledge in public domain

Document on a legal framework for the protection of traditional knowledge in Sri Lanka highlights the following:

1. The Director General of Intellectual Property shall establish and maintain a database containing Traditional Knowledge in public domain. The Director General of Intellectual Property shall have direct access to it in discharge of his duties. Any other state office shall have access to the data base in discharge of his duties under any law with the concurrence of the Director General of Intellectual Property
2. The Commissioner for Ayurveda and other concerned government agencies shall identify, collect and transmit such knowledge to the Director General of Intellectual Property to be included in the database.
3. The Minister may make regulations with regard to the content, maintenance, management and all other matters relating to the data base.
4. The Director-General of Intellectual Property may also create digital libraries and other records of traditional knowledge as may be prescribed by the Minister.

Research on Indigenous Medicine

Bandaranayke Memorial Ayurvedic Research Institute (BMARI)

Commitment of the Government - History of the Institute

The Executive Committee of Health in 1936 recommended the establishment of an institute for research in indigenous Medicine. Through the recommendation received the approval of the state council nothing was accomplished. In 1947 the Guptha Commission deplored the lack of facilities for research and recommended the steps to be taken. Unfortunately these recommendations were not implemented either.

This situation stood in contrast to the position in India where much useful work was done in the field of research at Calcutta, Madras and Luknow. The question was brought into focus again in 1956 when the well known Ayurvedic journal in India 'Nagarjuna' Commented editorially on the need for the establishment of an Ayurvedic research Institute in Sri Lanka.

The late Mr. S.W.R.D. Bandaranaike the prime Minister, directed Pandith Shiva Sharma an eminent Ayurvedic Physician from India who was in Colombo in connection with writing a report on the development of Ayurveda in Sri Lanka, to work on the idea advanced in 'Nagarjuna'. The recommendation of Pandith Shiva Sharma that the research institute at Navinna was set up. It was named as Bandaranaike Memorial Ayurveda Research Institute. The place selected for housing the research institute was spacious and valuable building standing on a land of 17 acres in extent on the Old Kottawa Road, Nawinna, Maharagama.

The Research Institute was ceremonially declared open by Pandit Jawaharlal Nehru the Prime Minister of India on the 14th October 1962. The entire expenditure on the Research Institute was met from the Hospital Lotteries Fund. A library, a pathological laboratory and a model herbarium were started to aid the work of the Institute.

In achieving national health goals, Bandaranayke Memorial Ayurvedic Research Institute has much to contribute in improving health of the Nations of the country. The concept of Integration of medicine systems is the most acceptable approach and the most efficient tool in the context of Today's healthcare philosophy. Indigenous medical researchers and researchers of other medicine systems are important contributors but will become more efficient when they collaborate with each other. Further, mainstream research can make substantive contributions if the related enforcement Institutions take initiatives to facilitate the integration of these medicine systems into a meaningful structure and subsequently to transfer the knowledge or/and benefits to the needy stakeholders.

The BMARI will strive to achieve following objectives within the period from 2013-2017,

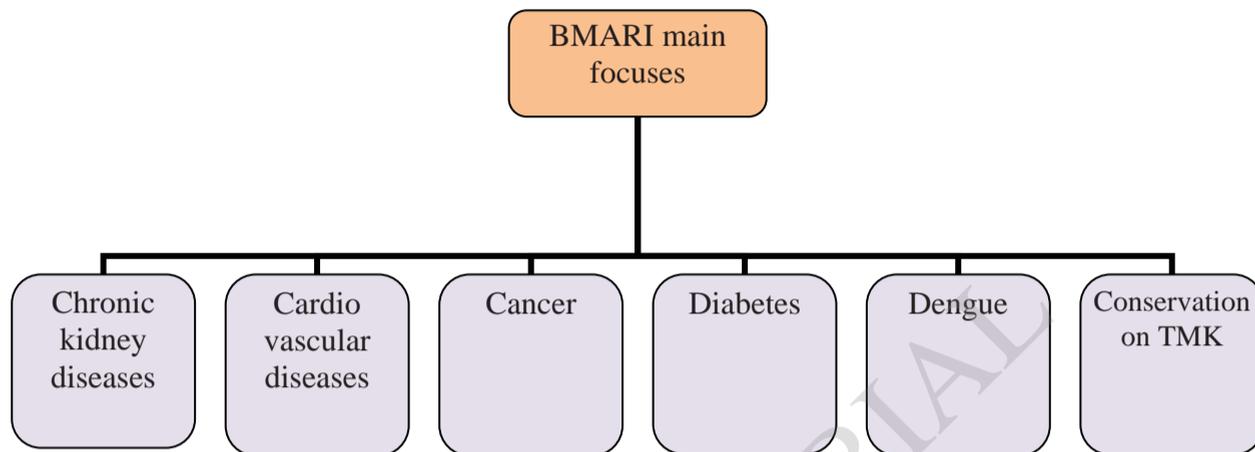
Objective 1: Organizational capacity strengthened

Objective 2: Scientific collaborative Health research to improve the health status of Sri Lanka carried out

Objective 3: Rational transfer of research outcomes or/and products developed

Objective 4: Pharmacopeias for medicine systems periodically updated jointly with Department of Ayurveda

Main focuses of the Institute

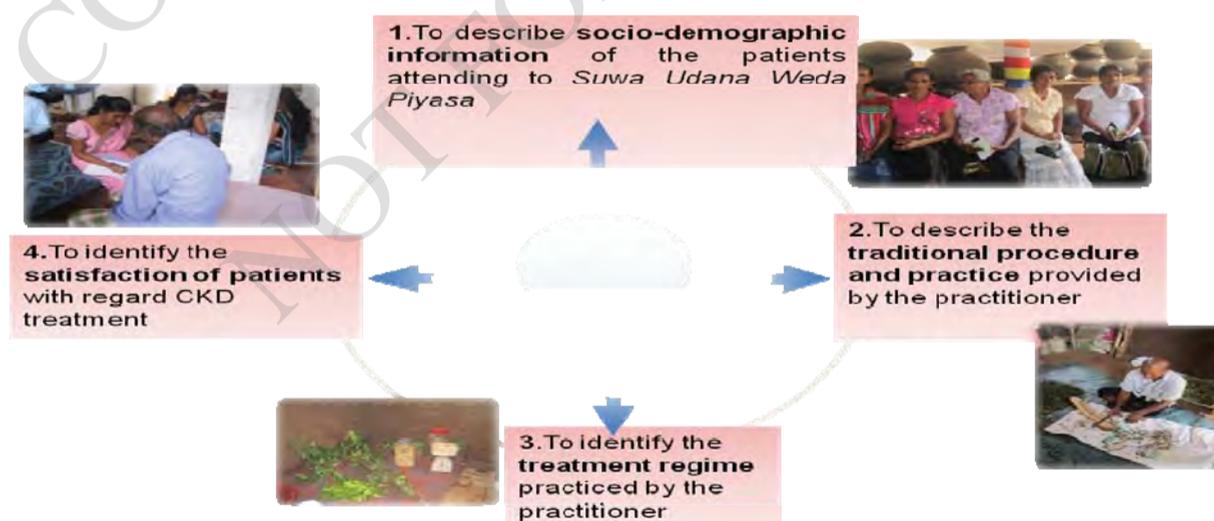


Ongoing research works; Collaborative research, Institutional study, Work with external Institutions

Collaborative research

- Efficacy of a herbal drug on the levels of serum creatinine - A Cell line study - Collaboration with Faculty of Medicine, University of Peradeniya
- Assessment of the Treatment Procedure and Practice carry out by Elayapattuwa Traditional Practitioner for Chronic Kidney Disease- Collaboration with Faculty of Medicine & Allied Sciences, Rajarata Uni of SL
- A Comparative Pharmacological Study to Assess Aristolochic acid levels in Raw Materials and Manufactured Herbal Internal Preparations in Traditional Medical System in Sri Lanka. Collaboration with Dept. of Chemistry, University of Sri Jayawardhanapura
- A randomized controlled study to evaluate the effect of Ayurvedic Management of Chronic Kidney Disease (CKD). A Clinical Research Collaboration with Faculty of Medicine, University of Peradeniya

BMARI Close work with Traditional Practitioners





Dr. S.S Gunawardhana.
25th -26th SEP. 2013



Dr. Maheepaala Gamage
13th Oct 2013



Kaviraj B. Kolambage
13th Oct 2013

The BMARI Library is a rich source of information including Ola leaf and many books, journals, newsletters are published by various institutes dealing with traditional medicine. Most of the publications are in Sinhalese (e.g. Samarpana - BMARI, Mehewara - NITM, Ayurveda Udanaya - NITM, Ayurveda Sameeksha - Dept. of Ayurveda, Ayurveda Pradeepica - Dept. of Ayurveda, Ayurveda Udanaya - Dept of Ayurveda, Athbehet - Dept. of Ayurveda, Compendium of Medicinal Plants - A Sri Lankan study, Dept. of Ayurveda Deepani publication, Sri Lanka Aushada palate, Talpat piliyam and Osuturu visuturu).

In addition to these publications, there are thousands of Ola leaf publications in the possession of Traditional Practitioners, Professionals, Institutes and different individuals.

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Chapter 7 Traditional Systems of Medicine of Thailand

1. Systems of Traditional Medicine, Policy & Administration, National office

1.1 Systems of Traditional Medicine

Systems of traditional medicine available in the public health service facilities are Thai traditional medicine (TTM) and acupuncture of traditional Chinese medicine (TCM). The practitioners who provide TTM services in the health care system are licensed practitioners of Thai traditional medicine or applied Thai traditional medicine, while medical doctors trained in acupuncture are health care personnel who provide acupuncture for patients, not licensed TCM doctors as there are no government official positions for TCM doctors yet.

1.2 National Policy on Traditional Medicine

Based on the policies of the **Public Health Minister B.E. 2557 (2014)**, the national policy on traditional medicine is to strengthen health services systems to be widely accessible by all people in Thailand by support integration of traditional medicines and complementary medicines into universal health coverage scheme. In addition, the **Family Care Team project** which is aimed to provide the healthcare services covering all households in the cities and rural areas was established. The Family Care Team includes the medical teams of which are doctors and staffs from the local tambon (sub-district) health promotion hospitals, the local communities, district public health offices, community hospitals, central hospitals and general hospitals.

The main strategic frameworks under the **Department of Thai Traditional and Complementary Medicine (DTTCM)** are as follows;

1. Thai Traditional Medical Service Plan

With the rising trends in TTM services in the UCS (the Universal Health Coverage Scheme), various policies and strategies have focused on medical care with the integration of Thai traditional medicine (TTM), indigenous medicine (IM), and alternative medicine (AM) (TTM/IM/AM), getting prepared Thailand being a medical hub of Asia. The main objective is to encourage the integration of the traditional medicine services at the out-patient department (OPD) alongside the modern health services in hospitals. The services of the TTM practice are as follows:

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 care and post-natal care using TTM practices such as herbal steam bath and post-partum lying in by a fire (*yoo-fai*).
4. Thai therapeutic massage services (Nuad Thai) including massage therapy, giving advice on exercise, traditional stretch exercise (*ruesi dadton*), herbal compress, or hot/cold compression, and massage for health promotion.

2. Administrative Reform

The ten-year strategic plans (2016-2026) of the Thai traditional and alternative medicines have been arranged. The administrative management and the organization systems have also been restructured including the revision of rules and regulations. The development of TTM services in 12 regional service providers throughout Thailand are noteworthy reported.

3. Herbal Product Plan

The aims are to promote self-reliance regarding local medicinal plants in the communities to be sources for their sustainable use and also encourage to grow organic agricultural economic. This includes the improvement of the raw material quality based on the good agricultural practice. In order to get the quality herbal products, the efforts to enhance the standard of manufacturing system such as ASEAN GMP in the potential hospitals have been made to control product's quality.

4. Thai Traditional Medical Academic Plan

Human resources management and development (HRM/HRD) among TTM/IM/AM practitioners are vital for the organization which DTTCM continually engage in policy making. The development of the research in traditional and alternative medicines results in the excellence center and also leads to the increment of the new knowledge to improve the quality of people's life. The Thai Traditional Medicine Profession Act was published in the Royal Gazette on 1 February 2013. DTTCM helped in the election of the members of Thai Traditional Medical Council Commission which led to the establishment of the First Thai Traditional Medical Council Commission and the start of the function of Thai Traditional Medical Council, i.e. the issuing of council regulations, licensing examination.

5. Protection and Promotion of Thai Traditional Medicine Knowledge and Herbs

The Protection and Promotion of Thai Traditional Medicine Knowledge Act B.E. 2542 (1999) stated that the DTTCM has the duties to compile the information about TTM knowledge, Thai drug recipes, TTM treatises from all over the country for the purposes of preparing the registration of the information. The conservation and protection of herbs and their origins is also applied.

1.3 National Office Responsible and Administration

Department of Thai Traditional and Complementary Medicine (DTTCM), is the national authority in charge of the development of TTM/IM/AM of the country. DTTCM'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.

DTTCM has the following authorities and duties:

- (1) Undertake actions prescribed in the Protection and Promotion of Thai Traditional Medicine Knowledge Act B.E. 2542 (1999) and other relevant laws
- (2) Conduct research and development (R&D) of knowledge and technology related to TTM/IM/AM

- (3) Set and develop quality/standards and make recommendations for consumer protection in relation to TTM/IM/AM
- (4) Transfer knowledge and technology related to TTM/IM/AM
- (5) Develop models for promoting and supporting the integration of TTM/IM/AM services into the health service system
- (6) Develop systems and mechanisms for enforcing laws under its responsibilities for the benefit of the government and the people
- (7) Compile, conserve, monitor, protect and promote TTM/IM/AM knowledge in Thailand and abroad
- (8) Coordinate the collaboration in TTM/IM/AM and traditional Chinese medicine (TCM) in Thailand and abroad
- (9) Perform other duties specified as DTTCM's duties, or as assigned by the Minister or the Cabinet



Department of Thai Traditional & Complementary Medicine, Ministry of Public Health

2. Provision of Traditional Medicine Service

2.1 Integration of Traditional Medicine in the Health Care System

After the National Health Security Act was promulgated in November 2002, the Universal Health Coverage Scheme, with the largest number of beneficiaries (48.6 million or 75.5% of population), was officially and institutionally established with the National Health Security Office (NHSO) serving as the state (autonomous) agency under the authority of the National Health Security Board (NHSB). TTM and selected alternative medicine services have been covered since the beginning of UHC scheme in Thailand as it was stated in the Article 3 of the Act that “health services” included also ‘Thai traditional and alternative medicine services pursuant to the Practice of the Art of Healing Act’.

In addition to UHC scheme, TTM and alternative medicine services are also covered by the remaining two health security systems; namely, *Civil servant medical benefits scheme* (including also their parents and children < 20 years of age, total about 5 million people) and *Social security scheme* of the Social Security Office for employees of private business (about 10 million people, depending on the country economic situation).

The lowest level of integration of TTM service in a hospital is providing only one type of service (e.g. have only herbal/traditional medicines available for doctors to prescribe with no other TTM modalities provided), while the highest level of integration is having all types of TTM services (medicines + Nuad Thai + herbal compress + herbal steam bath + hot salt pot compress) available for patients in TTM clinics. According to the survey on the quality of TTM service in all levels of public health service facilities in 2013, 34% (3,616/10,652) of those had herbal medicines as their only service, while 8.9% (952/10,652) provided all types of TTM treatment modalities, and 3.9, 17.5, and 25.2% provided 2, 3, and 4 types of treatment modalities, respectively.

In fiscal budget 2013, 14.05% of out-patients visiting public health service facilities received standard traditional medicine and complementary medicine (TM/CAM) services. The average percentage increased to 16.59% in the fiscal year 2014 and this KPI is increased to 18% in the fiscal year 2015.

In addition, since 2014, DTTTCM has supported regional hospitals, general hospitals, and community hospitals to provide TTM service in TTM out-patient department (OPD) clinics which have the following qualifications:

- **Service provider:** at least 1 TTM practitioner
- **Traditional medicine items:** more than 30 items [There are 74 traditional medicines items in the National List of Essential Medicines]
- **Operating days:** TTM OPD clinic should provide service at least 2 days a week, (treatment of common diseases & chronic diseases)

As of July 2015, TTM OPD clinics have been established in about 54% of public health service facilities. Future target is that TTM OPD clinics will operate in all health service facilities (100%) in 2018.

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 Wathana 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, DTTTCM 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.

2.2 Types of Service Provided

Under the National Health Security system, the types of traditional medicine services covered by the Universal Health Coverage (UHC) Program of the National Health Security Scheme are as follows:

1. The treatment and diagnosis with TTM and applied TTM
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
- 2.5 Hot salt pot compress for post-partum care (newly added modality in 2012)



Traditional herbal medicines or traditional recipes composing of medicinal plant materials and Herbal steam bath



Hot salt pot compress for post-partum care



Hot herbal compress and therapeutic massage

3. Acupuncture of traditional Chinese medicine

Similarly, the above-mentioned treatment modalities, except hot salt pot compress for post-partum care, are also covered by civil servants medical benefits scheme and social security scheme.

To promote the use of TTM and self-reliance on health care of the country, in 2007 the NHSO established the “**Fund for the Development of Thai Traditional Medicine System**” providing additional on-top funding for public health service facilities that provide TTM services in order to stimulate provision of TTM services for out-patients, especially Thai traditional medicines and herbal medicines, Thai traditional massage for therapeutic and rehabilitative purposes as well as post-partum care. The on-top funding has gradually increased from 0.50 baht/capita in 2007 to 7.20 Baht/capita in 2012. For fiscal year 2014-2015 under UHC scheme, 8.19 Baht per capita are allocated for health service facilities that provide TTM services.



Acupuncture of TCM

2.3 Standards of Service

To set up the standard of TTM services for consumer protection, DTTCM has established various measures and guidelines of TTM service and developed tools to facilitate and monitor the status and quality of service, i.e.

- support the posting of licensed TTM practitioners and TTM assistants at TTM facilities at all levels,
- promote the use of herbal drugs according to the List of Herbal Medicinal Products in the National List of Essential Medicines,
- designated the codes of diseases and procedures in TTM (ICD-10-TM),
- established the **Clinical Practice Guidelines** for Thai traditional medicine (CPG-TM) and CPG of Thai massage for 16 Diseases/Symptoms,
- developed the codes of Thai traditional/herbal medicines,
- set up “Standard of TTM Service in Public Health Service Facilities” in 2008 and “TTM & Integrative Medicine Promoting Hospital Standard (TIPhS)” in 2013 and “Manual of Standards of Nuad Thai in Public and Private Health Service Facilities in 2015”. These standards have been used to monitor the quality of TTM services in all levels of hospitals,
- established the median or reference prices of Thai traditional drugs, and
- developed the criteria for medical fee reimbursements in the Disease-Related Group (DRG) system.

In the fiscal year 2013, the quality of TTM service was assessed by benchmarking with TTM & Integrative Medicine Promoting Hospital Standard (TIPhS) which covered five elements of services, namely premises (including facility, tools, equipment, and the environment), personnel, operations, quality control, and service delivery. The service delivery covered 8 aspects, namely service for out-patients, service for in-patients, treatment and rehabilitation, health promotion and disease prevention, reporting system, proactive work in the community, promotion of the conservation of TTM knowledge, and training.

The result of the assessment was shown in the table below.

Level of Hospital	No. of facilities	Excellent	Very good	Good	Meet standard at basic level	Total facilities that passed	Not passed	No. facilities evaluated
Regional/general hospitals	96	39 (40.6)	25 (26.0)	10 (10.4)	4 (4.2)	78 (81.3)	18 (18.8)	96 (100)
Community hospitals	782	322 (41.2)	191 (24.4)	76 (9.7)	16 (2.0)	605 (77.4)	122 (15.6)	727 (93)
Tambon health promotion hospitals	9,774	1,470 (15.0)	1,231 (12.6)	988 (10.1)	377 (3.9)	4,066 (41.6)	4,197 (42.9)	8,263 (84.5)
Total	10,652	1,831 (17.2)	1,447 (13.6)	1,074 (10.1)	397 (3.7)	4,749 (44.6)	4,337 (40.7)	9,086 (85.3)

The results were based on % of scores earned in all 5 aspects: excellent (90-100%), very good (80-89.99%), good (70-79.99%), meet standard at basic level (60-69.99%), not passed (<60%), and % of scores earned in each aspect were not be less than 60%.

2.4 Number of Hospitals Providing Traditional Medicine Services

The lowest level of integration of TTM service in a hospital is providing only one type of service (e.g. have only herbal/traditional medicines available for doctors to prescribe with no other TTM modalities provided), while the highest level of integration is having all types of TTM services (medicines + Nuad Thai + herbal compress + herbal steam bath + hot salt pot compress) available for patients in TTM clinics. According to the survey conducted in 2013 on the quality of TTM service in all health services facilities of 10,652 of all levels, 34% (3,616) had herbal medicines as their only service, while 8.9% (952) provided all types of TTM treatment modalities, and 3.9% (420), 17.5% (1,861), and 25.2% (2,683) provided 2, 3, and 4 types of treatment modalities, respectively.

Regarding the number of hospitals under the Ministry of Public Health that can provide acupuncture, in 2012, there are a total of 166 hospitals with 271 medical doctors giving acupuncture service.

3. Education and Training, Human Resource and Regulation

3.1 Law & Regulation on Traditional Medicine Practice, Licensing System

Based on the **Thai Traditional Medicine Profession Act B.E. 2556** (A.D. 2013), Thai traditional medicine (TTM) profession covers the practice of Thai traditional medicine and the practice of applied Thai traditional medicine.

The practice of **Thai traditional medicine** is defined as “the professional practice that performs to or is meant to perform to human. This involves consultation, diagnosis, treatment, and curing of diseases, disease prevention, health promotion, and rehabilitation based on the knowledge of Thai

traditional medicine, Thai traditional pharmacy, Thai traditional midwifery, Nuad Thai (Thai traditional massage), Thai indigenous medicine, and other knowledge, as notified by Minister of Public Health under the recommendations of the Thai Traditional Medical Council Commission. Such practices are performed by Thai traditional medicine procedures that have been passed on and developed over time based on Thai traditional medicine treatise or from academic institutes certified by Thai Traditional Medicine Council.”

Meanwhile, the practice of **Applied Thai traditional medicine** is defined as “the professional practice of Thai traditional medicine based on the knowledge of science and medical science that is studied from academic institutes certified by Thai Traditional Medical Council, and the application of tools or equipment in medical science. Such practices shall follow the rules and regulations of Thai Traditional Medical Council.

Under the Act, the **Thai Traditional Medical Council** is responsible for the regulation of the standard of the education and the practice of TTM and applied TTM. The council is in charge of registration and issuing the license of practitioners, certifying degrees or certificates of TTM of different institutes, reviewing and approving the Bachelor’s degree, certificate or diploma curricula and training curricula of academic institutes, and considering professional misconduct of practitioners and appropriate measure of punishment.

3.2 Education, Curricula & Schools or Universities

The regulation and educational system of Thai Traditional Medicine practitioners

Regulation

The practice of Thai traditional medicine can be divided into the practices of Thai traditional medicine, Thai traditional pharmacy, Thai traditional midwifery, Nuad Thai (Thai traditional massage), or Thai indigenous medicine. The registered and licensed practitioners of Thai traditional medicine took separate licensing examinations for different fields of practice (traditional medicine, pharmacy, Nuad Thai, or midwifery) and can therefore practice only in the branch he/she got license for.

For the registered and licensed practitioners of Thai traditional medicine in the **field of Thai indigenous medicine**, they are those whom a government office certified their Thai indigenous medicine and they must pass the assessment or examination specified by Thai Traditional Medical Council Regulation.

Education

Apart from the practitioners of Thai traditional medicine in the field of Thai indigenous medicine who learned indigenous medicine from their ancestors or their mentors who are senior folk healers, there are two systems people can choose from to study Thai traditional medicine based on Section 12(2) of the Act, namely

A. Receive training from institutes or from health service facilities, certified by Thai Traditional Medical Council, where there are TTM practitioners, who are authorized to teach TTM and passed the test specified by the Council, serve as the trainers , or

B. Study in certified universities that offer Bachelor’s Degree in Thai Traditional Medicine. Currently there are 19 universities/colleges that are certified by the Thai Traditional Medical Council.

Persons who finished their TTM education must pass licensing examination in the field(s) of practice they studied to get the license to practice.

Under the category A, a trainee of each branch of TTM shall receive training for a specified period of time in order to be qualified to take a licensing examination to become a registered and licensed practitioner in a particular field, namely: -

- For the field of Thai traditional MEDICINE, not less than 3years
- For the field of Thai traditional PHARMACY, not less than 2years
- For the field of Thai traditional MIDWIFERY, not less than 1years
- For the field of NUAD THAI, not less than 2years

Training and education of Nuad Thai or Thai traditional massage

Under the Ministry of Public Health Notification issued on 1 February 2001, therapeutic Thai massage is regarded as a branch of TTM. As a result, the registration and licensing of TTM practitioners in the branch of Nuad Thai, the conditions and the regulation of practice was according to the Practice of the Art of Healing Act B.E. 2542 (1999) and is now under the Thai Traditional Medicine Profession Act B.E. 2556. The Profession Commission in the branch of Thai traditional medicine developed the standard curriculum for the profession of TTM in the branch of Nuad Thai requiring total duration of training of not less than 2 years (800 hours curriculum) before being eligible for licensing examination. Currently, there are 38 Thai massage training institutes that their professional Nuad Thai curricula (not less than 800 hours) are certified by the Thai Traditional Medical Council.

The regulation and educational system of Applied Thai Traditional Medicine practitioners

Regulation

The practice of registered and licensed practitioners of **applied** Thai traditional medicine is also regulated by the Thai Traditional Medical Council.

Education

The teaching of applied Thai traditional medicine is offered only through certified universities that offer Bachelor's Degree in applied Thai traditional medicine. Currently there are 9 universities teaching applied Thai traditional medicine that are certified by the Thai Traditional Medical Council.

Those who finished four-year Bachelor's degree in applied TTM and passed licensing examination can practice all branches, i.e. Thai traditional medicine, Thai traditional pharmacy, Thai traditional midwifery, and Nuad Thai.

The curriculum of Thai traditional medicine for medical doctors

As modern medicine is the mainstream health care of the country and medical doctors are the key health care personnel in the public health care facilities, in order to promote the integration of Thai traditional medicine into the health care system, it would be helpful to have allopathic doctors who are trained in Thai traditional medicine and are able to apply and integrate Thai traditional medicine with modern medicine for the care of the patients. The Department of Thai traditional and Complementary Medicine has therefore developed three-year Residency Training Program in Preventive Medicine in the Branch of Thai Traditional & Integrative Medicine. The training program is now under the consideration by the *Preventive Medicine Association of Thailand* and the *Medical Council of Thailand*.

Traditional Chinese Medicine

Currently, there are 7 universities and colleges that offer five-year Bachelor of Science Degree in traditional Chinese medicine and are certified by the Profession Commission in the Branch of Traditional Chinese Medicine. The Profession Commission currently recognizes 31 universities in China that offer Bachelor's degree in TCM.

In addition, since 1998, DTTCM and the Royal Thai Army Medical Department have provided three-month training course on acupuncture for medical doctors.

As of 30 September 2013, there were 1,600 doctors received acupuncture training and 631 licensed TCM doctors, of which 319 got their Bachelor's degree from Chinese or Thai universities, while 312 learned TCM from ancestor.

3.3 Training Courses

Training curriculum for “Thai traditional medicine assistants”

For the training of “Thai traditional medicine assistants” who are allowed to practice certain task of TTM practitioners in health service facilities under the supervision of other licensed practitioners, the Profession Commission in the branch of TTM developed and officially announced the 330-hour training curriculum for TTM assistants in 2007, training in Thai massage is the main part of this curriculum.

3.4 Number of Registered Practitioners and Trained Personnel

The followings are the cumulative numbers of registered and licensed traditional medicine practitioners as of September 2013.

- | | |
|--|--------|
| • TTM practitioners in the field of Thai traditional medicine | 19,677 |
| • TTM practitioners in the field of Thai traditional pharmacy | 26,874 |
| • TTM practitioners in the field of Thai traditional midwifery | 7,755 |
| • TTM practitioners in the field of Nuad Thai | 2,730 |
| • Applied Thai traditional medicine practitioners | 1,645 |
| • Traditional Chinese Medicine doctors | 631 |

4.1 Manufacturing (Plant materials preparation/Harvesting/Raw material management), Manufacturers

Manufacturers must pass inspection and receive manufacturing license from FDA and have products registered prior to production.

As of December 2013, there are 1090 manufacturers of traditional medicines in Thailand. Of these, 39 are GMP manufacturers (FDA: Dec 2013). The amounts of traditional medicines for human registered during 1983-2011 are 14,024 preparations. Of these, 13,181 are locally manufactured while 843 are imported products.

4.2 Production standard/Quality controls

GMP of Herbal Medicinal Products B.E. 2548 (2005) was developed as guideline for manufacturers.

Even though currently GMP standard for the manufacturing of traditional medicines is not fully enforced, FDA requires that traditional medicines submitted for registration must pass the tests for microbial contamination from accepted laboratories. Report of the assay for microbial contamination from certified lab must be submitted when filing for registration of traditional medicine product. According to Thai Herbal Pharmacopoeia 2000, traditional medicine must not have the following pathogenic microbial contamination: -

Staphylococcus aureus in 1 g or 1 ml of traditional medicine preparation

Clostridium spp. in 10 g or 10 ml of traditional medicine preparation

Salmonella spp. in 10 g or 10 ml of traditional medicine preparation

Moreover, traditional medicines must not have heavy metal contamination. Arsenic, cadmium and lead in traditional medicine products must not exceed 4, 0.3 and 10 ppm, respectively. However, for some traditional medicine recipes having these heavy metals as ingredients, the levels of such compounds in the recipes must not exceed FDA-specified levels.

4.3 Law & Regulation on Traditional & Herbal Medicine

In 1999, Drug Committee classified herbal medicinal products into 4 categories:

1. **Traditional drugs** (Indication, dosage and administration are based on traditional knowledge)
2. **Modified traditional drugs** (with dosage form changed from traditional one)
3. **Herbal medicines** (modern medicine developed by R&D, active constituents are semi-purified compounds)
4. **New drugs** (modern medicine developed by R&D with purified substance as an active constituent)

The first two categories may be registered either as 'traditional medicines' or 'traditional household remedies'. The third and fourth categories may be registered as modern medicines.

Traditional or herbal medicines have to be registered with the FDA prior to manufacturing and sale. Medical, health and structure/ function claims may be made about herbal medicines.

4.4 Product Registration/Licensing

As of 2011, there are 14,024 TM drugs registered under FDA, Thailand (13,181 TM products were manufactured in Thailand while 843 of remaining products were imported)

Under ASEAN Free Trade Agreement (AFTA), traditional medicines are one type of products that undergo ASEAN harmonization of rules and regulations on product registration, production standards, and quality control for all ASEAN member states. **Product Working Group on Traditional Medicine & Health Supplement (TMHS PWG)** was therefore established in 2003 under **ASEAN Consultative Committee on Standards and Quality (ACCSQ)**. Thai FDA has participated in TMHS PWG meetings and meetings of related task forces and technical working groups (TWG) since the beginning. As a result, ASEAN GMP for the production of traditional/herbal medicines and

ASEAN harmonized rules and regulations on the registration and quality standards of traditional medicines and herbal medicinal products have been formulated and are currently being finalized. In the future when the new harmonized rules and regulations are in effect, manufacturers of traditional medicines and herbal medicines must submit several additional documents on products information regarding quality, safety and efficacy other than those currently submitted; namely, information/documents on: -

- Shelf life from stability study
- Stability study (physical, chemical, microbial) both real-time and accelerated studies
- Control of active ingredients, batch analysis
- In-process quality control
- Specification of finished product
- Safety data as indicated in safety data requirements
- Efficacy data as indicated in efficacy data requirements

In preparation for the enforcement of ASEAN GMP in 2015, Thai FDA recently issued **Ministry of Public Health Regulation on Submission for License and the Issuance of License for the Production, Sale, or Import of Traditional Medicines into the Kingdom B.E. 2555 (2012)** that was published in the Royal Gazette on 4 July 2012 and will be effective on 2 October 2012. This Ministerial Regulation indicated in Item 7 that licensed manufacturers of traditional medicines shall produce medicines that meet the quality standards specified by the Minister of Public Health and shall manufacture using GMP of traditional medicines specified by the Minister of Public Health that will be published in the Royal Gazette. To enforce the above-mentioned Ministerial Regulation, Ministerial Notification on GMP of Traditional Medicines is currently under consideration and formulation. Before the Ministerial Notification will be issued, manufacturers are required to follow the GMP guideline 2005.

In addition, in order to give Thai manufacturers enough time to readjust their administration, production and quality control, and factory to meet the new ASEAN GMP and harmonized rules and regulation, Item 22 of the Ministerial Regulation indicates that licensed manufacturers who were given license before the issuance of the Ministerial Regulation will be given 5 years from 2 October 2012 to comply with the new ASEAN GMP.

4.5 Herbal Pharmacopoeia or Monographs/ National List of Essential Traditional Medicines

Four volumes and two supplements of *Thai Herbal Pharmacopoeia* were published, covering 47 monographs of medical plant materials & 3 herbal preparations.

Monographs of Selected Thai Materia Medica is being developed by Subcommittee on the Preparation of Thai Materia Medica, of which DTTCM serves as secretariat office. Volume I covers 54 monographs was published in 2008 and volume 2 is currently in print.

Since October 2013 until this present time, there are a total of 74 items of registered traditional medicines and herbal hospital formularies selected into the List of Herbal Medicinal Products B.E. 2554 (2011 AD) in the National List of Essential Medicines. Of these, 50 are Thai traditional medicine recipes and 24 are single herbal medicines.

5. Traditional Medicine Knowledge Management/Research

5.1 National Research Institutes

There are various institutes and government offices that conduct research on herbal medicines, traditional medicines and medicinal plants, e.g.

- Institute of Thai Traditional Medicine and Thai Traditional Medicine Research Institute
- DTTCM
- Others
 - Medicinal Plant Research Institute
 - Thailand Institute of Scientific and Technological Research
 - National Center for Genetic Engineering and Biotechnology
 - Schools of Pharmacy
 - Schools of Medicine
 - Schools of Thai Traditional Medicine and School of Applied Thai Traditional Medicine
 - Various departments under the Ministry of Agriculture and Cooperatives and school of agriculture in various universities
 - All levels of hospitals under the Ministry of Public Health & Ministry of Education

5.2 National Traditional Medicine Textbooks

Based on four Notifications of the Profession Commission in the Branch of Thai Traditional Medicine issued during 2007-2012, there are 18 treatises that a person who would like to apply for registration and licensing as a TTM practitioners should use for the study of TTM. Some examples of those treatises are:

- Explanation of Tumra Phra Osod Phra Narai
- Tumra Paetsart Sonkrau Volume 1, 2, 3
- Tumra Paetsart Sonkhrau Chabub Luang Volume 1 and 2;
- Tumra Vejasuksa by Phraya Pissanu Prasartvej, Volume 1, 2, 3
- Tumra Vejasuksa and Tumra Pramual Lak Bhesaj by School of Traditional Medicine (Wat Phra Chetupon)

5.3 Traditional/Herbal Medicine Database

Databases on medicinal plants and traditional medicine are available. The most commonly used databases are for example:

1. www.medplant.mahidol.ac.th;
2. www.pharmacy.mahidol.ac.th/medplantdatabase

ANNEX

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**Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional
Medicine**

20-22 July 2015

Nonthaburi, Thailand

**Report of the Third Meeting of the BIMSTEC Network of National Centers of Coordination
in Traditional Medicine**

Agenda Item 01: Opening of the Meeting

01. The Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine was held in Nonthaburi, Thailand from 20-22 July 2015 at the invitation of the department of Thai Traditional and Complementary Medicine, Ministry of Public Health, Government of Thailand.

02. The Delegations from the People's Republic of Bangladesh, the Kingdom of Bhutan, the Republic of India, the Republic of the Union of Myanmar, Nepal, the Democratic Socialist Republic of Sri Lanka and the Kingdom of Thailand participated in the Meeting.

03. The Welcome Address of Dr. Thavatchai Kamoltham, Director General, Department of Thai Traditional and Complementary Medicine was delivered on his behalf by Dr. Papassorn Chemboonsri, Deputy Director General, Department of Thai Traditional and Complementary Medicine. In the address he mentioned that the main objectives of the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine include the follow up of the progress made by each Member State after the Second Meeting; develop work plan of future cooperative activities, expected outcome, timeframe, and implementation mechanism as well as to establish "BIMSTEC Task Force on Traditional Medicine". He hoped that the Meeting would provide the opportunities for discussion on the development of the collaborative work plan that would correspond with the new global and regional strategic plan on Traditional Medicine.

04. In the Keynote Address, Honourable Dr. Siriwat Tiptaradol, Advisor to the Minister of Public Health stated that successful integration of Traditional and Complementary and Alternative Medicine requires the establishment of evidence-based efficacy, safety and quality of Traditional Medicine practices and products. He emphasized on the inclusion of the basic medical sciences in the educational system of traditional medicine and vice versa. He further suggested to develop the cooperative work plan for the next five years to promote and strengthen the collaboration on Traditional Medicine among the Member States and also to establish a BIMSTEC Task Force on Traditional Medicine to implement

that work plan in cooperation with the BIMSTEC Secretariat. He lauded the Secretariat for its role in conducting the Meeting.

05. Special Remarks of Ambassador Sumith Nakandala, Secretary General of BIMSTEC was delivered on his behalf by Mr. S. M. Nazmul Hasan, Director of the BIMSTEC Secretariat. In his message, the Secretary General stressed on the role of the Traditional Knowledge and Traditional Medical practices in addressing some health issues including non-communicable diseases and the need to provide a holistic lifestyle to the people with judicious use of Traditional Knowledge, Traditional Medicine and modern sciences. He underscored the need to protect and preserve Traditional Knowledge and Traditional Medical practices including the protection of plant genetic resources associated with Traditional Medicine. He expressed hope that the Meeting would duly consider the establishment of BIMSTEC Task Force on Traditional Medicine and also discourse on the possible framework for the protection of plant genetic resources and traditional knowledge associated with Traditional Medicine for enhanced cooperation among the BIMSTEC Member States. He requested the Meeting to deliberate on the preservation of the plant genetic materials associated with Traditional Medicine through Cryo-preservation.

Agenda Item 02: Election of the Chairperson and Vice-Chairperson and appointment of rapporteurs

06. The Meeting unanimously elected Dr. Khwanchai Visithanon, Director, Bureau of Strategy, Department of Thai Traditional and Complementary Medicine and the Head of the Delegation of Thailand and Dr. Md. Alamgir Hossain, Assistant Director (Unani medicine), Government Unani and Ayurvedic Medical College and Hospital, Dhaka and the Head of the Delegation of Bangladesh respectively as the Chair and the Vice-Chair of the Meeting. Upon assuming the Chair, the Chairperson made his initial remarks and also addressed the matters pertaining to the conduct of the Meeting. Dr. Supattra Rungsimakan, the Office of International Cooperation, DTTCM, Thailand, was appointed as a rapporteur with the unanimous approval of the Delegations.

Agenda Item: 03 Adoption of the Agenda.

07. The Meeting considered and adopted the Agenda contained in Document Number BIMSTEC/BNNCCTM/03/2015/01/Rev.2.

Agenda Item: 04 Review of the Report of the Second Meeting of the BIMSTEC Network of National Centres of Coordination in Traditional Medicine held in Bangkok, Thailand from 30-31 August 2010

08. The Meeting referred the Report of the Second Meeting of the BIMSTEC Network of National Centres of Coordination in Traditional Medicine held in Bangkok, Thailand from 30-31 August 2010 as contained in Document Number BIMSTEC/BNNCCTM/03/2015/02.

09. On the invitation of the Chair for deliberation on the review of the Report of the Second Meeting, the delegation of Thailand made a presentation.

Agenda Item: 05 Discussion on the progress on the Agreed Areas of Cooperation

10. The Chair invited the delegations to deliver their progress Reports under each of the respective Agreed Areas of Cooperation.

Agenda Item: 05.01 Discussion on developing a document on “Traditional Systems of Medicine of BIMSTEC Member States” (Coordinator: Thailand)

11. The **Delegation of Thailand** briefed the Meeting on the progress made on developing a document on “Traditional Systems of Medicine of BIMSTEC Member States.” They informed that they had already received the latest information on Traditional Medicine through country report of each Member State that would be presented during the Meeting.

Decisions: The Meeting recommended the following decisions:

- a. Thailand will publish the document within two months of the conclusion of this Meeting and distribute it among the Member States as well as BIMSTEC Secretariat.
- b. In order to facilitate the publication, the Member States will send electronically, additional information (where applicable), photographs (high resolution, at least 1 MB) and illustrations to the Department of Thai Traditional and Complementary Medicine within two weeks’ time.
- c. Thailand will send the draft of the document to each Member State for its review before printing.

Agenda Item: 05.02 Discussion on Knowledge management and information sharing on Traditional Medicine including *pharmacopoeial* drug safety and protection of Traditional Medicine knowledge and intellectual capital (Coordinator: Bangladesh, Co-coordinator: India and Thailand)

12. The **Delegation of India** made the following briefing on the progress made on “Knowledge management and information sharing on Traditional Medicine including *pharmacopoeial* drug safety and protection of Traditional Medicine knowledge and intellectual capital.”

- a. After the 2nd BNNCCTM Meeting held in Thailand in 2010, India hosted an IPR workshop in New Delhi on 10-13 October 2011 which was attended by delegations from Bangladesh, India, Myanmar, Sri Lanka and Thailand. Since then, they held a number of small workshops on IPR at local level for creating awareness.
- b. India has set up the Traditional Knowledge Digital Library (TKDL) database in order to digitize the Traditional Medicine/Knowledge/Practices. So far, TKDL has digitized about 3,00,000 medicines/knowledge and prevented a number of bio-piracies and misappropriations.
- c. India offered to provide assistance to other BIMSTEC Member States in digitization of their knowledge of Traditional Medicine.
- d. India provided an update on the current status of pharmacopoeias.

Agenda Item: 05.03 Collaborative research on Traditional Medicine among BIMSTEC Member States (Coordinator: Sri Lanka)

13. The Delegation of **Sri Lanka** informed that so far no activity has taken place in respect of “Collaborative Research on Traditional Medicine among BIMSTEC Member States” since the 2nd Meeting of BNNCCTM and suggested that each Member State should identify their Most Prevalent Disease (MPD) and conduct a research on that particular disease/topic, the result of which would later be shared with other Member States.

Decisions: The Meeting recommended the following:

- a. The BIMSTEC Task Force on Traditional Medicine (BTFTM) will work on the issue.

Agenda Item: 05.04 Mutual recognition on traditional systems of medicine related issues (Coordinator: India, Co-coordinator: Thailand)

14. The **Indian** delegation briefed the Meeting on the progress made on “Mutual recognition of traditional systems of medicine related issues” which include:

- a. The harmonization of curriculum across India had been done, and all Colleges and Universities teaching Traditional System of Medicine across the country were complying with that standard/curriculum.
- b. India has signed country to country MoUs for cooperation in the field of Traditional Medicine with a number of countries. They were negotiating MoUs with some other countries also.
- c. India had already set up Chairs of Indian system of Medicine in different countries.

Agenda Item: 06 Discussion on the National Standards and Quality Control of Traditional Medicine products in BIMSTEC Member States

15. Given the enhanced acceptance of the use of Traditional Medicine products with respect to holistic life style, there is a need for Standardization regime on various Traditional Medicine products and ensuring market access within the BIMSTEC Member States. The Meeting deliberated extensively on the issue noted that it is essential to set standard for the BIMSTEC Member States. Some of the Delegation Members delivered on their respective National Standards and Quality Control system. The Meeting also noted that there is a need for additional information from the Member States and recommended the following:

Decisions:

- a. It is essential to set standard for Traditional Medicine for the BIMSTEC Member States as soon as possible.
- b. The BIMSTEC Task Force on Traditional Medicine (BTFTM) will formulate a work plan to reduce the differences through studying each Member State's National Standard of Traditional Medicine.
- c. BIMSTEC will refer the guidelines of ASEAN for setting the standards.

Agenda Item: 07 Discussion on the Protection of Genetic Resources, Traditional Knowledge associated with Traditional Medicine among BIMSTEC Member States.

16. The Meeting deliberated extensively on the Note contained in Document Number BIMSTEC/BNNCCTM/03/2015/03 on the Protection of Genetic Resources, Traditional Knowledge associated with Traditional Medicine among BIMSTEC Member States. The Delegations also discussed elaborately the possibility of external cooperation/assistance for the BNNCCTM and BTFTM with WIPO, FAO, WHO and other relevant international organizations. The Thai Delegation made a presentation on behalf of Dr. Manisha Shridhar, Regional Advisor (Intellectual Property, Trade and Public Health), Regional Office for WHO/SEARO and also informed that SEARO would host a workshop on the protection of Genetic Resources/Intellectual Property (IP) in Traditional Knowledge most likely in India in 2016 and they would like to invite delegates from BIMSTEC Member States.

17. After deliberations the Meeting recommended that,

Decisions:

- a. The BIMSTEC Task Force on Traditional Medicine (BTFTM) will deal with the issue of Protection of Genetic Resources and Traditional Knowledge associated with Traditional Medicine and develop a work plan.

- b. WHO/SEARO will host a workshop/meeting on protection of Genetic Resources in Traditional Knowledge in 2016. They will officially invite delegates from the BIMSTEC Member States through BIMSTEC Secretariat. The Member States will provide SEARO with the relevant necessary information in this regard. Thailand will coordinate the whole process.
- c. BTFTM will study and recommend to the Network on the possible external assistance from WIPO, FAO, WHO and other international organizations relevant to Genetic Resources, Traditional Knowledge associated with Traditional Medicine.

Agenda Item: 08 Presentation of Country Reports on Traditional Medicine

18. BIMSTEC Member States presented their Country Reports on Traditional Medicine. Before the presentation of the Nepalese Delegation, a minute's silence was observed to mourn for the loss of valuable lives in Nepal resulting from a series of devastating earthquakes in April, this year.

Agenda Item: 09 Discussion on the establishment of BIMSTEC Task Force on Traditional Medicine and preparation of the Draft Terms of Reference

19. The Meeting deliberated on the Note on the establishment of a BIMSTEC Task Force along with its draft Terms of Reference is contained in Document Number BIMSTEC/BNNCCTM/03/2015/05.

20. After extensive and elaborative deliberations, the Meeting agreed the Terms of Reference of the establishment of the BIMSTEC Task Force on Traditional Medicine for submission to the Seventeenth Session of the Senior Officials' Meeting for consideration.

21. The final text of the Terms of Reference of the establishment of the BIMSTEC Task Force on Traditional Medicine contained is in Document Number BIMSTEC/BNNCCTM/03/2015/05/Rev.1.

Decisions: The Meeting made the following recommendations:

- a. A BIMSTEC Task Force on Traditional Medicine (BTFTM) will be established according to the Terms of Reference agreed during the Meeting.
- b. Any of the Member States would volunteer to host the first Meeting of the BIMSTEC Task Force on Traditional Medicine (BTFTM) in 2016. Alternatively, if the WHO/SEARO hosts the proposed workshop/meeting on protection of Genetic Resources in Traditional Knowledge in India (or another country) in 2016, the first Meeting of BTFTM may be held there back to back with that workshop. The exact date of the Meeting would be communicated through the Secretariat in due course.

Agenda Item: 10 Discussion on the Draft BIMSTEC Work Plan in Traditional Medicine based on the proposal presented in the country reports

22. The Meeting deliberated on the draft matrix of the BIMSTEC Work Plan on Traditional Medicine contained in Document Number BIMSTEC/BNNCCTM/03/2015/05. After the deliberations, the Meeting considered and finalized draft matrix of the BIMSTEC Work Plan on collaborative projects for enhancing cooperation in Traditional Medicine among the Member States.

23. The finalized draft matrix of the BIMSTEC Work Plan in Traditional Medicine is contained in Document Number BIMSTEC/BNNCCTM/03/2015/05/Rev.1.

Decisions: The Meeting recommended the following:

- a. All Lead Countries of BTFTM work plan would draft a concept paper on their respective activity/activities and circulate it through BIMSTEC Secretariat /electronically among the Member States for their review/comments. The final draft would be considered during the first Meeting of BTFTM.

Agenda Item: 11 Any other matters.

Agenda Item: 11.01 Preservation of plant genetic resources associated with Traditional Medicine:

24. As proposed by the BIMSTEC Secretariat, the Meeting deliberated on the preservation of plant genetic materials associated with Traditional Medicine through cryo-preservation methodology and acknowledged its need and importance. The Delegation of India, Sri Lanka and Thailand informed the Meeting about the present status and uses of this and other technologies in their respective countries. The Meeting felt that since the technology is expensive, the issue may be further discussed during the next Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine.

Decisions: The Meeting recommended the following:

- a. The preservation of plant genetic materials associated with Traditional Medicine through cryo-preservation methodology would be discussed during the fourth Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine (BNNCCTM) to be held in Bangladesh in 2017.

Agenda Item 11.02 The possibility of holding a Health Ministers' Meeting in Thailand

25. In order to strengthen cooperation among the BIMSTEC Member States in public health sector, the Meeting discussed the possibility of holding a Meeting of the Health Ministers in Thailand. The Thai delegation informed the Meeting that they would take up the matter with the concerned authority of Thailand to host the first Meeting of the Health Ministers of BIMSTEC Member States and inform the outcome to the Secretariat.

Decisions:

- a. The Thai delegation would update the BIMSTEC Secretariat about the possibility of hosting a Meeting of the BIMSTEC Health Ministers in Thailand as soon as they receive a response from their concerned authority.

Agenda Item: 12 Date and venue of the Fourth Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine

26. The Meeting deliberated on the convening of the Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine bi-annually on alphabetical rotation.

27. The Bangladesh Delegation informed the Meeting that Bangladesh would host the Fourth Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine in Dhaka in 2017. The exact date of the Meeting would be circulated to the Member States through the Secretariat.

Agenda Item: 13 Adoption of the Report of the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine.

28. The Meeting considered and adopted the Draft Report of the Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine for submission to the Seventeenth Session of the BIMSTEC Senior Officials' Meeting.

Agenda Item: 14 Closing of the Meeting

29. The Meeting conveyed its deep appreciation to the Department of Thai Traditional and Complementary Medicine, Ministry of Public Health, Government of Thailand for the warm hospitality extended to the participants and for the excellent arrangement made for the Meeting. The Leader of the Thai Delegation and Chair of the Meeting thanked the delegations for their dynamic contribution in the Meeting.

30. The Meeting also expressed its sincere thanks to the Secretariat for the hard work done in facilitating the Meeting to a successful conclusion. The Director of BIMSTEC Secretariat thanked the delegates for their active participation and expressed gratitude to the Chair for his crucial role in steering the Meeting.

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List of Delegates

Third Meeting of the BIMSTEC Network of National Centers of Coordination in Traditional Medicine

20-22 July 2015, Nonthaburi, Thailand

Bangladesh

01. **Dr. Md. Alamgir Hossain**
Asst. Director (Unani)
Government Unani and Ayurvedic
Medical College and Hospital
Dhaka, Bangladesh
Mobile: +880-1672948149
E-mail: dr.ualam@yahoo.com
02. **Dr. Md. Hassan Imam**
Asst. Prof. (Unani Medicine)
Government Unani and Ayurvedic
Medical College and Hospital
Dhaka, Bangladesh
Mobile: +880-1711310613
E-mail: dr.hassantipu@yahoo.com

Bhutan

03. **Mr. Karma Gaylek**
Chief Programme Officer
Department of Traditional Medicine
Services
Ministry of Health
Thimphu, Bhutan
Telephone: +975-2-322153
E-mail: kg_dtms@hotmail.com
04. **Mr. Sherab Tenzin**
Deputy Chief Pharmacist
Department of Traditional Medicine
Services
Ministry of Health
Thimphu, Bhutan
Telephone: +975-2-321687
E-mail: usbimstec@mea.gov.in

India

05. **Dr. Pradeep Dua**
Research Officer
Ministry of Ayurveda, Yoga and
Naturopathy, Unani, Siddha and
Homeopathy
New Delhi, India
Telephone: +09811190570
E-mail: duadrpradeep@gmail.com
06. **Mr. Rajinder Sood**
Senior Consultant
Ministry of Ayurveda, Yoga and
Naturopathy, Unani, Siddha and
Homeopathy
New Delhi, India
Telephone: +09990185756
E-mail: sood.rajinder@gmail.com
07. **Mr. Subbiah Sridhar**
Under Secretary (BIMSTEC)
Ministry of External Affairs
New Delhi, India
Telephone: +91-11-49016681
Mobile: +91-9717618623
Fax: +91-11-49015247
E-mail: subbiah.sridhar@mea.gov.in

Myanmar

08. **Mr. Myint Aung**
Director (Medical Care)
Department of Traditional Medicine
Ministry of Health
Nay Phi Taw, Myanmar
Telephone: +95-67-431093
E-mail: myintaung@gmail.com

09. **Mr. Maung Maung Thet**
Professor and Head of Department
Department of Physical Medicine
University of Traditional Medicine
Mandalay, Myanmar
Telephone: +95-26-4260, 27-5600
Mobile: +95-9-43132442
E-mail: htaymyatkhaing@gmail.com

Nepal

10. **Dr. Debkala Bhandari**
Director General
Department of Ayurveda
Ministry of Health and Population
Kathmandu, Nepal
Mobile: +977-9-843421778
E-mail: me_heartly99@gmail.com
11. **Dr. Chandra Prasad Bhusal**
Senior Consultant
Department of Ayurveda
Ministry of Health and Population
Kathmandu, Nepal
Mobile: +977-9-843421778
E-mail: drchandrabhusal@gmail.com

Sri Lanka

12. **Mr. P. S. K. R. Weerakoon**
Commissioner
Department of Ayurveda
Ministry of Health and Indigenous
Medicine
Colombo, Sri Lanka
Telephone: +94-11-2698511
E-mail: secretary@health.gov.lk
13. **Professor K. K. D. S. Ranaweera**
Director
Bandaranayke Memorial Ayurvedic
Research Institute
Nawinna, Sri Lanka
Mobile: +94-712413537
E-mail: kkdsranaweera@gmail.com

Thailand

14. **Dr. Anchalee Chuthaputti**
Director
Office of International Cooperation
Department of Thai Traditional and
Complementary Medicine
Ministry of Public Health
Nonthaburi, Thailand
Telephone: +66-2-5914409
Mobile: +66-854856900
Fax: +66-2-5914409
E-mail: anchaleeuan@gmail.com
15. **Dr. Khwanchai Visithanon**
Director
Bureau of Strategy
Department of Thai Traditional and
Complementary Medicine
Ministry of Public Health
Nonthaburi, Thailand
Telephone: +66-2-9659490
Mobile: +66-84454856900
Fax: +66-2-5914409
E-mail:
khawanchai@health.moph.go.th
16. **Prof. Dr. Somboon Kietinun**
Honorary Professor
Chulabhorn International College of
Medicine
Thammasat University, Rangsit
Campus, Pathum Thani, Thailand
Telephone: +66-2-9269779, 9267703
Fax: +66-2-9267703
17. **Ms. Uratchat Vichaidit**
Technical Public Health Officer
Bureau of Alternative Medicine
Department of Thai Traditional and
Complementary Medicine
Ministry of Public Health

- Nonthaburi, Thailand
Telephone: +66-2-1495636
Mobile: +66-851999971
E-mail: auruchat@gmail.com
18. **Dr. Supattra Rungsimakan**
Pharmacist
Office of International Cooperation
Department of Thai Traditional and
Complementary Medicine
Ministry of Public Health
Nonthaburi, Thailand
Telephone: +66-2-5902608
Mobile: +66-831234251
Fax: +66-2-5902608
E-mail: rsupattra@outlook.com

Secretariat

19. **Mr. S. M. Nazmul Hasan**
Director
BIMSTEC Secretariat
Dhaka, Bangladesh
Telephone: +880-2-9887579
Mobile: +880-1791580835
Fax: +880-2-9887565
E-mail: dir_bd@bimstec.org,
nazmulhasan74@yahoo.com

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