

STATE OF SOWA RIGPA IN BHUTAN – SEPTEMBER 2013

*Dorji Wangchuk, Director General, National Institute of Traditional Medicine,
Royal University of Bhutan, Thimphu*

Abstract

Bhutan is known as sMen-jhong rGyal-khab, meaning the land of medicinal plants. Above the Indian plains, the country gradually rises from the luxurious jungle of the foothills of about 150 meters above sea level to the solitude of the snow-capped peaks which culminates at more than 7500 meters above sea level.

This difference in altitude, bringing almost tropical vegetation right to the base of glaciers, has made it possible for plants of extremely different climatic and environmental conditions to grow in the same country. Tropical and subtropical forests are found in the south. Temperate and even Mediterranean plants flourish in the valleys, and very rare specimens grow up to 5000 meters above sea level. To date, more than 600 medicinal plants have been identified in Bhutan and at least 300 of these are commonly used by practitioners in the country for preparing medicines.

Sowa Rigpa was institutionalized in the 17th century by the political architect of medieval Bhutan - Shabdrung Ngawang Namgyal. It was integrated with the modern health care system in 1967 under the Royal command of His Majesty Jigme Dorji Wangchuck, the third King of Bhutan. The main mission was to provide traditional medical services as an alternative choice of treatment for the people of Bhutan. It was also mandated to preserve and promote the unique system of medicine that is based on rich culture and tradition through capacity building and establishing an effective system within the framework of the overall national health care system.

From a single Indigenous Dispensary in 1968, the traditional medical service has grown rapidly over the years to cover the entire country. Currently, there are 1 apex traditional referral hospital, 1 training institute, 1 manufacturing industry and 50 traditional medicine units attached to district hospitals and basic health units in the country providing traditional primary health care services to the people. The expansion of such traditional health care services will continue under the national health policy of integration.

COUNTRY BACKGROUND

Bhutan is situated between India and China (Tibet) and is totally landlocked. The total land area is only 38,394 square kilometers and the population in 2011 was estimated at 737,838 with Gross National Product (GNP) per capita income of USD 2300/- (NSB, 2011) The country has a forest cover of over 72% attributing to the presence of a rich biological diversity. These forests are home to several endangered species of flora and fauna harbouring over 7000 species of plants, 165 species of mammals and 700 species of birds (MOA, 2003). Bhutan is regarded as one of the ten global hot spots in terms of biodiversity and environmental conservation. Apart from its rich biodiversity and natural resources, Bhutan is rich in cultural heritages and one of them is the traditional medical heritage known as *Sowa Rigpa*.

Bhutan is known as *sMen-jhong rGyal-khab*, meaning the land of medicinal plants. Above the Indian plains, the country gradually rises from the luxurious jungle of the foothills of 150 meters above sea level to the solitude of the snow-capped peaks, which are as high as 7500 meters above sea level (ITMS, 2010). This difference in altitude, bringing almost tropical vegetation right to the base of glaciers, has made it possible for plants of extremely different climatic and environmental conditions to grow in the same country. Tropical and subtropical forests are found in the south. Temperate and even Mediterranean plants flourish in the valleys, and very rare plants grow up to 5000 meters. To date, more than 600 medicinal plants have been identified in Bhutan and at least 300 of these are commonly used by practitioners in the country for preparing medicines (ITMS, 2010).

NATIONAL HEALTH CARE SYSTEM

Until the inception of modern health care services in 1961, the traditional medical system including the *Sowa Rigpa* and local healing systems remained as the mainstream of health care delivery system of the country. After the advent of modern health care services in the country, an integrated health system policy was foreseen as an effective strategy to reach a scattered population in the rural areas of Bhutan. Therefore, the current national health policy aims to provide well integrated, equitable and balanced health care service delivered through a four tier

network system consisting of national, regional and district hospitals followed by Basic Health Units (BHU) at the community level. Based on such integration policy, the *Sowa Rigpa* medical system was officially incorporated into the mainstream health care delivery system of Bhutan in 1968. It provides primary health care services (PHC) based on eight essential elements. Ever since the launch of PHC, the health status of the people has greatly improved through the effective implementation of PHC components. The integrated health care service services coverage is estimated over 90%.

HISTORY OF SOWA RIGPA IN BHUTAN

Since the Buddhist philosophy is the mainstream of *Sowa Rigpa* medical practice, its origin is believed to be as old as Buddhism. However, the principles of three humours, diagnostic procedures and treatment regimens were recorded to have been developed in the 7th century in Tibet. The scholars of Bhutan believe that it is this Tibetan *Sowa Rigpa* which has been modified and adapted to the needs of Bhutanese traditional health care system making it unique to Bhutan. For example, medicinal ingredients used in some of formularies and also the cauterization procedures differ from Tibetan *Sowa Rigpa*. Therefore, as much as there may be similarities between Bhutanese and Tibetan *Sowa Rigpa*, there are also many variations to make Bhutanese *Sowa Rigpa* a distinctly home brewed one.

Sowa Rigpa may have been introduced in the 8th century with the advent of Mahayana Buddhism, but it was institutionalized only in the 17th century by Shabdrung Ngawang Namgyal. It is believed that his personal physician and a Minister of Religion, Tenzin Drukda started the spread and teaching of *Sowa Rigpa* in the country. Since then, many Bhutanese physicians practiced *Sowa Rigpa* and some of them have been even sent to Tibet for further studies in *Sowa Rigpa*. Not much has been recorded about practicing physicians from the time of Shabdrung Ngawang Namgyal to the time of Wangchuck Dynasty. However, it was recorded that the elites of Bhutanese societies including Kings and royal families has personal traditional physicians. Realizing the importance of *Sowa Rigpa* in upholding the health of the people, Drungtsho Pema Dorji who has completed his study of *Sowa Rigpa* from the Chagpori Medical Institute was commanded by the third King of Bhutan in 1967 to establish a *Sowa Rigpa* system

in Bhutan. He, along with another Drungtsho Sherub Jorden who has completed his *Sowa Rigpa* and some of them have studies from Lhasa Mentseekhang, started the system of *Sowa Rigpa* in 1968 by opening one Indigenous Dispensary.

National Policy and Mission of Traditional Medicine

The main mission is to provide the traditional medical services as an alternative choice of treatment for the people of Bhutan. It is also mandated to preserve and promote the unique system of medicine that is based on rich culture and tradition through capacity building and establishing an effective system within the framework of the overall national health care system.

Bhutan 2020: A Vision for Peace, Prosperity and Happiness states the importance of Traditional Medicine as follows. *“We must continue to provide a place for traditional medicine in our system of health care. Traditional medicine embodies the knowledge that has been accumulated over centuries and which draws upon the nation’s rich bio-diversity and of plants with proven medicinal qualities. As these qualities become substantiated by scientific research, there is a growing need to integrate more effectively traditional medicine with the modern system of health care. The maintenance of traditional medicine not only adds dimension to the nation’s system of health care, but provides an alternative for those who seek one. It should also be regarded as a conscious decision to conserve a part of our rich and varied cultural heritage”*.

DEVELOPMENT OF SOWA RIGPA IN BHUTAN

From a single Indigenous Dispensary in 1968, the traditional medical service has grown rapidly over the years to cover the entire country. Currently, there are one apex national referral hospital in the capital of Bhutan, one training institute, one manufacturing industry and 39 traditional medicine units attached to district hospitals and basic health units as per the national health policy of integration. The constitution of the Kingdom of Bhutan states that ‘the state shall provide free access to basic public health services in both modern and traditional medicines’. This will call for an establishment of traditional medicine units in all remaining health facilities in the country.

At the national level, the Indigenous Dispensary was upgraded to National Indigenous Hospital in 1979 and shifted to the present site in Kawang Jangsa from Dechencholing. The National Indigenous Hospital was renamed as the National Institute of Traditional Medicine (NITM) in 1988. Due to increased functions, the NITM has been upgraded as the Institute of Traditional Medicine Services (ITMS) in 1998 with three functional units as follows:

1. **National Traditional Medicine Hospital (NTMH)** - responsible for the development and provision of quality traditional medical care including different therapies.
2. **National Institute of Traditional Medicine (NITM)** - responsible for the development of human resources required for the traditional medical services.
3. **Pharmaceutical and Research Unit (PRU)** - responsible for the manufacturing and production of medicines, conducting quality control for both raw materials and finished products, carrying out research activities and marketing of the products.

Since Jan 2011, the management of the National Institute of Traditional Medicine has been transferred to the Royal University of Bhutan from the Ministry of Health. The Pharmaceutical and Research Unit has been renamed as Menjong Sorig Pharmaceutical (MSP) and there is a plan to make it as an Autonomous Organization as a prelude to become a Corporation in the future.

The traditional medical service functions as an integral part of the national health care delivery system. It is available in all 20 districts and is housed under the same roof of district hospitals and basic health units for mutual consultation, treatment and cross referrals of patients. The traditional medical system serves as complimentary to the modern medical services and offers a choice for the patients to seek either of the services.

The main aims and objectives of traditional medicine are:

- Promote *Sowa Rigpa* system in the country
- Preserve the unique culture and tradition related to *Sowa Rigpa*
- Provide alternative medicine as complimentary to the allopathic system
- Produce medicines required by the traditional medical system

- Conduct research and quality control of medicines
- Develop human resources required for the traditional medical system
- Achieve excellence in traditional medicine services in Bhutan

The Royal Government of Bhutan has created a Department of Traditional Medicine Service in December 2013 under the Ministry of Health to further strengthen the traditional medical services in the country.

NATIONAL TRADITIONAL MEDICINE HOSPITAL

There are 10 Drungtshos including Medical Superintendent and 10 Menpas in the National Traditional Medicine Hospital (NTMH) for the provision of traditional medical services and therapy services. As an apex hospital for *Sowa Rigpa* in the country, it is responsible for providing tertiary care services and act as a referral center for the district hospitals. The total number of patients treated in 2012 was 49,527 (AHB 2012)

NTMH provides different therapies such as cauterization with gold and silver needles, blood letting, moxabustion, herbal bath, herbal steam bath and localized herbal steam application, nasal irrigation, massage with medicated oils etc. whereas, at the district TM units only cauterization with gold and silver needle is provided at the moment. The total number of therapies conducted at NTMH was 22,246 in 2012 (AHB 2012)

In order to provide quality and standard treatment regimens to the patients: various guidelines such as ‘Traditional Disease Codes and Classification of Diseases, Standard Treatment Guideline and Therapy Guidelines’ have been also developed and distributed to all the practicing Drungtshos and Menpas in the country.

Currently, there is no in-patient service in the NTMH due to lack of infrastructure. However, in view of the need to provide intensive care and services to the patients seeking traditional medicines, and also for clinical teaching of the students of NITM, a proposal has been submitted

to the Ministry of Health for establishing inpatient services in the NTMH. It would entail the construction of 20 bedded wards and related facilities like kitchen, store, and quarters for the cooks etc. The NTMH also provide outreach services to 9 religious and meditation centers around the Thimphu valley on a regular basis.

The district traditional medicine unit is manned by 1 Drungtsho (Traditional Physician) and 1 sMenpa (Traditional Clinical Assistant). For the benefit of rural communities, religious centres and secluded areas, an outreach services for traditional medicine is introduced in all districts where Drungtshos and sMenpas visit these places turn wise on a monthly basis. Currently, there are 50 traditional medicine units in the districts and the total number of patients treated in 2012 was 65,895 (AHB 2012)

NATIONAL INSTITUTE OF TRADITIONAL MEDICINE

Since its inception in 1971, the Institute has trained 85 Drungtshos, 89 sMenpas, 21 Pharmacy Assistants and 11 Research Assistants. The Institute will continue to train Drungtshos and sMenpas as required by the Ministry of Health. The Institute will also train Pharmacy Assistant and Research Assistants in collaboration with the *Menjong Sorig* Pharmaceutical as and when required. The focus during the next five years is to improve the quality of training programs through the appropriate faculty development and procurement of required teaching/learning materials. The Institute will also plan and implement in-service training programs for the qualified Drungtshos and Menpas to improve the quality of services.

The NITM has become a federated college of the Royal University of Bhutan in 2008. Therefore various curriculum and programmes in relation to university academic requirements have been recently developed. Many teaching materials and contemporary textbooks have been also developed by the institute.

Although, human resource development for the traditional medical services at present is based on the actual service delivery needs of the Ministry of Health, it is expected to change in the future. The rapid socioeconomic and political development of the country and the population growth and demographic changes will spur the need for more *Sowa Rigpa* practitioners in the country. There is

also a growth in popularity worldwide for the alternative medicine and our system of traditional medicine is one of the popular alternatives. Therefore, there is great scope to increase the intake of students to meet the growing demands.

The current policy of establishing a traditional unit up to the district level is being reviewed and there is a plan to introduce traditional medicine unit in all the BHUs, as mandated by the Constitution. Similarly, the privatization and private practice policies of the Royal Government are likely to be changed in due course of time. At present, the *Sowa Rigpa* education is available only in Dzongkha and Choekye and there is a plan to develop short programmes in English for foreign students.

Academic Programmes:

1. Drungtsho Course.

The duration of training for Drungtsho is 5 years after class 12 and they receive a Bachelor's Degree in Traditional Medicine on successful completion of the training programs. It is affiliated to the Royal University of Bhutan and recognized by the Bhutan Medical and Health Council. The number of student intake is based on the requirements of the Health Ministry and the job is guaranteed after the training. They are licensed to practice *Sowa Rigpa*.

2. sMenpa Course

The sMenpa's course is 3 years after class 10 and they receive a Diploma in traditional medicine after the training. The number of student intake is based on the requirements of the Health Ministry and the job is guaranteed after the training. This program is also recognized by the Bhutan Medical and Health Council and licensed to practice *Sowa Rigpa*.

3. Pharmacy Assistant

The pharmacy technician course is of 2 years after class 10 and is conducted in coordination with MSP as on the job training. The medium of instruction is English and the Ministry of Health employs all of them after the training.

4. Research Assistant

It is a 2 year certificate program after class 10 passed and is conducted as and when required. The training mechanism is same as Pharmacy Assistants.

In addition to the above training programmes, the NITM is also responsible for organizing and conducting in service training programmes for the traditional medical practitioners in order to improve the quality of traditional medical services. At present there are 12 lecturers and most of them are graduates of NITM and do not possess the required training in teaching. Although, there is a plan to enhance the technical capability of faculty members, the scope for further training especially at the Masters level is limited due to non-availability of appropriate Institutes in the region. The teaching faculty is supported by 15 administrative staff and there is a student body of 65.

MENJONG SORIG PHARMACEUTICAL

In the past all medicines were produced manually. Small scale mechanized production started only in 1982 with support from the World Health Organization. From 1998 onwards, the manufacturing Unit was upgraded as the Pharmaceutical and Research Unit (PRU) through European Commission (EC) funding and now all products are produced mechanically following good manufacturing practices (GMP) regulations with more emphasis on quality control. Unlike modern drugs, traditional medicine in Bhutan is purely an indigenous product since; its source, processing know-how, and the human resource capacity are available in the country. The preparations are purely natural and no chemicals are used.

Traditional medicines being an integral part of the National Health Service, timely supply of effective traditional drugs in sufficient amount plays a crucial role in the delivery of quality health services. With the commissioning of the Pharmaceutical and Research Unit, shortage of traditional medicines has been significantly reduced. The unit currently produces approximately 8 - 9 metric tons of traditional medicines and meets the requirement of traditional medical services in the country.

The *Menjong Sorig* Pharmaceutical has three main sections: Production, Research and Quality Control and Marketing

Production section

This section is responsible for the collection of raw materials and manufacturing of traditional medicines based on the traditional formula using latest production technology. The medicines are manufactured based on good manufacturing practices (GMP) guidelines, using standard manufacturing instruction (SMI). The unit currently uses modern equipments and production processes to manufacture authentic traditional medicines as per the traditional system of *Sowa Rigpa*

According to *Sowa Rigpa*, more than 2990 different types of raw materials are used in traditional medicine. In Bhutan, about 265 different types of raw materials are used to produce 103 compounds that constitute an essential list of traditional medicines. About 85% of raw materials are available within the country and remaining 15% are imported from India.

The raw materials are classified into:

1. sNgo-sMen	– high altitude medicinal plants	135 species
2. Throg-sMen	– low altitude medicinal plants	95 species
3. Sa-sMen	– Mineral origin	20 types
4. Sog-cha-sMen	– Animal origin	16 types
	Total	= 265

The MSP currently produces 103 traditional medicines in different dosage forms. In addition, it also produces and markets a dozen of herbal products in the local market. For better patient compliance and better management, dosage forms are standardized. Currently, medicines are manufactured in the form of pills, tablets, capsules, syrups, ointment, medicated oil and powder.

While there is currently an abundance of wild medicinal plants available, wild plants are a challenge to search for and to find, often growing in remote and dangerous locations. In the long term, sustainability is essential and farmers are being encouraged in the sustainable collection and cultivation of medicinal herbs. The intention is that medicinal plants can be grown by farmers as a cash crop in the same manner as fruits and vegetables. A ready market already exists in India and other countries for any produce in excess of Bhutan's own needs.

Community based sustainable management of Medicinal Plants has been established and some species are introduced for cultivation in collaboration with the Medicinal and Aromatic Plants Division of the Ministry of Agriculture. The focus is on the development of medicinal plants industry at all levels including sustainable collection and /or production and marketing of herbal products to function the MSP as a self-sustaining commercial entity.

Research & Quality Control

This section is responsible for assuring quality and assessing the efficacy and safety of the traditional medicines. Research efforts are focused on authentication of species, building quality parameters both for raw materials and finished products and standardization of the production processes. The main objectives are:

1. To scientifically validate the efficacy and safety of traditional medicines
2. To ensure and enhance the quality and stability of traditional medicines
3. To explore the opportunities for new products using natural resources to combat existing and emerging health problems.
4. To improve production methodologies

Under the Research and Quality Control Section there are several sub-sections with their own specialization and functions.

a) **Quality control** section is responsible for assuring quality of the medicine by implementing the set quality parameters. Besides this routine quality check, QC section monitors the stability of traditional medicine on the shelf, co-ordinates product recalls and assist in the management of adverse drug reactions. It is also responsible for the validation and oversees standard manufacturing instruction that is part of GMP.

b) **Pharmacognosy** section studies the cells and tissues of the raw materials that need authentication and standardization for monograph building. The section in co-ordination with ethno-botany also studies the species variation at the cellular level and through physio-chemical studies

c) **Pharmacology** section is responsible for the scientific validation of traditional drug efficacy by developing appropriate disease models for *in vitro*, *in vivo* and clinical studies. One of the major drawbacks of traditional drugs and treatments is their lack of scientific data to support their claims. Although it is recognized as an important area of research, our effort in this direction is seriously hampered by the lack of modern facilities for *in vivo* studies (laboratory animal facility) as well as lack of trained personnel in conducting clinical trials scientifically. This is further aggravated by the lack of clear regulatory guidelines and authority in the country for conducting both animal and human studies.

d) **Phytochemistry** section screens the potential plant materials through chemical extractions. The major task of this section is the extraction and identification of main chemical constituents present in different extracts. The extracts are then preserved for authentication/standardization and quality control purposes. The extracts with potential bioactivities are provided to different sections for further research. This section also sets the quality parameters to be adopted by the quality control section by running through different instruments and method validation. The other activity of this section includes development and validation of pre-processing/detoxification methods.

e) **Ethno-botany** section is responsible for the research on the ethnic uses of medicinal plants, authentication of plants through botanical studies, and standardizing as per traditional texts. This section is also responsible for developing and maintaining medicinal plant herbarium in the unit. In addition this section carries out a survey of species diversity, distribution and population robustness of medicinal plants that are being used in the manufacture of traditional medicine as well as those plants which are proven to be of medicinal value.

Research and quality control section have the human capacity and ability to institute and carry out modern quality control tests for conventional drugs as per the protocols of the manufactures. Various quality guidelines, protocols and frameworks have been developed by this section. The pictorial field guide books on “high and low altitude medicinal plants” serves as the important reference material for correct identification of the medicinal plants both for the practitioners and students. The monographs and the handbook on the quality control parameters serves as the

standard protocols for screening and maintaining the quality of Bhutanese traditional medicines manufactured by the MSP. Drug master files have also been developed by the section for each of the 103 current formulations have been submitted to the Drug Regulatory Authority of Bhutan for regulatory purpose.

Marketing Section

Marketing activities were initiated since 1998 onwards. Since then more than 20 products were introduced for commercial sale in the local market in addition to 103 traditional medicines. Tsheringma herbal tea and Tsheringma incense powder are two of the popular products at the moment. There are also few new products in the process of development. However, because of funding scarcity, it will take some time to launch these products.

Besides marketing our products, the regional markets of SAARC countries will be explored for sourcing the low altitude medicinal plants and other ingredients to have a competitive raw material sourcing strategy. The SAARC region is a vast source of medicinal plant and herbal products. Opportunities for two ways trade relation in both raw herbs as well as finished herbal products exist to be explored.

It is anticipated that the MSP will become a self-sustaining, and a dynamic profit centre of the Royal Government with operational autonomy, producing and supplying traditional medicines and herbal products of international quality standards (cost effective, safe, and of high therapeutic value). A marketing strategy and a plan to market products both in the domestic market and foreign markets will be developed based on the capacity of the unit and the market studies to be conducted within the region and few western markets.

CONCLUSION

The Sowa Rigpa system in this country has come a long way since its official recognition in 1967 due to a strong political commitment of the Royal Government of Bhutan. It is one of the most sustainable methods for the health care delivery system, as all traditional medicines are manufactured in Bhutan and also since the human resources are developed within the country.

This traditional medical system is a perfect miniature representation of a bigger national policy of Gross National Happiness. It encompasses all the four pillars of GNH which are the preservation of culture and tradition, preservation of environment, acceleration of economic growth and the enhancement of good governance

However, there is a need to build adequate infrastructures for all three units of the Institute of Traditional Medicine Services in order to fulfill its mission for the development of human resources for traditional medical services, production of traditional medicines and for the provision of quality traditional medical services. The major challenges for Traditional Medicine Services are mobilizing adequate resources for infrastructure development and for introducing post graduate programs in Sowa Rigpa.

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