
| RESEARCH ARTICLE

The Analysis of Application Prospect and Sustainable Mode of Regional Resources in the Context of Tibetan Medicine Culture

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| ABSTRACT

At present, the Tibetan medicine culture formed by Tibetan medicine and Tibetan Buddhism has a state of aphasia in the global multicultural context. Furthermore, the medicinal resources bred in the special geographical location of the Qinghai-Tibet Plateau are not only the important material basis for the formation and development of Tibetan medicine culture but also provide potential value for modern drug discovery and medical research. Based on the existing research texts and scientific research data, this paper constructs the SPS sustainable development framework by combing the general situation of the medicinal resource and industry in the Qinghai-Tibet plateau, the background, and the prospect of the formation of Tibetan medicine culture, which provides the basic theoretical research and relevant countermeasures for the sustainable development and resource reuse of Tibetan medicine in the context of Tibetan medicine culture. It is meaningful that the research on the cultural propaganda of Tibetan medicine's national idea and medicinal value has found that the cultural industry code and the resource application potential in the Qinghai-Tibet Plateau region will have prominent geo-economic benefits in the near future, especially in the moment when the global epidemic is suddenly spreading.

| KEYWORDS

Tibetan medicine culture, Tibetan medicine resources, Qinghai-Tibet Plateau, Sustainable development, SPS framework

| ARTICLE INFORMATION

ACCEPTED: 28 September 2022

PUBLISHED: 01 October 2022

DOI: 10.32996/jhsss.2022.4.4.10

1. Introduction

Qinghai-Tibet Plateau (QTP) is a natural geographical unit with the highest altitude in the world, closely combined with horizontal and vertical zonality, and known as the "Roof of the World" and "The third pole of the world". So far, restricted by the special geographical environment of QTP, the renewable innovative application of Tibetan medicine resources, and the continuous evolution in the context of traditional culture, there are few research documents in the field of sustainable development of Tibetan medicine, and it is urgent to innovate in practical application. In view of the above reasons, this paper carries out secondary research based on the relevant literature retrieved. We start from the cultural context of Tibetan medicine, which is deeply fettered by Tibetan Buddhism. Moreover, we draw lessons from the research results of the sustainable development theory of endangered medicinal materials and national culture at home and abroad. This paper tries to put forward a sustainable system called SPS of Tibetan medicine and ecological resources based on the trinity of the sustainable development system, publicity system, and supervision system under the perspective of the Internet so as to provide certain countermeasures for the integration and sustainability of Tibetan medicine resources industry chain.

1.1 Formation of Tibetan Medicine System Relying on Regional Resources

The investigation shows that there are more than 300 kinds of medicinal resources (including animals, plants, and minerals) in QTP (Chen et al., 2005). In addition, about 3100 drugs have been developed and used by Tibetans according to their ethnic groups, including dozens of medicines that need to be imported from other countries such as India and Nepal (Jia & Zhang, 2016). Thus,

it also enables China to be one of the countries which possess the most abundant biodiversity and natural plant resources in the world, and the QTP is also well-known as an irreplaceable source of world germplasm resources. Its special geographical conditions and resource reserves produce genuine medicinal materials with cold resistance, anti-hypoxia, and other unknown crude drugs from the perspective of modern human beings, which are not only the important material basis for the formation and development of Tibetan medical culture, but also provide potential possible value for modern drug discovery and medical research.

The Tibetan medicine system formed with the help of plateau medicinal resources has gradually stepped into the world due to its excellent characteristics for use. Therefore, it is sought after by the majority of medical workers and patients. In 2018, it was officially listed in the Representative List of the Intangible Cultural Heritage of Humanity by United Nations Educational, Scientific and Cultural Organization (UNESCO) (Lv, 2022). As an important part of traditional China medicine, Tibetan medicine develops with the migration and evolution of ethnic groups. It is not only independent of traditional Chinese medicine to form unique theories and treatment means but also relies on the special plateau regional environment to continuously absorb and draw lessons from the practical medical experience and advanced ideas of other nationalities. Gradually, it has formed a medical system with a complete theoretical system, unique diagnosis and treatment methods, religious and cultural context, and distinct national attributes (Shen et al., 2021).

1.2 Responding to the Challenges of Ecological Factors and Conforming to the Trend of Future Industries

From the perspective of the natural conditions, the natural biodiversity and ecological fragility of the QTP region have caused the temperature rise rate to be about twice the global average. Climate change caused by the global warming effect, which began to spread gradually 50 years ago, has already shown negative feedback in many natural ecosystems. The ecological risk assessment results of EAI (ecological risk assessment model) have shown that the overall ecological risk of QTP in the future will tend to increase, and it is difficult to be predicted due to the fact that there are not always the same in consistent characteristics at different altitudes (Wang et al., 2021).

Actually, with the integrated industrialization development and resource development of Tibetan medicine, diverse local authentic medicinal materials are in short supply or even on the verge of extinction. The following are the current problems that have greatly restricted and challenged the ecological maintenance and sustainable development of Tibetan medicine in the Qinghai-Tibet region. It includes but is not limited to many kinds of local genuine medicinal materials being in short supply or even on the verge of extinction with the development of integrated industrialization of Tibetan medicine and resource exploitation, harshness, and uncontrollability of plateau environment, the over-exploitation of Tibetan medicine resources as well as extensive processing and lagging behind the application of technology, the inevitable contradiction between man and land under the rapid economic and social development, etc. (Li & Zhan, 2007). However, from another point of view, the further exploitation of medicinal resources and the development of relevant enterprises in QTP are the choices conforming to the global health strategy. Only by making full use of reasonable industrial layout and advanced technology to promote local economic growth, including grasping its cultural core to the maximum extent, can we provide more regional benefits for the sudden change trend of increasingly complex global epidemic diseases.

2. Medicinal Resources of QTP and the General Situation of Industry

According to the distribution of administrative divisions in China, the QTP region includes the whole region of Qinghai Province and Tibet Autonomous Region, most counties of Aba and Ganzi prefectures in western Sichuan, part of Diqing Prefecture in northwest Yunnan, Lintan, Xiahe, Luqu and Maqu in southern Gansu, and most of Tashku County in Xinjiang (Qi & Luo, 2000). The latest research shows that there are more than 12000 species of seed plants on the QTP, as well as uncountable mineral resources, unknown medicinal materials, and fungi. The biodiversity, especially the diversity of medicinal plant resources, is mainly reflected in the eastern and southeastern regions of the plateau, including the eastern and southeastern parts of Tibet, the northwest of Yunnan, and the west of Sichuan. Among them, there are many endemic species as unique Tibetan medicinal materials, such as *Rhodiola crenulata* (Hook.f.et Thoms.) H. Ohba and *Saussurea medusa* Maxim, etc (Wen et al., 2013).

Yu et al. (2018) collected, sorted out, and determined the list of seed plants distributed in QTP according to the monographs, such as Flora, and the research results of the scientific expedition team. By analyzing their characteristics, composition, and spatial geographical distribution, they found that there are more than 3700 species of unique seed plants in this area, more than 75% of which are herbaceous plants, and more than half of them are distributed in temperate and middle altitude areas.

Zhao et al. (2022) identified 254 native plants in the QTP that have been recorded as medicinal parts and main chemical components based on the list of various medicinal plants (excluding cultivated plants and exotic plants). It covers 71 families and 162 genera (Fig. 1), among which the plants with the most species are Compositae, Ranunculaceae, and Leguminosae. Additionally, *Nardostachys jatamansi* belonging to Caprifoliaceae and *Fritillaria cirrhosa* belonging to Liliaceae are common and precious Tibetan medicinal materials with large regional resources.

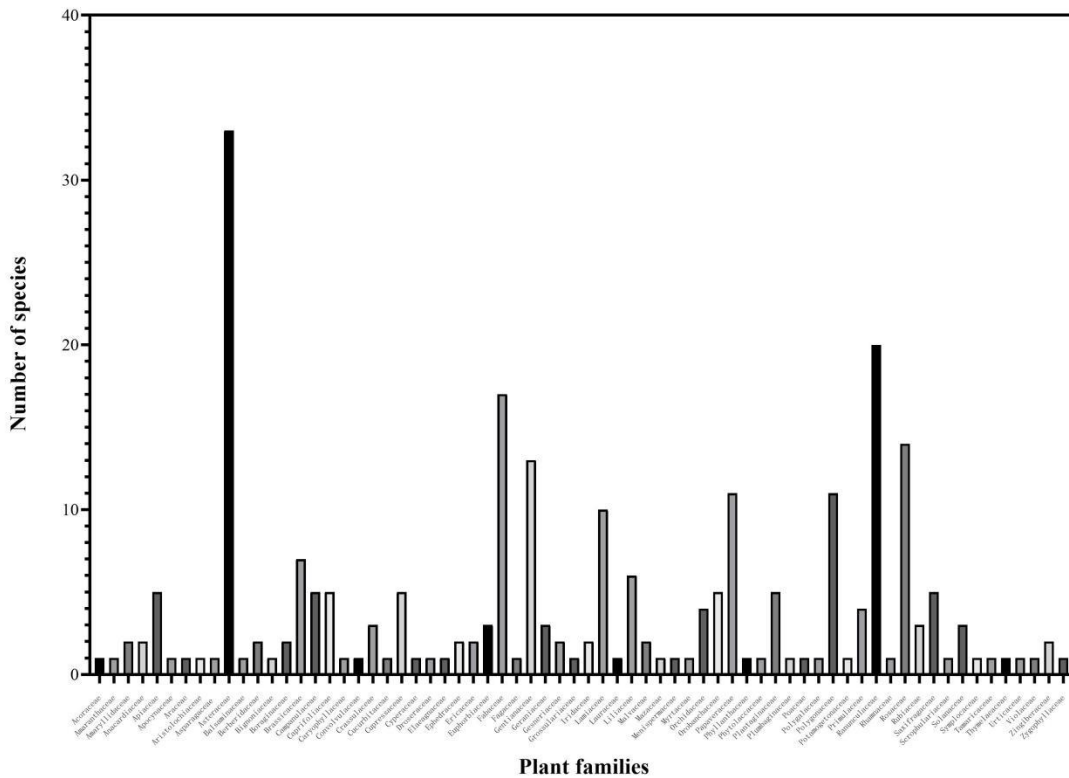


Figure 1. Histogram of medicinal plant resource species in Qinghai-Tibet Plateau (in addition to cultivated plants and exotic plants)

However, with the continuous development of the Tibetan medicine industry and the extensive research at home and abroad, most of the wild medicinal resources only living in plateau areas have been endlessly seized and consumed. Eight kinds of medicinal materials, such as *Clematis nannophylla* Maxim, *Phyllanthi Fructus*, and *Lamiophlomis rotata*, are often used as Tibetan traditional medicinal materials. Taking *Lamiophlomis rotata* of Labiatae as an example, the plant resources are relatively scarce due to continuous root application, so the subsequent China Pharmacopoeia (China Pharmacopoeia Commission, 2020) stipulates that only the stem and leaf parts exposed to the ground surface are selected.

In recent years, China has also encouraged the inheritance of traditional Chinese medicine and the development of ethnic medicine. On the one hand, the state will continue to promote the implementation of relevant policies and financial support in the field of traditional Chinese medicine as a whole. On the other hand, the Tibet Autonomous Region, as a provincial-level unit rich in medicinal resources, has also introduced various policies to incorporate the systematic development of Tibetan medicine into the local industrial development standards (Zang et al., 2021). In the research scope from different perspectives such as pharmacy and economics, we can also find that the traditional Tibetan medicine field is constantly connected with the modern pharmaceutical industry with target therapy as the core, and shows the rich potential medicinal value and industrial chain development opportunities. We will achieve win-win cooperation through resource exchange and development model complementation with Southeast Asia and South Asia.

In addition, the layout and development of industries under the macro-economic level also analyze the demand for the development of Tibetan medicine and other related derivative industries in the Qinghai-Tibet region from the side.

According to the data from Tibet Statistical Yearbook (Duoji & Li, 2020) and Qinghai Statistical Yearbook (Kang & Chang, 2020), the proportion of GDP of the primary industry in these two administrative units has dropped sharply owing to the implementation of the reform and opening-up policy, while the proportion of GDP of the secondary and tertiary industries has increased. In the past 20 years, especially in the tertiary industry, both the proportion of employment and the proportion of overall investment have reached more than 50% (Fig. 2-5).

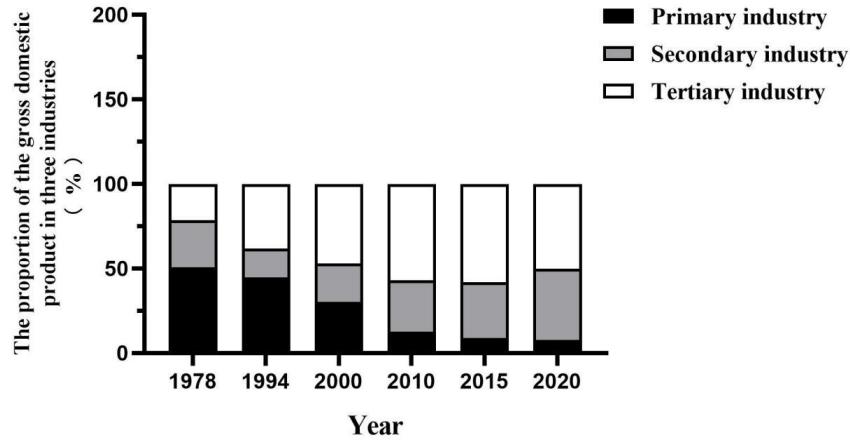


Figure 2. Trend chart of the proportion of the gross domestic product in three industries in the Tibet Autonomous Region from 1978 to 2020

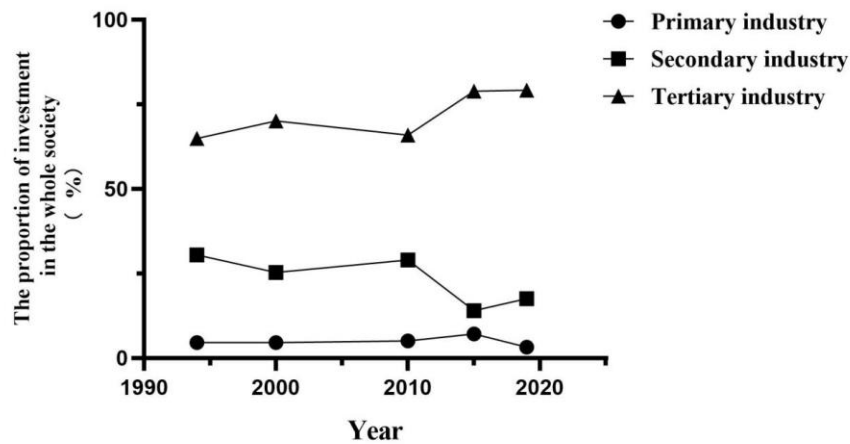


Figure 3. Line chart of the proportion of total fixed investment in three industries in the Tibet Autonomous Region from 1994 to 2020

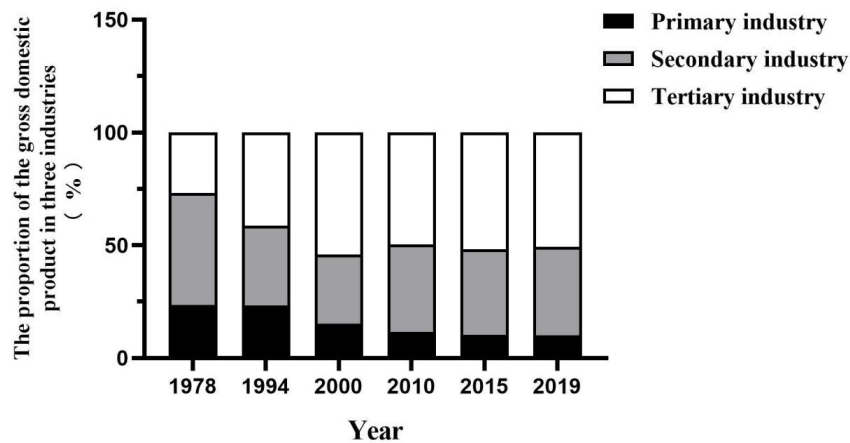


Figure 4. Trend chart of the proportion of the gross domestic product in three industries in the Qinghai Province from 1978 to 2019

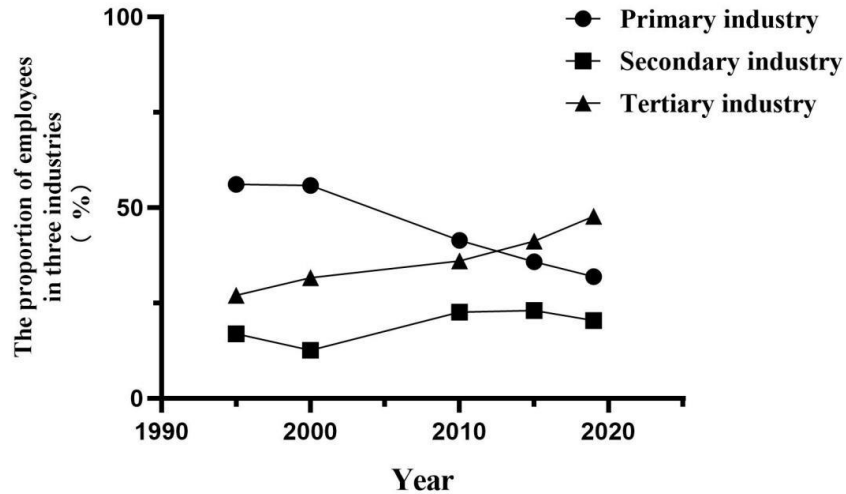


Figure 5. Line chart of the proportion of employees in three industries in the Qinghai Province from 1994 to 2019

However, in the research and investment of Tibetan medicine resources and related industries at home and abroad now, less attention has been paid to the sustainable development of Tibetan medicine resources in a specific society and history. They only follow the idea of modern medicine industry development to excavate the components of some discovered medicinal materials in a single way but lack a lot of practical verification and systematic thinking on the general survey of medicinal resources, the maintenance of the ecological environment, the development of endangered medicinal materials and the systematization of industry.

In conclusion, the only way for the development of the Tibetan medicine system is to develop the characteristic industries of plateau characteristic plant resources through investigation of Tibetan medicine resources, research as well as the development of new drugs and cultural promotion, and give full play to the characteristic advantages of QTP region.

3. The Development Prospect of Tibetan Medicine in the Context of Tibetan Medicine Culture

Since the 7th century, Buddhism was gradually introduced into Tibetan areas by Princess Wencheng, and the development of Tibetan Buddhism has been deeply rooted in the hearts of the people. Even today, the relative independence and sustainability of Tibetan Buddhism have an inestimable position in the field of Buddhism. It is said that a well-known Tibetan medical scientist called Yontan mGonpo, the ancestor of Tibetan Buddhism and Tibetan medicine, has pioneering significance for the development and systematization of Tibetan medicine. Many Buddhist monasteries in Tibetan areas have medical colleges called sman-pa-grwa-tshang by local people, and Buddhist classics, as well as medical works, are intertwined in the succession of masters and apprentices from generation to generation. Because of this, traditional Tibetan medicine has been preserved relatively intact in such a strict and semi-closed cultural atmosphere during the war and ethnic migration of more than one thousand years and gradually formed an inseparable Tibetan medicine cultural system in the long-term and far-reaching evolution.

Tibetan medicine culture relies on the integration of Tibetan Buddhism and Tibetan medicine, which is not just reflected in the need for specific rituals for blessing in the collection and processing of Tibetan medicine (Tibetan medicine needs to sing, chant scriptures, pray, and other special behaviors in diagnosis and treatment). Moreover, the inheritance of Tibetan medicine is closely related to Buddhism and monasteries. Some ancestral secret recipes that have been widely used up to now are often handed down in monasteries in the form of master and disciple. Otherwise, some eminent monks who have been recognized by the world are usually the inheritors of Tibetan medicine. An old Tibetan doctor once explained that the ritual made the Tibetan people more aware of the efficacy of drugs, and spells and rituals would make the Tibetan medicine produced different (Suo, 2015). In fact, such Tibetan medicine culture with distinct national color and religious mysticism are also similar to the connection between traditional Chinese medicine and witchcraft rooted in the Central Plains. According to modern medicine and psychology, the psychotherapy and suggestion effect contained in this process is one of the reasons why Buddhism and medicine coexist in Tibetan medicine culture.

In the era of economic globalization and cultural pluralism, the traditional cultural system, which is extremely dependent on international discourse power and the level of economic as well as social development, has fallen into a cultural dilemma. Similar to the dilemma seen in the development of Dai medicine, it is based on the overall crisis of national cultural inheritance rather

than just pointing to the use of medicinal resources itself (Liu, 2018). The lack of subjectivity, the fault of inheritors, the aphasia of religious culture, the contradiction between ecological protection and economic development, etc. It is wrong to talk about the development of a certain industry without a specific cultural context. Lei Jufang, chairman of Qizheng Tibetan Medicine Company, deeply understood that the development of the Tibetan medicine industry and even the Tibetan national economy needs to rely on the development path of local characteristics rather than sticking to the established medical development path in the world (Yang, 2012). From her perspective, Tibetan medicine is based on Tibetan culture. She once said, "only by fully respecting and identifying with this cultural concept can we go further in the field of Tibetan medicine."

In a word, the only way out for Tibetan medicine is to retain its nationality and absorb its openness. First of all, in the era of the prevalence of new media and the Internet, we should give full play to the cultural characteristics of Tibetan medicine and give full play to the role of Tibetan medicine as a public media on the international health industry platform. Secondly, by complementing the advantages of domestic and foreign resources and grasping the "One Belt and One Road" strategy of China international regional cooperation, the development needs of the industry will be implanted into the hearts of more people from the inside out (Jing et al., 2017). Only in this way can the demand of the global health industry be met, and while deeply preserving the diagnosis and treatment characteristics of Tibetan medicine in a specific cultural context, the mass culture series industry, innovative drug R&D industry, and resident talent post industry urgently needed to be developed by Tibetan medicine will also be promoted to usher in a vast market space.

4. Constructing SPS Sustainable Development System of Tibetan Medicine and Ecological Resources

As one of the world's medical heritages, Tibetan medicine has a wide range of world awareness of its development needs. The high incidence of various cancers and other chronic diseases, the development of multi-target drugs and the need for pharmacological research (such as cocktail therapy), the potential function analysis of unknown active ingredients in traditional medicine and its herbal compound preparations, etc., have pushed the national traditional medicine under the framework of modern western medicine to a new climax. In 1976, the pharmaceutical company Padma Ltd specializing in Tibetan medicine was established in Zurich, Switzerland. At the same time, the first clinical trial using Tibetan medicine prescription has also confirmed its good curative effect on peripheral arterial occlusive disease (PAOD) and chronic bronchitis in children (Schwabl & Vennos, 2015). It shows the connection as well as the origin between Tibetan medicine and the development of modern medicine in Europe.

Studies have shown that complex herbal formulations of traditional medicine can, in principle, meet the requirements of the European traditional herbal product system. In other words, the modernization of Tibetan medicine, traditional Chinese medicine, Indian traditional medicine, or other ethnic traditional medicine can achieve the purpose of mutual reference and mutual development through the mutual recognition of relevant cultural context and laws or regulations. As for the western medicine system, the exploration and participation of national traditional medicine, which has been tested for a long time, will also become an inevitable requirement for its scientificity.

The inheritance and innovation of Tibetan medicine and the sustainable development of the ecosystem in QTP depend on the root of Tibetan medicine culture. Based on Tibetan medicine culture, this paper tries to construct SPS sustainable system of Tibetan medicine and ecological resources from the perspective of the Internet and social media, including a Sustainable development System, Publicity System, and Supervision System.

The system will closely focus on the medicinal resources in the Qinghai-Tibet region and grasp the cultural core at the cognitive level. On the one hand, it relies on the top-level design of policies and laws through the use of cross-technology, such as fixed-point investigation of resources and the establishment of an open source database. On the other hand, it plans to establish a unified regional talent training system and fully promote the exchange of regional and interpersonal resources. This may become a major plan for us to open up a road for the sustainable development of Tibetan medicine or other traditional industries limited by traditional regional culture and limited or even endangered resources. Thus, the development strategy of Tibetan medicine based on the perspective of existing texts is expounded in a targeted and systematic way. While strengthening the need for ecological protection, we should also fully tap regional characteristics and continuously promote resource exchange and economic development in a specific cultural context. In addition, it can also provide a systematic thinking paradigm for the pharmaceutical, cultural or regional industries in a similar dilemma.

4.1 Sustainable Development System

According to the relevant statistical results, with the extensive unlimited exploitation of Tibetan medicine resources, there are 74 kinds of Tibetan medicine belonging to all levels and types of endangered Tibetan medicine, and all of them are listed in Rare and Endangered Plants in China (Liang et al., 2022). For the sake of protecting and developing the diversity of Tibetan medicine and other ethnic medicines, China has taken a wide range of measures based on its national conditions and actual scientific research

level, such as establishing national parks or nature reserves, setting up ecological protection red lines to strictly protect relevant animal and plant resources, or adopting ecological migration to carry out special maintenance by specially-assigned personnel in areas where the contradiction between people and land is difficult to adjust.

As a large country rich in medicinal plant resources and with a sound national medicine system, China attaches great importance to the protection of biodiversity, which has been distributed for hundred years. It has joined the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and other international conventions and organizations. In 1984, China published the list of the first batch of rare and endangered plants under protection. While actively carrying out the general survey of traditional Chinese medicine resources, it carried out academic work of cultivation, introduction, and substitution. At the same time, it established the complete germplasm bank, gene bank as well as cell bank and gave support to the following three aspects: scientific and technological assistance, laws and regulations, and public awareness.

The sustainable development system constructed in this paper (Fig. 6), as the overall layout of the SPS sustainable system of Tibetan medicine and ecological resources, will organically link the sustainable development demand of medicinal plant resources with the three paths of "technology", "human" and "ecology" on the basis of the domestic development status.

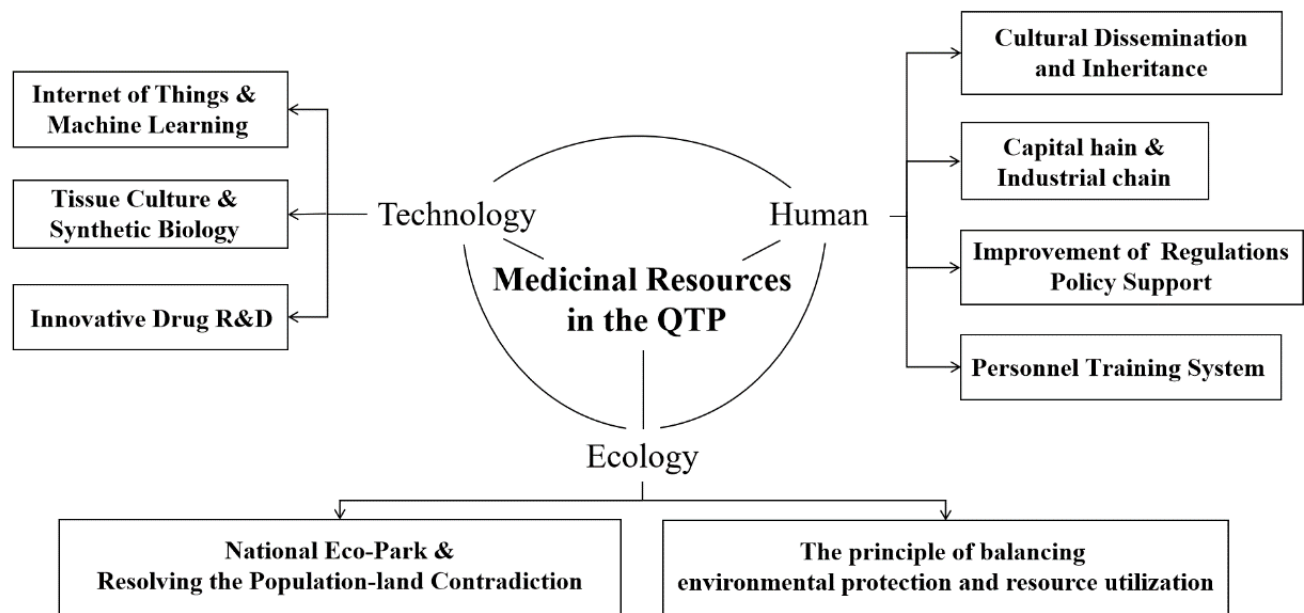


Figure 6. Schematic diagram of Sustainable development System based on the trinity of technology, human and ecology

The technical aspect is a key part of the system. The information database with the Internet of Things as the underlying logic should be established, and various machine learning modes should be used to analyze the components, screen the data, and predict the functions of Tibetan medicine resources so as to enrich the development space of existing medicinal resources and connect the international advanced research paradigm with the modern medical research direction. For example, in recent years, the Science and Technology Department of Tibet Autonomous Region has organized experts to summarize and sort out a large number of Tibetan medicine classics (Yang, 2022). Furthermore, they build an authoritative and open-source work management platform with digital technology, which has far-reaching historical significance for the dissemination of Tibetan medicine culture and the systematic development of Tibetan medicine. Additionally, the plant resources in QTP are often characterized by slow growth and uneven geographical distribution. Therefore, effective plant tissue culture technology and plant resource regeneration method to be developed urgently have inestimable prospects and value for the marketization of Tibetan medicine resources. Innovative drug research and development is the secondary development and selection of Tibetan medicine resources by creating new technologies or combining interdisciplinary means and constantly forming a recyclable and endogenous technology exchange trend.

The relationship between man and ecology is the basic element of the system. It is an inevitable choice to think about the sustainability of Tibetan medicine resources from the perspective of "people." In terms of top-level design, we need to pay attention

to the establishment of nature reserves, the limit of resource exploitation, the guarantee of talent cultivation, the establishment of laws and regulations, the marketization of the Tibetan medicine industry, etc. In addition, the inflow and operation of national macro-level funds, the western development strategy, and the initiative of “One Belt and One Road” commercial co-construction are the basic guarantees for the operation of the system.

The “celebrity effect” generated by the integration of ancient records and interviews with people, the promotion of new media dissemination and publicity, including the special talent training mechanism established by relying on primary and secondary schools, universities and research institutes, etc., are the inevitable needs for the fundamental transformation of the medicinal resources in the public consciousness and vision (Zhou & Ma, 2021). In the era of popular media, the popularization of professional things is the only way for the sustainable development of Tibetan medicine and Tibetan medicine culture.

4.2 Publicity System

Tibetan medicine culture and traditional Chinese medicine culture come down in one continuous line. As we all know, Tibetan medicine is the cultural carrier that has gone through the test and practice of the ancient Tibetan people. Therefore, at the moment of global cultural pluralism, it is an inevitable trend for the coordinated development of the Tibetan medicine system to break down cultural barriers and explore communication channels by using the media that constantly reconstruct the world’s information dissemination.

The global spread of culture often follows the so-called “KUI” model, which is to know first, then understand and then identify (Wang & Li, 2020). From regional cultural dissemination to cultural industry layout and then to cultural interweaving and derivation, the publicity system (Fig. 7) constructed in this paper follows the basic law of cultural development, starting with the government, non-governmental organizations, enterprises, universities, and research institutes, and international, and thinks about the Tibetan medicine culture and Tibetan medicine system dissemination mode with the basic goal of going to the world, multi-party cooperation and integration of science and education. In particular, it should be pointed out that the basic trend of the propaganda system is to build an industrial chain with the characteristics of the Qinghai-Tibet region and Tibetan medicine culture as the core. The promotion of Tibetan medicine culture will be realized by integrating the support of funds and talents from the government, non-governmental organizations, scientific research institutes, enterprises, and advanced individuals and developing industry-related products on the basis. That is to say, only by relying on the global vision under the multi-attention can Tibetan medicine under the cultural context of Tibetan medicine be inherited and innovated not only locally but also according to the local conditions.

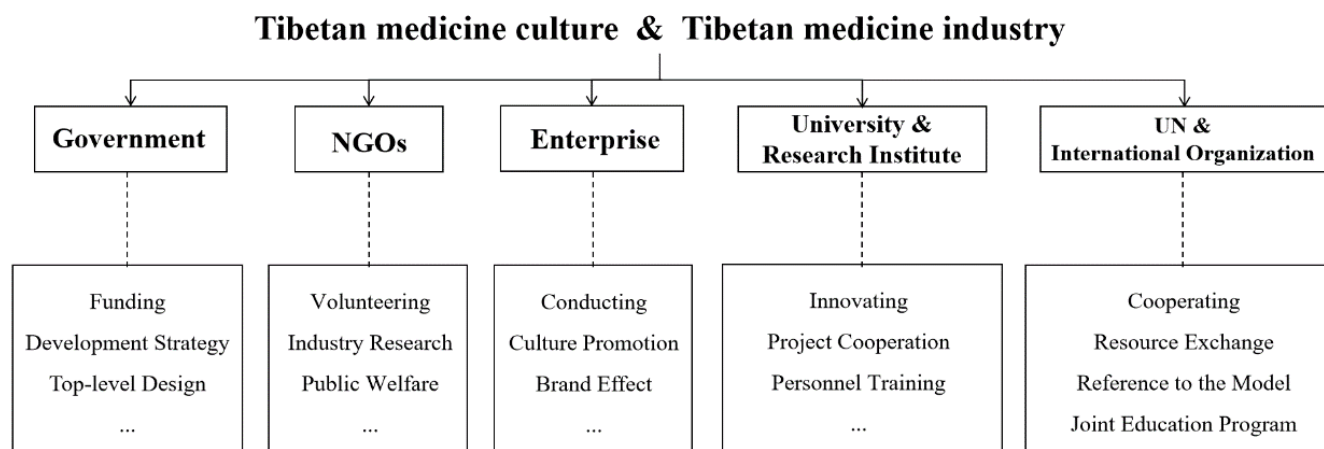


Figure 7. Schematic diagram of Publicity System based on Tibetan medicine culture architecture

4.3 Supervision System

We pay more attention to the plateau ecology with limited regeneration and relatively fragile, the Tibetan medicine resources with excessive marketization and great demand, the overall industrial chain of Tibetan medicine with difficulty in management and control and less capital entry, etc. These numerous factors make the supervision of plateau medicinal resources, which Tibetan medicine relies on, gradually become one of the difficult problems in academic circles.

In June 2022, the newly revised regulations of the Chinese government stipulate the technical research and drug development, quality standards, and management systems of Tibetan medicine in three dimensions: drug development, registration, and production, pharmaceutical affairs management of medical institutions, and drug supervision and management. For example, the

government will gradually establish a quality traceability system for Tibetan medicinal materials throughout Tibet and label medicinal materials and pieces (Xu, 2022). While encouraging the further innovation and large-scale development of Tibetan medicine, it also puts forward the requirements for standardized and standardized management and control of Tibetan medicinal materials from various angles, which fully proves that a good supervision system is urgent and necessary for the construction of Tibetan medicine industry and the development of ecological resources.

The supervision system (Fig. 8) will be closely combined with the actual situation of medicinal resources in QTP, according to the three main trends: the market demand for wild Tibetan medicinal materials resources for individual or organizational collection, the scientific and educational demand for the integration of production and research, as well as the sustainable demand of cultivation and preservation. It sets up a multi-party supervision platform to deal with the over-utilization of wild medicinal resources or other illegal activities through the timely feedback and reporting mechanism provided by it. It should be noted that the system brings official and unofficial, voluntary service organizations into the supervision system, which means that the widely mobilized grass-roots volunteer service team will play an indispensable role in the process of Tibetan medicine culture dissemination and Tibetan medicine industry development in the near future.

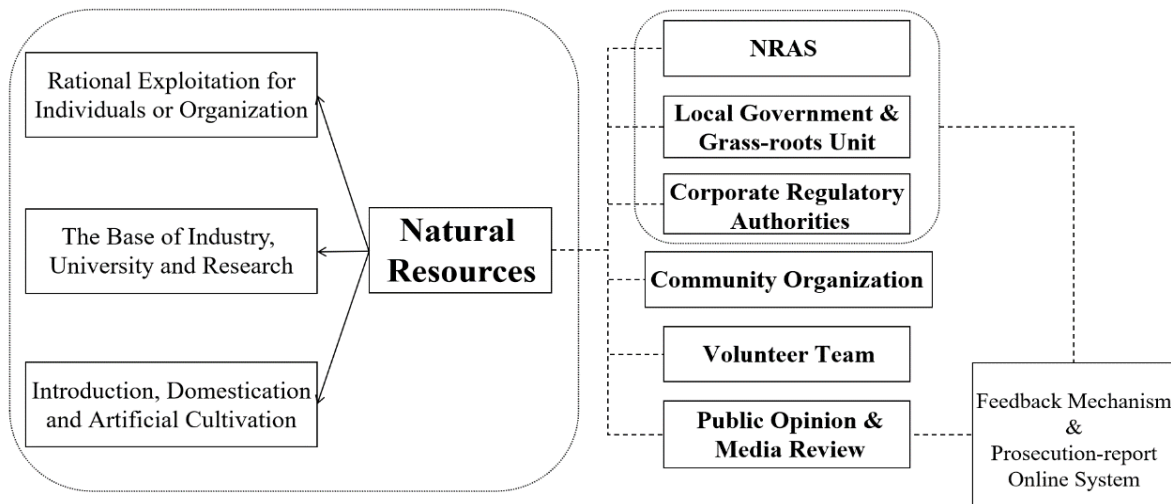


Figure 8. Schematic diagram of the Supervision System based on the sustainable development of regional medical resources

5. Conclusion

In the background of global cultural diversity, the Tibetan medicine system based on Tibetan medicine culture is in a long-term weak state, and the fragile ecological characteristics of the QTP region also make Tibetan medicine, which relies heavily on local wild medicinal resources, unable to obtain authoritative and effective guidelines on the issue of sustainable development.

Based on the existing problems, this paper describes and summarizes the current situation of medicinal resources, relevant industrial layout, and the historical evolution of Tibetan medicine culture in QTP, trying to reveal that the sustainable development of Tibetan medicine is inextricably related to the internalization of Tibetan medicine culture, the application of regional resources and the stability of ecology. As the core of the Tibetan medicine system, it is unrealistic to talk about the sustainable development of Tibetan medicine or the prosperity of the world without this context. With the national concept of Tibetan medicine and cultural propaganda and medicinal value research, it is found that the cultural industry code and the resource application potential in the QTP region will have prominent geo-economic benefits in the future, especially in the current global epidemic outbreak.

This paper not only deeply grasps the value of Tibetan medicine in QTP but also has full thinking and tracing to the source of Tibetan medicine cultural context. Under the vision of the Internet and new media, we have constructed a Sustainable development System, Publicity System, and Supervision System as the SPS sustainable system of Tibetan medicine and ecological resources. We believe that the innovation of the program lies in the fact that it regards the propaganda and inheritance of Tibetan medicine culture as an important factor in the resource development model of the QTP. Crucially, the system considers the relationship between people (the so-called subject of culture), technology, and ecology in a comprehensive way. By focusing on the development characteristics of the cultural context at the core of the Tibetan medicine system, combined with China’s basic national conditions and regional characteristics of QTP, we set up a reasonable and effective hierarchical supervision system for

the development of regional resources from the government and non-government levels. Furthermore, we also divided the general functional orientation of each organization.

Thus, we introduce the Tibetan medicine culture that keeps pace with the times as the premise of sustainable development and makes personal opinions on the way out of the sustainability of Tibetan medicine in the context of Tibetan medicine culture under the global multicultural background. Anyway, it intends to solve various problems that are easy to overlook in the development process of Tibetan medicine as a regional characteristic culture or industry.

Definitely, getting rid of the existing cultural predicament and rethinking the path of sustainable development mode of Tibetan medicine in a specific context needs more innovation at the scientific level and the support of overall management, as well as more results and specific data of practice.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

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References

- [1] Chen, S. L., Huang, L. F., Wang, Y., Xiao, P. G., & Guo, B. L. (2005). The countermeasure and the protection of TCM resource biodiversity. *Traditional Chinese Medicine Information*, (2), 3–5.
- [2] China Pharmacopoeia Commission. (2020). *Chinese pharmacopoeia*. China Medical Science Press.
- [3] Duoji, Z. D., & Li, F. P. (2020). *Tibet statistical yearbook*. China Statistics Press.
- [4] Jia, M. R., & Zhang, Y. (2016). *Dictionary of Chinese folk medicine*. China Medical Science Press.
- [5] Jing, W. D., Li, L., Jing, M., & Zhang, B. (2017). Opportunities and challenges of new media boosting Tibetan medicine culture communication under the background of "One Belt and One Road" strategy. *Chinese Journal of Ethnic Medicine*, 23(2), 1–4. <https://doi.org/10.16041/j.cnki.cn15-1175.2017.02.001>
- [6] Kang, L., & Chang, L. J. (2020). *Qinghai statistical yearbook*. China Statistics Press.
- [7] Li, L. Y., & Zhan, D. (2007). Protection and development of Tibetan medicine resources. *Social Science Front*, (5), 80–83.
- [8] Liang, C. T., Liu, L., Liu, J., Dan, Z. D. Z., & Zhang, Y. C. (2022). Research progress of plant tissue culture technology in Tibetan medicine. *Asia-Pacific Traditional Medicine*, 18(6), 13–19.
- [9] Liu, A. (2018). On the cultural dilemma and solution of Dai medicine development strategy. *Journal of Pu'er University*, 34(5), 61–63.
- [10] Lv, X. Y. (2022). Exploration on the path of legalization of Tibetan medicine. *Legality Vision*, (5), 33–35.
- [11] Qi, L., & Luo, D. S. (2000). *Collection of Chinese minorities medicine*. Inner Mongolia Science and Technology Press.
- [12] Schwabl, H., & Vennos, C. (2015). From medical tradition to traditional medicine: A Tibetan formula in the European framework. *Journal of Ethnopharmacology*, 167, 108–114. <https://doi.org/10.1016/j.jep.2014.10.033>
- [13] Shen, M. X., Wu, H. L., Yang, S. S., & Tong, X. P. (2021). Similarities and differences in basic theories and etiological theories between Tibetan medicine and traditional Chinese medicine. *Journal of Hubei University for Nationalities*, 38(2), 68–70. <https://doi.org/10.13501/j.cnki.42-1590/r.2021.02.016>
- [14] Suo, Q. (2015). Preserve the traditional culture of Tibetan medicine. *China's Tibet*, (6), 40–43.
- [15] Wang, Q. H., & Li, W. (2020). Study on the global transmission path of Tibetan medicine culture from the perspective of new media. *International Communications*, (3), 32–34.
- [16] Wang, S., Liu, F., Zhou, Q., Chen, Q., & Liu, F. (2021). Simulation and estimation of future ecological risk on the Qinghai-Tibet Plateau. *Scientific Reports*, 11(1), 17603. <https://doi.org/10.1038/s41598-021-96958-5>
- [17] Wen, L., Dong, S., Li, Y., Li, X., Shi, J., Wang, Y., Liu, D., & Ma, Y. (2013). Effect of degradation intensity on grassland ecosystem services in the alpine region of Qinghai-Tibet Plateau, China. *PLOS ONE*, 8(3), e58432. <https://doi.org/10.1371/journal.pone.0058432>
- [18] Xu, J. (2022). The drug regulations on the administration of the Tibet Autonomous Region to encourage the development of new drugs for traditional Chinese medicine (Tibetan medicine). *Journal of Traditional Chinese Medicine Management*, 30(12), 70. <https://doi.org/10.16690/j.cnki.1007-9203.2022.12.061>
- [19] Yang, P. (2012). Lei Jufang: A promoter of Tibetan medicine culture. *China Small & Medium Enterprises*, (2), 26–29.
- [20] Yang, Y. H. (2022, May 18). Science and technology energize Tibetan medical classics to "live". *Science and Technology Daily*, 002.
- [21] Yu, H. B., Zhang, Y. L., Liu, L. S., Chen, C., & Qi, W. (2018). Floristic characteristics and diversity patterns of seed plants endemic to the Tibetan Plateau. *Biodiversity*, 26(2), 130–137.
- [22] Zang, K. C., Xie, J. P., & Shao, R. (2021). Development status and countermeasures of Tibetan medicine industry in Tibet Autonomous Region. *Journal of Tibet University*, 36(2), 186–193. <https://doi.org/10.16249/j.cnki.1005-5738.2021.02.024>
- [23] Zhao, R. S., Xu, S. J., Song, P. F., Zhou, X., Zhang, Y. Z., & Yuan, Y. (2022). Distribution patterns of medicinal plant diversity and their conservation priorities in the Qinghai-Tibet Plateau. *Biodiversity*, 30(4), 68–77.
- [24] Zhou, X. Y., & Ma, L. (2021). Study on the "celebrity effect" of Tibetan medicine culture communication under the new media environment. *Journal of Sichuan University for Nationalities*, 30(4), 17–23. <https://doi.org/10.13934/j.cnki.cn51-1729/g4.2021.04.004>