

## **Project to Study the Local Medicinal Plants and to Promote the Occupations of the Doi Langka People**

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### **Abstract**

The project to study the local medicinal plants and promote the occupations of the Doi Langka people has the objectives to investigate and compile data on the local medicinal plants of the Doi Langka area, to study the processing of the herbs through the use of renewable energy technology, and develop local herbal product prototypes from medicinal plants that have the identity of local medicinal plants of Doi Langka, and to study the guidelines for the development of Doi Langka communities to become model herbal health tourism communities. The structure of the research is a combination of documentary research, quantitative research, qualitative research, and action research. The research area was located in the vicinity of Doi Langka, Chae Son subdistrict, Mueang Pan district, Lampang province in Thailand, consisting of Ban Mae Chaem, Ban Pa Miang and Ban Pang Ton Nun villages. For the data analysis, the researchers used the methods of content analysis and interviews and focus group discussions along with analytic induction. The results of the study indicate that the herbs and medicinal plants that are found in the area and the development of a model learning resource center for the 24 types of local herbs that are used to make extracts then applied to develop products are able to respond to the current business problems business in communities. There are three types of herbs applied for development into 12 local herbal products of Doi Langka collected in the learning center for the local medicinal plants and occupational promotion of the Doi Langka people with the distribution of products to be sold directly and through online channels. The guidelines in the development of communities in Doi Langka into model health tourism communities include participation in every step from the analysis of problems and operational action planning to the sharing of benefits and having participation in the follow-up evaluations and creation of the learning center for local medicinal plants. In addition, communities should organize two activities, which are 1) cycling to enjoy nature and 2) street food.

**Keywords:** herbs; promotion of people's occupations; Doi Langka

### **Introduction**

The outbreak of the the infectious disease coronavirus 2019 (COVID-19) resulted in new cases worldwide increasing daily by approximately by 3,000 - 4,000 cases, and deaths increasing daily by approximately 200 - 300 deaths with the mortality rate from the disease at approximately 3.5% for Thailand during the occurrence of the outbreak of the infectious disease coronavirus 2019 that spread worldwide (Zyoud et al., 2020) Subsequently, it was found that the pandemic was an infection occurring in Thailand as clusters resulting in contact with infected patients traveling into the provinces until the total number of infected

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people of Thailand increased rapidly, which caused the government to need to elevate the level of situational management services of the epidemic of the disease. Eventually, it caused the people to modify their lifestyle and seek Thai medicinal herbal plants to nourish the body to prevent coronavirus 2019 as a basic step (Department of Disease Control, 2021, online). The occurrence of the epidemic of the infectious disease coronavirus 2019 had a severe impact on the lives of the people and the medical system and public health worldwide causing every person to realize the security and sustainability of medicine, in which herbal medicine is one of the hopes as was seen in many countries such as Thailand, China, etc. that accelerated the search for and research studies of medicine from natural products (Law et al., 2020).

Thailand is considered to be the origin of many types of wisdom regarding the use of herbs as medicine to treat disease. For a long time, there have been scientists that have knowledge and ability as well as policies to promote the development of herbal medicines for sustainable use. Thailand has a development plan for the herbs that is specified in the 20-year National Strategic Plan and the National Herbal Master Plan, in which the Department of Thai Traditional and Alternative Medicine gives importance to the development of herbs from the beginning, namely seed selection, followed by planting, then the processing of the herbs and the development of products and at the end, promotion through marketing and the use in the public sector and medical services units. Furthermore, there was also an ad hoc master plan under the strategy that resulted from the crisis of the epidemic of the infectious disease coronavirus 2019. Presently, the Department of Thai Traditional and Alternative medicine has set the goals for the development in a period of five years (2023-2027) by intending to become the principal organization of traditional Thai medicine with herbs and alternative medicine to be self-reliant in terms of health and to promote economic sustainability with emphasis being placed on the herbs as a refuge for the public during both normal and critical conditions and to promote a sustainable economy through promotion of the models of the Value-based Economy, High value Service and Community Based Economy (Department of Thai Traditional and Alternative Medicine, 2021).

In the north of Thailand, there is a source of abundance with biodiversity that has invaluable natural resources that provide benefits for traditional Thai medicine, especially the herbs that are used for their benefits in both the application and preparation as a medicine to treat disease and applied in cooking food to nourish the body and adjust the elements within the body to provide balance with external elements, etc. Presently, medicine in Thailand has become focused on treating health in a Western style by applying the herbs and treatment methods including various biological products from nature that do not damage the environment applied to take better care of the body. Thus, health care has become a resource that is greatly important in the world of trade and industry. The Thai wisdom in health care is considered as a science and an art of the use of natural power and harmonious coexistence with nature.

The local wisdom of Thai traditional medicine is folk style health care in communities, which has a unique diversity that differs according to each society, group, culture, and ethnicity. The structure to maintain it has both the use of herbal medicine, massage, and midwifery as well as psychological treatment through the use of ceremonies or various rituals that are able to respond to health care needs and the illnesses of the people. The passing on of the herbs for the health of the public in communities is therefore one option, in which there must be the restoration, handing down, and promotion at the village level along with the participation of the communities; therefore, it is one of the responsibilities that must be applied in order to achieve results. For the revival of the community's health, it is

therefore necessary to implement it in parallel with the way of daily life and the creation of awareness of cherishing natural resources and the environment, including the learning of the local people to have participation in the management that is sustainable (Petraikat et al., 2012).

Doi Langka is an area in the northern region of Thailand that has natural resources and is located in the area of Chae Son subdistrict, Mueang Pan district in Lampang province. The highest peak in Chae Son National Park area has an elevation of 300 - 2,013 meters above mean sea level and is situated among three provinces and has the boundary of the national forest reaching three areas, namely Khun Jae National Park (Chiang Rai province), Mae Ta Krai National Park (Chiang Mai province), and Chae Son National Park (Lampang province) classified as protected forest area that has a complete forest that is a watershed forest area that nourishes communities reaching three provinces. The vegetation of the Chae Son National Park can be classified into five categories, namely mixed forest, deciduous forest, evergreen forest, coniferous forest, and rainforest (source: website of the National Park Service Department of National Parks, Wildlife and Flora). Based on the data of the website of the National Park Office, Department of National Parks, Wildlife and Plant Conservation and the data from the officials of the Provincial Administrative Organization, there are three villages in Chae Son subdistrict, Mueang Pan district, Lampang province that are situated in the area of the Doi Langka, namely Ban Mae Chaem (Moo 1), Ban Pa Miang (Moo 7), and Ban Pang Ton Nun (Moo 10), which are classified as areas that have an abundance of natural resources and natural vegetation as well as a wide variety of important herbs. In addition, it is a source of cool climate fruit tree produce, such as macadamia, avocado, tea, coffee, Indian ivy-rue (*zanthoxylum limonella*), etc.

The Lampang Provincial Administrative Organization is a local government organization that has the important mission in the development of localities in Lampang province to develop the quality of life of the local people in every aspect. Therefore, there is the concept to promote the conservation of local herbs and medicinal plants that come from a source of nature in the area of Doi Langka in order to have an abundance and to promote the occupations to have the people of Doi Langka involved with the processing of the herbs through the use of renewable energy technology. Furthermore, they can develop herbal products from the herbs and local medicinal plants of Doi Langka in order to have the identity of the local medicinal plants of the Doi Langka, including to promotion through online marketing and public relations so as to allow the herbal products of the Doi Langka to become known in the market and to promote the communities into a model of herbal health tourism. Communities in Doi Langka learn about herbs, local medicinal plants, herbal products, the processing of herbs and the arrangement of various activities to promote health, which leads to the creation of occupations and the building of incomes. As a result, the people of Doi Langka have the quality of life that is improved by the concept mentioned above, which is consistent with the 20-year strategy (2018 - 2037) regarding strengthening the ability in competition that is focused on the development of production and service in order to be able to compete to create sustainability. The people have the quality of life that is improved by promoting the application of the identity of local medicinal plants of Thailand to be used in the production of herbal products and agricultural products that have added value (Office of the National Economic and Social Development Commission, 2018). In addition, the policy statement of the president of the Lampang Provincial Administrative Organization on 19 February 2021 outlined the economic policy for agriculture and industry with support for the use of technology in the development of potential enterprise groups for processing to develop potential and good value products of the local communities by designing and

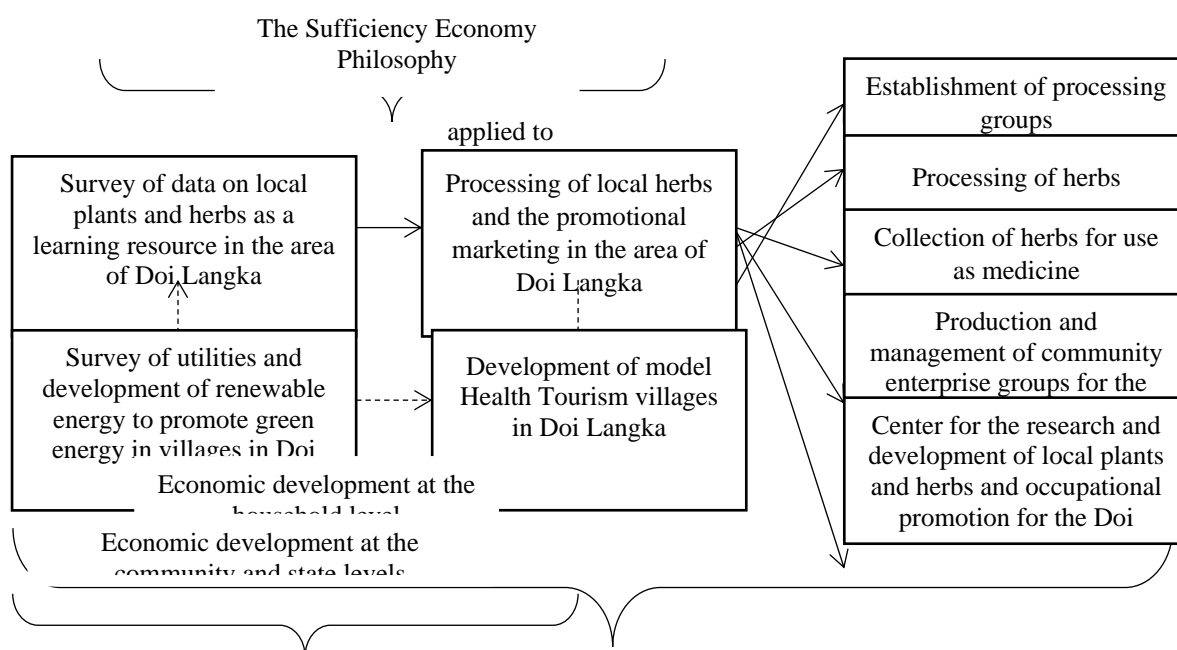
building a brand policy for tourism. Moreover, the promotion of the development of new tourist attractions in local communities and support will create tourism villages for the creation of work to build the occupations in communities by also conserving the environment, ways of life and local traditional arts and culture to increase the value of cultural tourism, ecotourism and health tourism.

Based on the information above, the team of researchers therefore have an interest in conducting a research study and to promote the occupations of the Doi Langka people to investigate and to compile data on the local herbs and medicinal plants that Doi Langka communities are able to adopt for use as a source of data in the development of a model learning resource for the herbs of Lamphang province. In addition, there was investigation of the processing of the herbs through the use of renewable energy technology and development of herbal product prototypes from the local medicinal plants of Doi Langka that have the identity of the local knowledge of the people of Doi Langka and are able to be developed further to become community products. Moreover, there are marketing channels for creating the occupations and building income for the people in communities, as well as a study of the guidelines for the development of communities in the area of Doi Langka to become model herbal health tourism communities to elevate their level to sustainable self-management model communities.

## Objectives

1. To investigate and to compile data on the local herbal medicinal plants of Doi Langka.
2. To study the processing of the herbs through the use of renewable energy technology and develop herbal product prototypes from local medicinal plants that have the identity of local medicinal plants of the Doi Langka area.
3. To study the guidelines in the development of communities in Doi Langka to become model communities for herbal health tourism.

## Conceptual Framework



## Methods

The methodology of this research study according to the project to conduct research on the local herbal medicinal plants and to promote the occupations of the Doi Langka residents can be explained as follows.

1. The structure of the research comprises four types, which are (1) documentary research, (2) quantitative research, (3) qualitative research, and (4) action research.
2. The area in this research study comprises Moo 1, Ban Mae Chaem, Moo 7, Baan Pa Miang and Moo 10, Ban Pang Ton Nun in Chae Son subdistrict, Mueang Pan district, Lampang province in Thailand.
3. Key informants consisted of village representatives who are involved with the herbs and medicinal plants, people in communities who are interested in the processing of the herbs and medicinal plants, government officials in the areas, and entrepreneurs who are linked with tourism.
4. The research tools that the researchers used in the data collection by plotting the target areas of the project consisted of:
  - 4.1 The community assessment form for model village potential herbal health tourism is the tool to collect data from people in three villages, namely Moo 1 (Ban Mae Chaem), Moo 7 (Ban Pa Miang) and Moo 10 (Ban Pang Ton Nun), Chae Son subdistrict, Mueang Pan district, Lampang province.
  - 4.2 Surveys numbered two types which were (1) investigate the utilities and develop renewable energy to to promote villages green energy in the areas Doi Langka and (2) the investigation of the herbs and medicinal plants in the areas of Doi Langka.
  - 4.3 Structured interviews
  - 4.4 Focus Group discussions
  - 4.5 The operations consisted of the processing of the herbs by using renewable energy technology, the development of local medicinal herbal products of Doi Langka and the prototypes that have the identity of the local medicinal plants of the Doi Langka area and the development of herbal health tourism model villages in the areas of Doi Langka.
5. Data analysis - The researchers used data from the documentary research and applied content analysis to present data with descriptive methods. For the data that were obtained from interviews and focus group discussions, the method of analytic induction was used by compiling the data systematically. Subsequently, interpretation correlation was employed and the summary was concluded from the various data that was compiled along with the data collection. Thus, in order to study the various issues in-depth, when any issue was analyzed but was not clear there was follow-up with additional data collection on those various issues to respond to the main questions according to the objectives of the research. Qualitative data was applied for analysis to identify the theoretical correlations and to build the conclusions and proof of the conclusions through the application of various academic concepts, theories, and research work so as to draw conclusions together with the data that is reliable once again. The focus is on the links that are applied as proof that are concrete and match the apparent facts.

## Results

The survey and compilation of the data on the local herbs and medicinal plants of Doi Langka to be applied as a source of data in the development of a model learning resource

concerning the herbs of Lampang province consisted of quantitative data regarding the types and medicinal properties of the herbs in nature as well as those that are planted in the area of Doi Langka, Chae Son subdistrict, Mueang Pan district, Lampang province with a total of 24 types. Furthermore, the use of the herbs by people in communities employed many types that were combined into drug formulas, and the formula that the majority use is the method of brewing, while inhaled or as a poultice to treat disease, adding to food and soaking in water or soaking in alcohol were also used. This is consistent with Petchchang's (2009) study concerning the utilization of the biodiversity of the herbs and medicinal plants that are used as food along the Phu Phaya Por ecotourism trail in Lam Nam Nan National Park, Uttaradit province. The results of the research regarding the utilization of the herbs and medicinal plants that are used as medicine to treat disease indicate that there is the application of a total of 33 formulas of the herbal medicinal plants to be used as medicine to treat disease according to local wisdom by having the use of the herbs either alone or with several types combined into drug formulas. The method that is used the most is the brewing of beverages, 19 formulas were inhaled, therapeutic poultice or drink included nine formulas, and soaked in water or soaked in alcohol, such as herbal liquor, totaled five formulas. For the preparation of a learning resource, villagers choose to use the methods for making an herb garden as an activity in homestay tourism.

In this research, the researchers used herbs to obtain extracts, then applied them to develop products that are able to respond to the business problems of the communities, with a total of three types: curcumin, Indian gooseberry, and Red Langka Cannabis, and all three of these types of herbs were applied by the researchers to develop into Doi Langka prototype herbal products from local plants that have the identity of the medicinal plants of the Doi Langka area, followed by the processing of the herbs using renewable energy technology that can be developed further into community products. Additionally, there are marketing channels for the creation of the occupations and building income for the people in communities, and the researchers together with the people in the communities produced a total of 12 products, which have graphic designs on the packaging of each type, whether it is a box of soap or the packaging bag, as there should be distinction that is interesting for customers and the identity that comes from communities should be taken into consideration. This is consistent with Tuetham (2013), who conducted a study on the design of graphic images on the packaging of Pornsiri herbal soap that indicated that the process of the graphic design on the packaging of Pornsiri herbs are all designed with a similar appearance in order to let consumers choose to buy many types and fragrances such as carrot herbal soap, green tea herbal soap, orange herbal soap, papaya herbal soap, tomato herbal soap, and goat's milk herbal soap. The various positioning and organization set in the same position and decorative techniques provide knowledge that is unified but differs in terms of the picture and the color of the products. Moreover, these various medicinal plants and products that people in communities developed with professional skills will be collected in the Doi Lanka People's Career Promotion and Learning Center for Local Medicinal Plants.

For the guidelines for the development of communities in Doi Langka to become model communities for herbal health tourism, the researchers and people in communities including government agencies and entrepreneurs that are involved in communities participated by followings these steps: 1) collective studies and analysis of problems, 2) planning and implementation, 3) operations stage, 4) sharing the benefits, and 5) participation in the follow-up evaluation, conducting work and building the Doi Lanka People's Career Promotion and Learning Center for Local Medicinal Plants, which is within the center consisting of 1) the areas to demonstrate plots of the herbal prototypes, 2) the areas to

demonstrate the technology for the processing of the herbal prototypes, and 3) the area of the Coordination Center and exhibition of the Doi Langka medicinal plants prototypes and the products that are obtained from the processing of the herbs. In addition, there are also the areas for training, meetings, exchanging views and discussion of the communities, exhibitions of products and products that were obtained from the processing of the herbs, as well as the exhibition of various royal initiatives that are involved with sustainable livelihoods of agriculture.

Thus, communities have assessed the potential of model village health tourism in the area of Doi Langka by assessment of the potential for a total of five aspects, consisting of Health Tourism Attractions, Amenities, Accessibility, Health Tourism Activities, and Health Tourism Management. Furthermore, communities also mutually drive various activities to attract tourists that have a taste for enjoying exercising that is a challenge along nature trails together with development of villages as eco- and cultural tourism destinations. Villages with the establishment of home stays offer relaxed accommodation for tourists who want to experience nature on high mountains and find peace safe from irritating noise. This is in line with Phromchat (2002), who studied the participation of the communities in the development of agricultural tourism: A case study of Ban Pong, Pa Phai Subdistrict, San Sai District, Chiang Mai Province, which found that the people have participation in the development of agricultural tourism in the tourism resources, tourism management and tourism marketing in every step. Also, Rattanadomsawat (2002) also stated that it is greatly important to have participation in the restoration of tourist attractions that involves helping each other identify problems and their causes, make restoration plans, implement remedial activities, and conduct the follow-up and evaluation of the implementation of work. Regarding recommendations related to the participation of the communities toward stores, facilities and mass media, tourists and the government have participated in joint planning for solutions by inclusion in the 5-year provincial and local plans.

With respect to the guidelines in the development of communities in Doi Langka to become model communities for health tourism, the people in the communities and groups of people involved with organizing various activities are as follows:

1) Cycling to enjoy nature in the communities of Doi Langka - As a result of the communities in the Doi Langka area having the nature that is beautiful, there is a trail that was chosen for use as a tourist route, which has the starting point at San Kamphaeng Hot Springs – Doi Sam Hongk - Thep Sadet Village - Mae Ton Luang Junction - Giu Hin - Mae Chaem House – and ends at Chae Son Hot Springs, with a total distance of 68 kilometers (climbing distance 1,800 meters). The starting point of the route is at San Kamphaeng Hot Springs because it is an area that can be easily reached from Chiang Mai city. Also, it is close to the cultural towns such as San Kamphaeng District and Bo Sang and can attract cyclists from both Chiang Mai and from other provinces who come to stay in Chiang Mai city, Mae On or San Kamphaeng. Also, the starting point area has a parking lot and a courtyard that can be used as a gathering point. In addition, the route passes through many villages and valleys such as Ban Thep Sadet and Ban Mae Chaem, which are locations of coffee plantations and tourist attractions. The entire route has shade and beauty until the end at Chae Son Hot Springs, which is not far from the city of Lampang and Mueang Pan, from which it is possible to travel further to other tourist attractions.

2) Street food - In addition, there is also the application of the medicinal plants which are a feature of the Doi Langka area that applies the royal concept of Her Royal Highness Princess Maha Chakri Sirindhorn, which is the concept of “The Street of Edible Herbs”. This

is a concept of building food sustainability by planting vegetables and herbs along the route to allow commuters to be able to pick them for consumption or for use in medicine, in which the consideration of the selection of plant species depends on the main objectives regarding consumption and the beautiful scenery. From the survey and the data collection, the vegetation and herbs that were found in the area indicate that there is vegetation that is appropriate and which is consistent with the concept of street food, which are 1) Indian gooseberry, 2) cherry doi trees or other fruit, 3) climbing dayflower, and 4) blueberries or mulberries. The layout of the vegetation is considered from the theory of the Basic Triangle, which is a Japanese style landscaping technique that involves laying out the trees in the appearance of a triangle in both the plane and the side view to make the angle of the view interesting. Also, there is the use of spacing to build a rhythm by relying on the shape of the plants plus the size and the height or lowness of the trees to create beauty. This is consistent with Phromchanya, Ratchataphanon, and Kitphaiboonthawee (2003), who studied the development of agricultural tourism: A case study of the communities on Koh Maprao (Coconut Island), Phuket province, which indicated that nature tourism encourages taking care of and preserving the environment in order for communities to receive benefits from a source of natural resources that are located in the area, which will lead to sustainable tourism in the future resulting in the creation of jobs and providing income by communities considering the basic things that are located locally, and tourists will be able to learn about the way of life and livelihoods of the countryside. In addition, Nopparat (2008) also stated that people have a positive view toward sustainable tourism to realize the benefits that are received by the public from the development of sustainable tourism and to realize that problems of the decline of the tourist attractions. Also, the people receive information and tourism news and persuasion from personnel or government agencies, the private sector or village leaders in the development of sustainable tourism and have economic motivation that results from tourism and receiving support from the government with regard to tourism.

## Conclusions

This research study based on the research project investigated the local herbs and medicinal plants and the occupational promotion for the Doi Langka people with the objectives to research and develop the local herbs and medicinal plants of the Doi Langka by the survey and to compile data on the various medicinal plants in the Doi Langka area together with studying the processing and development of herbal products prototypes that have the identity of local medicinal plants of Doi Langka and can be developed further into community products and the marketing channels promoting the occupations to build income for the people. Furthermore, the guidelines for the development of communities in Doi Langka to become model herbal health tourism communities to create work and build the occupations to allow the people in communities to have one more income channel. Thus, it is possible to summarize the results of the study as follows.

The survey and compiling of data on the local medicinal plants of Doi Langka were applied as a source of data in the development into a model learning resource concerning the herbs of Lampang province consisting of quantitative data on the types and medicinal properties of the herbs in nature as well as those that are planted in the Doi Langka area, Chae Son subdistrict, Mueang Pan district, Lampang province with a total of 24 types as follows:

1) Merkus pine, 2) Paris polyphylla, 3) Piman mushroom, 4) Red Langka hemp cannabis, 5) Vitex pinnata, 6) Jiaogulun 7) Phlogacanthus pulcherrimus, 8) Martianus



dermestoides, 9) Smilax glabra, 10) Red cabbage, 11) Ta-khian (*Hopea odorata*), 12) *Houttuynia cordata*, 13) Sea holly (*Acanthus ebracteatus*), 14) Black bat flower (*Tacca chantieri*), 15) Red galingale, 16) Galangal, 17) Turmeric, 18) *Engelhardtia spicata*, 19) Tamarind, 20) Murobalan Wood, 21) *Terminalia*, 22) Black pepper, 23) *Justica*, and 24) Cinnamon. Furthermore, all of these herbs were compiled by the researchers and the village scholars in the medicinal plants learning center of Doi Langka.

For the processing of the local herbs and medicinal plants and to promote marketing in the Doi Langka area, the herbs that the researchers used to make extracts then applied to develop products that are able to respond to the current problems in business in communities included three types: curcumin, Indian gooseberry and Red Langka Cannabis, and the other 21 types that do not add value to products due to some types of herbs having methods that differ such as boiling and wrapping, and some have a dull and bitter taste. Thus, the team of researchers and the processing groups in communities discussed and came to the conclusion based on the academic databases together with the medicinal plants that are located in the Doi Langka area. There are also problems with the issuing of licenses in the application to process according to the laws covering national parks. Additionally, the Red Langka Cannabis group chose to process Red Langka Cannabis extracts instead of Red Langka Hemp. Although these two extracts have properties are not very different, the cannabis contains more psychoactive substances than Red Lanka hemp. These three herbs have properties as follows. Curcumin has anti-oxidants, which helps in anti-aging and slows down the aging process, helps increase immunity for skin to have good health and strength, helps increase immunity for the body, helps prevent the occurrence of cancer, such as intestinal cancer and cervical cancer, helps reduce cholesterol levels in the body, helps remove toxins from the body, helps relieve the symptoms of diabetes, helps to nourish the brain, prevents dementia, helps relieve coughs, helps relieve heartburn, stomachaches, bloating and flatulence, and helps to treat inflammatory bowel disease, etc.

Indian gooseberry contains anti-oxidants that help to nourish health, maintain healthy skin, and slow down aging. The vitamin C in gooseberry can be absorbed faster than that in vitamin C tablets, and it can be used to nourish facial skin for clear and fair skin, treat translucence and melasma through application to areas with wrinkles around the blemishes. Health is also well maintained by helping to nourish almost every organ of the body, etc.

Red Langka Cannabis contains the substance cannabidiol (CBD), which if it is used appropriately, will prevent loss of short-term memory, dementia and neuralgia, reduce anxiety, reduce nausea and vomiting, prevent insomnia, and reduce seizures from multiple sclerosis.

The researchers applied all three of these herbs for development into herbal products from local medicinal plants that are prototypes that have the identity of the local medicinal plants of the Doi Langka and the processing of the herbs using renewable energy technology and are able to be developed further into community products and has marketing channels for creating occupations and income for people in the communities. These products are 1) Doi Langka Curcumin Facial Soap, 2) Doi Langka Cascara Coffee Soap Scrub, 3) Doi Langka Curcumin Coffee, 4) Doi Langka Cannabidiol Coffee, 5) Doi Langka Curcumin Cascara Tea, 6) Doi Langka Cannabidiol Cascara Tea, 7) Doi Langka Curcumin Upland Rice, 8) Doi Langka Cannabidiol Upland Rice, 9) Doi Langka Curcumin Macadamia, 10) Doi Langka Cannabidiol Macadamia, 11) Doi Langka Super Curcumin Baegu Tea, and 12) Doi Langka Super Cannabidiol Baegu Tea.

These various medicinal plants and products that people in communities developed with professional skills will be compiled in a learning center the local herbs and medicinal plants and to promote the occupations of the Doi Langka communities. Also, the applied products will be launched among shops in communities and coffee shops, including product distribution centers. The project is as a result of the royal initiative for the development of the economy at the household level which used the Philosophy of the Sufficiency Economy, especially in the development of economy to stay up-to-date with the world in this era of globalization. It has sufficiency, moderation, and rationality as well as the need to have a strong immune system that will lead to determination in combining economic activities in communities that are able to apply knowledge and academic principles related with the herbs and the processing into products that have the identity of the Doi Langka area.

There is a method of grouping herbs for processing and collecting herbs for medicinal purposes as well as production processes and management of various herbal processing community enterprises that are then brought to the research center for learning to develop local medicinal plants and to promote the occupations of the Doi Lanka people and online marketing channels. The team of the researchers prepared online marketing channels with a system administrator for implementation of online marketing by creating an online marketing platform with the name “Doi Langka Professional Herbal Processing Group” and marketing channels through the Friends in Need (of Pha) Volunteer Foundation.

With regard to the development of communities in Doi Langka into model herbal health tourism communities, the researchers and communities surveyed the utilities and development of renewable energy to promote green energy in the Doi Langka area villages. The results of the study indicate that there is satisfaction regarding basic utilities for the promotion of the occupations of people in terms of roads, the mountain water supply, public electricity and drainage channels, as well as waste management in all five aspects. When the values were translated, satisfaction was located in medium level and a low level, which is consistent with the focus group discussions and in-depth interviews from the analysis of satisfaction and the interviews of the key informants, which indicated that the geographical context is not conducive to the development of infrastructure due to the area being located in the valleys together with being located in Chae Son National Park. When undertaking development, permission must be received and government officials enforce the law strictly. Based on the above, people in communities see the problems that cannot be solved, but people in most communities agree with and understand the spatial context together with there being the government and private agencies arriving to help in the initial stages. It is reasonable that it not be illegal, such as coming to promote the use of renewable energy from hydropower and solar energy and government agencies in the area arriving to help when there are problems with heavy rain and landslides blocking roads in a timely manner. However, people in communities are able to adapt to the conditions of the environment perfectly, do not damage resources, are able to use natural resources to build income in the dimension of the community economy by offering nature ecotourism, preserving the environment, and crop rotation without destroying upstream forests such as growing coffee and cool climate fruit. These various things reflect that although communities are located in Chae Son National Park, they can coexist with forests in national park areas together to protect limited national resources for maximum benefit and manage them jointly with the Lampang Provincial Administrative Organization, relevant government agencies, the private sector and local government organizations, as well as Chiang Mai University, etc., effectively.

For the guidelines for the development of communities in Doi Langka into model herbal health tourism communities, the researchers and people in communities including *Res Militaris*, vol.12, n°4, Summer-Autumn 2022

government agencies and entrepreneurs that are involved in communities founded a coalition to build a learning center for the local herbs and medicinal plants and to promote the occupations of the Doi Langka people, which includes:

1) The prototype herb cultivation demonstration area, which is a demonstration area showing examples of the cultivation of medicinal plants that rely on organic, non-toxic agricultural principles to be a source of distribution of products and seeds. They can also be processed into other herbal medicines that have potential or can be studied for research and further development.

2) The demonstration area of the prototype herbal processing technology, which is the application of scientific knowledge, technology, and innovation to develop areas for processing medicinal plants obtained from planting or harvesting in the area of Doi Langka by relying on solar energy or solar panels to reduce the cost of energy consumption and create opportunities in learning about technology for the villagers in the communities. This is not only to support self-reliance and the use of natural resources to create maximum benefits but also to create products that have standards free from pesticides. It is also the area to increase skills, expertise and the body of knowledge for people in communities and increase the value of the products.

3) The area of the Coordination Center and exhibition of the prototype Doi Lanka medicinal plants and products that were obtained from the processing of the herbs, which is a place to study and learn about Doi Lanka herbs from the beginning of production and maintenance to the processing for farmers, students and interested persons. There is the promotion of knowledge and understanding for the new generation of farmers in agricultural careers according to the Sufficiency Economy Philosophy, including learning the value of the resources and the local wisdom in order to reduce immigration and the neglect of the occupations of agriculturists. Moreover, it is also the area for training, meetings, exchanging views and discussion of the communities, exhibitions of products and products that were obtained from the processing of the herbs to the organizing of exhibitions of various royal initiatives that are involved with agriculture. Thus, communities have evaluated the potential of model village health tourism in the Doi Langka area by assessment of a total of five aspects consisting of the following.

Health Tourism Attractions of communities in the Doi Langka area include natural beauty, peace and privacy, cleanliness, beauty, and they are clean and orderly with a wide variety of local plant species that are able to be applied through local wisdom and used in health tourism.

Amenities include offering accommodation services in communities that have standards that are sufficient for tourists with designs that are unique in the area and providing enough public toilets that are in good working condition, have separate areas for females and are marked clearly. Measures for maintaining the safety of tourists from dangers that may occur in tourist attractions are in place, for example volunteers to provide safety in communities. There are also basic first-aid points and the district health promoting hospital offers health services. There are enough shops and restaurants for the needs of health-conscious tourists. The parking areas are sufficient for the number of vehicles that arrive, especially during the high season for tourism. Moreover, the establishment of an information center by public relations officials provides knowledge including media to present data and services for tourists, for example brochures and maps that are interesting and provide current information.

Accessibility in communities includes the signs indicating the way to tourist attractions that are clear, and there is a wide variety of routes to the tourist attractions. The conditions of the routes to tourist attractions in communities are safe; however, it is necessary to travel with caution and display travel data in an online system that has clarity, such as a travel system with GPS, etc.

In terms of Health Tourism Activities in the community, there are health tourism activities that create bonds between people in the community and tourists such as cycling, etc. Health tourism activities do not result in the degradation of community attractions such as natural and cultural attractions. There are a wide variety of tourism activities; therefore, tourists have the opportunity to choose activities that they are satisfied with, and there are a large number of events held frequently each year.

Tourism Management includes communities participating with government agencies, the private sector and the community sector in setting policy for the development of health tourism attractions. Community-based groups have been established to set goals in the management of tourism that has strength, support and the participation of the communities in the management of tourist attractions and activities, both directly and indirectly. There is support for local products in the operations of the tourist attractions such as souvenir products, in which handcraft products create opportunities for communities to earn income from health tourism activities. Furthermore, analysis and evaluation of the impacts from tourism include measures to prevent the negative impacts that result from tourism. In addition, communities also mutually drive various activities to attract tourists that enjoy challenging forms of exercise along the nature trail together with development of the villages into eco- and cultural tourism villages that have established home stays. This provides relaxed accommodation for tourists who want to find an experience of nature on high mountains and peace and safety free from annoying noise.

With respect to the guidelines in the development of communities in Doi Langka to become model health tourism communities, community members and stakeholder groups have organized various activities as follows.

1) Cycling – Tourists can enjoy nature in the communities of Doi Langka due to the area having nature that is beautiful. Moreover, there are also roads that provide links to other tourist attractions to experience much more. Therefore, it led to the concept of the application of cycling activities as an example that helps attract to create tourism activities for the people outside the area to have opportunities to come experience the atmosphere of Doi Langka. This creates a strong impression and can attract tourists to return to travel again another time. Furthermore, there is also the promotion of health from cycling by having the route that is chosen for use as a tourism trail. This route has the starting point at San Kamphaeng Hot Springs – Doi Sam Hongk – Ban Mae Chaem – ending at Chae Son Hot Springs with a total distance of 68 kilometers (climbing distance 1,800 meters). The starting point of the route is at the San Kamphaeng Hot Springs because it is an area from which it is possible to travel easily to Chiang Mai city. Additionally, it is close to cultural towns such as San Kamphaeng District and Bo Sang that are able to attract cyclists from both Chiang Mai or cyclists from other provinces who come to stay in Chiang Mai city, Mae On or San Khampang. Furthermore, the starting point area also has the parking area and courtyard that can be used for gatherings. Furthermore, the route passes through many villages and valleys, such as Ban Thep Sadet and Ban Mae Chaem, which are locations of coffee plantations and are tourist attractions. The entire route is shady and beautiful until reaching the end at Chae Son Hot

Springs, which are not far from Lampang city and Meuang Pan, and are within reach of other onward tourist attractions.

2) Street food - Moreover, there is also the use of the herbs and medicinal plants which are a feature of the Doi Langka that is applied to the concept of the royal initiative of Her Royal Highness Princess Maha Chakri Sirindhorn, which is the concept of “Edible Herb Road” to create sustainability in terms of food by planting vegetables and herbs along the entire route for travellers to be able to pick them for consumption or to apply them in medicine, in which consideration of the selection of plant species depends on the main objectives of consumption and the scenery that is beautiful. From the survey and vegetation data collection and compiling the herbs that are found in the area, it was indicated that the vegetation that is appropriate and consistent with the concept of street food includes 1) Indian gooseberry, 2) cherry doi trees or any fruit, 3) climbing dayflower, and 4) blueberries or mulberries. The laying out of the vegetation is considered from the theory of the Basic Triangle, which is a Japanese style landscaping technique that lays out the trees in the appearance of the triangle in both the plane and the side view to make the angle of the view interesting. Moreover, there is also the use of spacing to create a rhythm by relying on the shape of the plants based on both the size and whether the trees are tall or short in order to create beauty.

## **Recommendations**

- 1) The scope of the area of the study should be expanded in order to include the nearby areas or applying the body of knowledge that was obtained from this research work can be applied for use in building model communities and development of the occupations for the people in the field of herbs and the occupations derived from health tourism.
- 2) Cooperation among tourist attractions that are situated close together should be strengthened in the future by making maps linking the tourism routes to increase opportunities in the distribution of income to the communities and to provide options for tourists.
- 3) The establishment of the royal initiative projects result in the creation of occupations and applying products that are processed from the herbs in the area of Doi Langka to enhance the foundation economy providing communities with increased income by creating the occupations of in communities based on the Philosophy of the Sufficiency Economy. Thus, the people in communities in the Doi Langka area have received the development of the occupations and have income to support themselves and their families by creating products and importing them into the OTOP system to further expand broadly.

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