

Design Guidelines for the Hot Spring Renovation by Participatory Action Research (PAR) and Design Thinking for Sustainable Health Tourism Promotion



Nannaphat Phetkongtong^{1*}, Nitima Nulong²

¹ Department of Architecture, School of Architecture and Design, Walailak University, Nakhon Si Thammarat 80160, Thailand

² Department of Occupational Health and Safety, School of Public Health, Walailak University, Nakhon Si Thammarat 80160, Thailand

Corresponding Author Email: nannaphat.ph@mail.wu.ac.th

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ABSTRACT

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The aim of this article is to provide principles for improving hot spring spaces and promoting them as sustainable health tourism destinations through participatory design and design thinking, using Wang Hin Hot Spring Park in Bang Khan District, Nakhon Si Thammarat Province, Thailand as a case study, hearing activities were held with all stakeholders to collect data for analysis, the architectural design process was integrated. While the area has potential, many relevant sectors have yet to develop it or promote it coherently. The study results show that the improvement guidelines are as follows: Define a public/private zone. Control the entrance and exit to have only one point. Improve the most used ponds to accommodate everyone's use. Modify an existing space that is not suitable for the project to meet the project's needs. Create connected routes. Empty spaces should be utilized as efficiently as possible. Improve the parking areas to facilitate tourism-related travel. Increase the space to encourage wellness and align with the community's potential.

1. INTRODUCTION

The true nature of architecture is participation—specifically, the development of a location currently in use. Numerous considerations must be made to promote natural attractions that are tied to the community and its members. There are various stakeholders, also known as participants. As a result, long-term development must be considered. Therefore, all stakeholders must cooperate to establish and achieve sustainability, assisting one another to carry out the development in the same direction. Together, user-centered design and creativity create a new domain of possibility. This process will pave the way for a future shift toward more sustainable modes of living [1]. The authors of this study chose the participatory action research (PAR) paradigm for alternative architectural research methodologies that support "empowerment, equality, and social justice for all". Although PAR is still controversial as an academic research approach, its rise in popularity over the last decade cannot be ignored, particularly given how interwoven the reality of today's globe has become. PAR is a collaboration of all participants that have a sense of belonging in the area. Based on this concept, everybody has responsibility and plays a part in sustainable development. In a similar vein, design thinking (DT) is used to supplement parametric analysis (PA) in architectural research methodologies. Combining PAR and DT ultimately boosts architectural research by adding new elements of social interaction [2]. This research method balances designer ideas and community perspectives, improves arguments for appropriate solutions, and reduces conflict at the same time.

Thailand is a country with considerable potential for health tourism growth [3] in an attempt to attract people from around

the world to visit Thailand. Both for nature tourism in general and in health tourism in particular, the size of the wellness economy size was ranked 24th in 2020 [4]. Health tourism is promoted by the government as part of Thailand's 10-year development strategy (2016–2025) to become an international health hub and a thriving center of medical and wellness tourism [5]. At the moment, Thailand's source of hot springs has been identified and development has begun at 129 sites in 27 provinces, including 43 hot spring sites in the south [6], the majority of which are located in rural areas. They are popular with both residents and visitors.

According to Nakhon Si Thammarat Province's development strategy, the province aspires to be a location of civilization that is pleasant to visit. Thus, community tourism development is a response to the conservation and dissemination of indigenous culture and ways of life. In order to promote tourism that is connected to the needs of the indigenous people, it is necessary to establish professions and produce revenue by enhancing the value of products and services in society.

Hot Spring Park is located in the Wang Hin Subdistrict of the Bang Khan District of Nakhon Si Thammarat Province, near the Hot Spring Park Temple. It is around 20,000 square meters and includes a hot spring area, a training facility, and an educational garden. It is a natural hot spring source surrounded by greenery and, in numerous ways, has the potential to be a health tourism destination [7]. However, due to the district's continued need for concrete development under the provincial development plan 2018-2021, it was determined that the Bang Khan District continued to have environmental problems and individuals encountered conflicts. Individuals lack education and access to the philosophy of the sufficiency

economy. There is an inconsistency in the synchronization of the community's development plans with other development plans. As a result, a project was initiated to upgrade Hot Spring Park and the Chong Rieng viewpoint [8].

Past research studies have found the following: (1) The potential of the hot spring attractions in Hot Spring Park does not meet the primary standards of natural hot spring health tourism attractions and the services need to be improved. As for the potential of being a tourist attraction, it is of an excellent standard with a five-star status. (2) Community leaders have the most significant potential regarding personality and morality. The part that needs to be developed the most is tourism management. (3) Tourists are the most satisfied with the natural hot spring health tourism destination and the least satisfied with the service and staff [9].

As a result, this project is located in an area that is suitable for development. It has the potential to be developed into a high-quality health tourism destination that is conveniently accessible and caters to a variety of user groups. It is a public space that is critical for people and the city as a whole since it is a focal point for a range of activities. The nature and characteristics of public spaces are related to people and their use of space [10, 11] and are designed in response to user attitudes and behaviors, helping shape a city's aesthetic. Additionally, this area contributes to city life by allowing for the development of mass culture to flourish [12].

This research can assist in the design principles for establishing hot springs as health-promoting tourism attractions and the site improvement process through engagement with communities and other agencies, which can be adapted to the diverse stakeholders and the development period.

By design, the research process involved exploring and understanding both the potentials and problems of Hot Spring Park from the preliminary survey, leading to coordination with the relevant departments to suggest ways to improve. It was based on a research process design that integrates the principles of PAR with DT in the architectural design process for spatial improvement that will lead to sustainable development both in terms of tourism and the well-being of the people in the community.

2. DESIGNING AREAS FOR PROMOTING HEALTH TOURISM

2.1 Health tourism factors

Health tourism is a term that refers to going to enjoy breathtaking scenery at natural and cultural attractions to learn about the local lifestyle and traveling to participate in health promotion activities, wellness treatments, and rehabilitation. Generally, it includes a list of vacation spots in natural settings. Learning how to employ natural energy for healing and enhancing physical and mental health in order to stay youthful and vibrant increases muscular strength, balances the mind and body, and is applied in daily life [13].

At the moment, health tourism is an alternative. Tourism can be classified into two categories based on its purpose [14, 15]: (1) Medical tourism is a tourism trip with a program of various therapeutic or rehabilitation activities in hospitals or infirmaries, such as dental surgery, cosmetic surgery, gender reassignment surgery, etc. (2) Wellness tourism is a tourism trip in which a health promotion program consists of various

health promotion activities—especially traveling to multiple tourist attractions and staying overnight in hotels, resorts, or health centers that have participated in health promotion activities, such as Thai traditional massage, herbal steam, aromatherapy, and spa services. A sustainable tourism promotion tourist attraction should have all the elements listed in Section 6.1, including: (1) tourist attractions, (2) transportation routes to access tourist attractions, (3) facilities in the tourist attractions, (4) tourist attraction management, (5) accommodation in tourist areas, (6) tourism activities. It was found that many tourist attractions were along transportation routes to other tourist attractions, and tourism activities were positively correlated with tourist satisfaction and word-of-mouth [16, 17].

Natural hot springs are being developed to become tourist attractions. The highest level will be designed with a spa approach. A study on spa tourism in Taiwan found that the critical factors for developing hot spring tourism attractions are the abundant natural resources and the potential for the development of the tourism industry. These include the following: (1) having a beautiful landscape or scenery for tourists' enjoyment; (2) having a beautiful structure or accommodation that provides a relaxing environment, including outstanding service from the staff involved; (3) appropriate oversight of regulatory agencies; (4) public relations using mass media to increase tourist demand; (5) community involvement in the creation of experiences [18].

There was a study on developing natural hot spring sources for a model city. By studying five hot spring sources, it was found that hot spring tourist sites should ensure cleanliness and safety to the highest standards. Facilities should be built to accommodate tourists, including having a system to limit the number of tourists, and most importantly, there should be sustainable conditions for hot spring tourist sites [19]. In addition, gender, age, and perceived importance of accommodation factors affect the frequency of visiting hot springs. Therefore, it is essential to pay attention to elderly male travelers who are not concerned about accommodation arrangements and security since they are the group with the highest frequency of travel [20].

2.2 Characteristics of a public healing space

Public spaces, in general, require a universal architectural design that facilitates the environment's design process and makes it an appropriate feature [21]. The environmental design creates spaces and things for everyone in society to enjoy fully and equally, without modifying them for a particular group of people [22]. In addition, education regarding social and economic issues and knowledge of the global community should be incorporated into the growth of a sustainable environment [23].

The design is intended to be curative (therapeutic design). That is not to say that the interior of the building should be decorated for aesthetic purposes. The patient's overall environment plays a role in their treatment or therapy. Creating an atmosphere or environment for patients is an important part of patient care. Architects, interior designers, and researchers must collaborate to create a design that incorporates four critical elements: reducing environmental stress or anxiety, providing positive incentives, providing space for groups of people involved, and providing a sense of privacy. All of this can be accomplished with the use of various elements both inside and outside the building,

including natural light selection, color art displays, fragrance, furniture placement, textures, materials, the nature of movement within the area, and green spaces both outside and inside the building, due to the relationship between living conditions, good health, and spirit. This is one of the fundamental principles of therapeutic design [24]. The design of a hot spring area by focusing on the senses that tourists have acquired as a result of factors, such as water cleanliness, water temperature, the sound of flowing water or the sound of nature surrounding the hot spring source, the chemical composition of the water, and the water smell, could be a motivator for traveling to hot springs with the desire for relaxation, independence, tranquility, a sense of rest, and a reprieve from the hustle and bustle. The benefits of hot spring experiences include improved general health and sleep, making them ideal for those suffering from back pain, arthritis, stress/anxiety, and depression/insomnia [25].

Additionally, public spaces have a connection to the community. Researchers discovered that (a) poor environments exacerbate residents' frustrations and precipitate catastrophic behavior, and (b) the freedom of movement and opportunities to avoid crowding, noise, and excessive stimulation reduce the frequency of aggressive behavior [26]. As a result, we should demand improvements to the lives of those in our home communities, such as better working conditions, a vibrant community, and an accessible and enjoyable healthy environment [27]. The following factors influence the role of public space in Thailand: (1) urban recreation and social interaction, (2) commodity exchange and trading, (3) political space for the power of the people, (4) education and learning, (5) promoting quality of life, (6) reflecting the values and social status of the area's residents, (7) facilitating mobility and connectivity, (8) convenience, and (9) serving as a destination and part of the city's image [28].

3. METHODOLOGY

This was a qualitative study and a community data collection project that focused on the characteristics of current space use, the spatial environment, local identity, local problems, and local conflicts. There were four distinct areas of action.

3.1 Gathering physical location data

This study is based on the primary data of the location, number, and characteristics of wells, as well as problem conditions. Surveys and an examination of the original site's existing plan were used to compile a site inventory. The research team contacted a consultant company to conduct a site survey and contour map to ensure that the sizes of and distance between each hot spring, the original structure, large trees, and adjacent areas were accurate. By depicting it as a contour plan, the low height of the total area's physical characteristics will be used in the design of the adjacent area. Photographs were taken of the building and all existing areas. The conditions of the ponds were examined regardless of whether they were in use and how they are utilized.

3.2 Literature review

The literature review covered three areas: architectural design concepts developed through participatory action research, standard data on natural hot spring designs, and the

concept of health tourism.

3.3 Questionnaire and in-depth interviews with stakeholder representatives

A questionnaire was distributed to all 42 participants at the meeting. Using electronic questionnaires for the 30 who were unable to attend in person to gather their data was sure to create additional complications. In the in-depth interview, the research team contacted and coordinated with three leading relevant agencies by writing a letter informing them of the project objectives and asking for cooperation as follows.

(1) Wang Hin Subdistrict Administrative Organization, Bang Khan District, Nakhon Si Thammarat Province, is a government agency that mainly cares for the Hot Springs Park area. At a meeting to introduce the project, the President of the Subdistrict Administrative Organization requested to explore the area. We asked for background information on past projects and helped coordinate with the people's representatives, namely the headmen of three villages, since the location of Hot Spring Park covers Village No. 4, Village No. 12, and Village No. 13 in the Wang Hin Subdistrict.

(2) Ban Si Yaek Suan Pa Subdistrict Health-Promoting Medical Center, 33 Moo 12 Ban Si Yaek Suan Pa, Wang Hin Subdistrict, Bang Khan District, Nakhon Si Thammarat Province, is a primary care facility that serves the residents of the Hot Spring Park area. "Happy Community" is an initiative and project proposal by the people of the Wang Hin Subdistrict that supports people's health care in the area. It provides information on the projects the community is trying to propose and drives them into action. In addition, the director of the Health Promoting Medical center, Ban Si Yaek Suan Pa, Mr. Teerawat Dangkapao, has been selected as an outstanding public health practitioner.

(3) The Hot Spring Park Temple is located in Village No. 13, Wang Hin Subdistrict, Bang Khan District, Nakhon Si Thammarat Province, which is the entrance area of Hot Spring Park, with which it is connected both in terms of space and culture.

3.4 Design by participatory process and design thinking

The plan was to organize a public hearing activity in Hot Spring Park, Wang Hin Subdistrict, Bang Khan District, Nakhon Si Thammarat Province by inviting all parties involved, including the population of the Bang Khan District, tourists, local government officials, and private organizations. Community leader representatives from the three villages connected to the Hot Spring Park area were required to attend, and the other people volunteered to join the activity. They participated in a brainstorming session on participatory development and expressed their views freely. Additionally, there was an exchange of knowledge facilitated by writing on paper rather than expressing thoughts in multiple steps. Because the data collection period occurred during the COVID-19 pandemic, to reduce the risk of spreading the disease, meetings were held with no more than 50 people. Three brainstorming sessions were held, each with a specific goal in mind. Additionally, various activities were organized. This is analogous to collecting data for the purpose of developing architectural drawings (Figure 1), for which the design process is guided by design thinking and participation is integrated.

The design process was divided into three parts. The first was to collect data to analyze the design approach. The second

was to offer design alternatives, and the third, conclusions. Thus, there were three hearings. In the first, the problems were examined and ideas were heard from the participants; in the second, opinions were given on the designs proposed by the designer; the third involved a small group to come to a common conclusion, which is related to architectural design and design thinking (Figure 2).

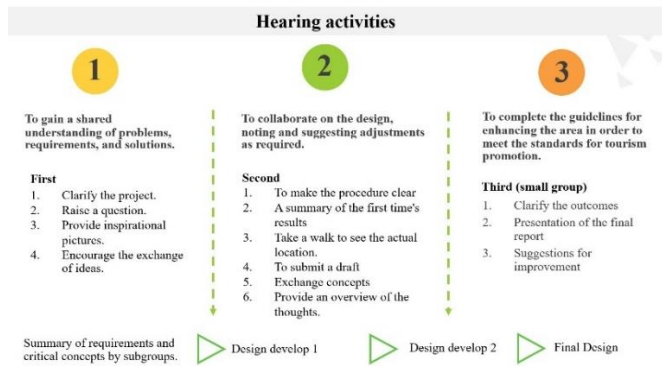


Figure 1. The hearing activities process and the architectural development process

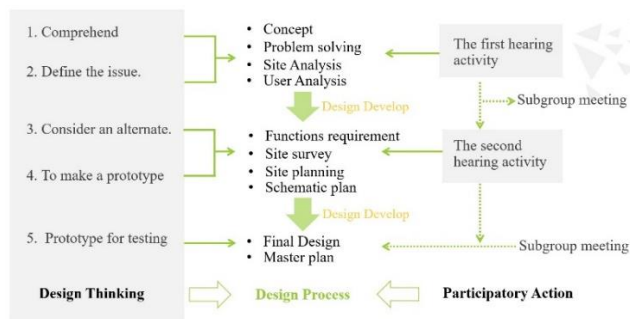


Figure 2. Process of integration, design thinking, architectural design process, and participatory process

4. RESULTS

4.1 Physical characteristics of hot spring sites

The project encompasses both built and natural areas. It consists of occupied structures, such as meeting rooms, a small community store, and a car park, and abandoned facilities, such as a Thai massage building, a shrine, public restrooms, and a children's swimming pool.

There are two entrances to the site: The first is on the main road, near road number 4151 and past the Hot Spring Park Temple by about 300 meters. The temple gate has height restrictions, causing busses to not be able to enter the main entrance. The second entrance is about 1.5 kilometers down road number 4151.

There is a total of nine hot spring wells, including seven hot ponds; "Nam Krod" ponds located adjacent to the main entrance road. The first accessible well, although the largest, was not designed for human use. The "Nam Tip" pond is the well to the right of the "Nam Ya" pond. It has an open appearance due to the lack of a roof. At the pond's edge, there is an approximately 80-cm-high barrier that can be used to take a shower. In close proximity to one another, a well draws water from the "Nam Ya" pond, and there is a seating area with a

foot bath. The "Nam Thip" pond is located in the section of the hot springs. It is the park's central pond. The roof structure itself is ancient and dilapidated. Although there is no shower area, water is supplied to the baths, which are the most frequently used areas. Additionally, a pipe connects to a nearby children's swimming pool. The "Nam Thep" pond is located within the hot spring zone. On the left, the "Nam Ya" pond is adjacent to the original swimming pool. Around the pond's edge is a barrier of approximately 30 cm, and there is no bathing area. The "Lam Tarn" pond is adjacent to the original swimming pool, which no longer has a path due to the pool's construction. As can be seen, there is insufficient space to erect a sign describing the history of this well. As a result, the sign was required to be placed on the opposite bank of the stream. The "Nam Arp" pond is adjacent to the "Nam Tip" pond. Currently, the bath is the primary area of use. A seating area surrounding the pond can be used for foot baths and to use the "Tammachart" pond located outside the hot spring zone next to the "Nam Krod" pond. There is no entrance and no design for this "Tammachart" pond or the two cold ponds, "Nam Aun" and "Nam Yen."

4.2 Potential and points to improve

Based on data from the Provincial Development Strategy of Nakhon Si Thammar, the first participatory activity involved everyone, and 50 people summarized the area's development and improvement potential as follows Table 1 and 2, Figure 3.

4.3 Factors affecting the development of Hot Spring Park as a health tourism destination

4.3.1 Development and management plans

The plan serves as the foundation for development that is contextually relevant and focused on becoming a health tourism destination. As a result, the plan must have a clear direction, demonstrate what is included, and improve and correct any failings. This will have an effect on the budget allocation for each area of development. The management leaders should have a vision for the long-term growth of health care with hot spring baths that can be combined with other forms of health care and should enlist the participation of all key sectors, especially the community.

4.3.2 Service and maintenance

Maintaining the standard of tourist attractions entails various tasks: site maintenance, water quality monitoring, continuous upgrading of the active area, cleanliness, safety supervision, and service quality maintenance. According to this research, the primary issue facing this hot spring is its declining condition and a lack of systematic provider allocations. Providing services that suit users' needs and maintaining or improving standards is a critical component of a tourist attraction's future viability. Participating in the service and being a user are inextricably linked to the community's residents. As a response, training should be provided to ensure that everyone has the necessary information, comprehension, and a positive attitude toward the city's status as a health tourism destination.

4.3.3 Public relations

Public relations are a component of the budget allocation development strategy. Tourism promotion is required to raise public awareness and attract those who have never been, as

well as those who have been impressed and returned. Currently, there are numerous public relations channels available on social media that are easily accessible to the public. This section should receive funding and continuous

activity. This will include gathering statistical data from tourists to track their progress, analyzing what is working, and identifying ways to enhance what is not.

Table 1. Potential of Wang Hin Hot Spring Park

Transportation	Resources	Faith
<ul style="list-style-type: none"> Bang Khan District is a frontier town in the province of Nakhon Si Thammarat. Being connected to numerous areas qualifies it as a health tourism destination. <ul style="list-style-type: none"> Convenient transportation 	<ul style="list-style-type: none"> Excellent and high-quality natural resources exist. It has the potential to be developed into a tourist attraction for the subdistrict and district. There are plenty of shady trees and an entire ecosystem. There are nine hot springs on the property. The pond names, such as acid wells, nectar wells, medicine wells, warm wells, and cold wells, correspond to the wells' characteristics. 	<ul style="list-style-type: none"> A pavilion is dedicated to Phor Dam Dong as a place of worship and trust. There is a belief that water can aid in the healing process.

Table 2. Aspects of Hot Spring Park that should be improved.

Awareness	Physical development	Management
<ul style="list-style-type: none"> Create a unique selling point for the area. There should be obvious signs directing visitors to the park area. Enhancements to the signs. 	<ul style="list-style-type: none"> Enhance the area to allow for jogging throughout the park. There must be sufficient light to provide an adequate level of service in the landscape improvement system. Enhance the cleanliness of ditches, ponds, restrooms, locker rooms, and areas with a dilapidated boarding house. It should have a shower room where guests can change their clothes. Enhance the park's internal and external facilities, including waste management and parking. 	<ul style="list-style-type: none"> Enhance the location and management of the park. Prepare to use equipment used to operate and maintain park areas. Incorporate adequate authority to maintain the area.



Figure 3. The existing plan

5. DISCUSSION

5.1 Concept and design criteria

Based on the input from the first meeting's participants, which aimed to comprehend the problem and propose solutions, as well as an assessment of potential improvements and factors affecting the development of Hot Spring Park, it was possible to define the concepts and criteria for the design, which are as follows: The environment is conducive to relaxation. The priority is to maintain as much of the original essence of the natural area as possible. Thus, it is necessary to assess whether its use is appropriate for users' demands and behaviors and whether it can accommodate people of various ages, concentrating on health-related fields. Moreover, to ensure the longevity of this enhancement, it should remain functional. It should be built and constructed with easy-to-maintain materials that can segregate open space from enclosed regions for ease of handling and safety. Additionally, the populations of surrounding communities should be considered. In addition to residents benefiting from its use, this can help the community generate revenue.

5.2 Design development from the community perspective

According to the participants' perspectives during the second meeting, the goal of which was to collaboratively create the design and incorporate relevant revisions, the process consisted of three steps:

5.2.1 Programming analysis

The functional area was identified at the conclusion of the first meeting, and the usable space was calculated using the design thinking method, whereby the analysis was conducted on the basis of user behavior and requirements, including the approximate number of people who can be accommodated in each area, the number of rooms, and the total area of each room. The size of each room was considered in relation to the corridor's overall space, which is around 30%. The entire area is divided into two zones: A group of buildings in the parking area, including a public relations building and a community shop, a restaurant, and a car park, and a place of use in Hot Spring Park, including a Thai massage building, a public park, and a hot spring bath shower room and toilet.

5.2.2 Site planning process

In the process of planning the area, an architectural design process that combines design thinking was used. The steps are as follows:

(1) The area was divided into three major zones, each with its own distinct function: service (community shop, café, public relations building, and parking lot), public park (massage building, herbal garden, and exercise), and hot springs (hot spring bath and shower room).

(2) Walking and running routes were mapped out. The paths are separated into two types: walking and running paths for exercise, both of which are located in an area designated as a park for movement. It was developed with the walking cycle in mind.

(3) The promenade and the hot spring area are 400 meters apart in a circle. This is the path that is exclusively used within the boundaries of the hot spring. This location is subject to a service charge. As a function, access control is explicitly stated.

(4) The territory, access control, the establishment of

distinct hot springs for the process of paying service fees, and the simplicity of maintenance were determined.

(5) The exercise station and the resting point in relation to the running path, which is the part that promotes community health, were determined.

(6) The check-in point's proximity to the entrance was determined.

(7) The locations of the main active pond, basic tourist attractions, and a sick well were identified.

(8) A herb garden area was identified.

5.2.3 Development and final schematic

The process of gathering opinions resulted in acquiring complete information from the stakeholders, as well as in summarizing the adjustments, which were presented again at the small group meeting. The following summarizes the modifications.

(1) Determine the location of the fee-paying point. Provide a one-way entrance and exit to the hot spring zone (Figure 4).

(2) To create a tourist attraction factor, the area should be more usable, with improvements to the most active wells, including a bath to soak in, which was initially just a foot bath (Figure 5).



Figure 4. The hot spring zone before (top); an example image following a renovation to include a service charge point (bottom)



Figure 5. The well before the improvement (top), an example picture after the progress of the well (bottom)



Figure 6. An abandoned children's pool (top), an example of the modified pond, and the bathroom building that replaced it (bottom)



Figure 7. The inaccessible “Lam Tarn” pond (top); a swimming pool building turned into a bathhouse and divided by a pathway leading to the “Lam Tarn” pond (bottom)



Figure 8. The original streamside area had only walkways and seating (top); an example of a renovation to provide an outdoor exercise facility for people in the community (bottom)

(3) Since the original swimming pool lacked a water circulation system and thus could not exist as a health tourism site, the children's pool building was modified to provide a more appropriate shower room (Figure 6).

(4) Each pond should be redesigned to be visible and include an accessible path that leads back to the original pond (Figure 7). This relates to the health tourism factor of a complete support facility.

(5) Create a seating area adjacent to the underused “Nam Krod” pond and “Lam Tarn” pond for better accommodations (Figure 8).

(6) Connect the herbal garden area to the massage building, and by altering the site to include a playground, the site may be used by an entire family for more appealing activities (Figure 9).



Figure 9. An unused natural area (top); an example of a playground renovation (bottom)

6. CONCLUSIONS

6.1 Guidelines for enhancing the area's hot spring use

These guidelines were created with the information gathered throughout the participatory design process regarding the needs and opinions of representatives of stakeholder groups, including government agencies and communities, during the development and improvement of the area layout (Figure 10).

(1) Decide on a public/private zone.

This describes the workspace's scope in relation to the user group, which is related to the concept of tourism area development and community health promotion. The area has been divided into parks that are open to the public but will primarily serve the local community, as well as a separate hot spring area. Because soaking in a hot spring necessitates a higher level of privacy, in the future, a service charge point will be required for maintenance.

(2) Control the entrance and exit to have only one point.

To maintain control, the hot spring zone has a one-way entrance and exit for safety and simplicity with the addition of a service charge point. Nevertheless, free usage of the space is provided for villagers or communities. Additionally, it is easy to obtain user statistics.

(3) Improve the most used pond to accommodate everyone's use.

In general, a tourist destination should be accessible to all. As a result, employing the universal design idea makes the area more useable by creating equipment and facilities that are appropriate for health-related initiatives that target the primary user group of health enthusiasts, the majority of whom are older. However, the project includes a bath that is extremely popular and well-used by the public. As a result, both bathing and foot bathing should increase. Initially, it was merely a foot bath.

(4) Modify an existing space that is not suitable for the project to meet the project's needs.

If areas or structures within the project area do not meet the goals of the project, they will be abandoned, and the area will be wasted. It is suggested that the original area's use is modified as follows: convert the swimming pool building into the living space required for bathing in the hot springs, which should include a more contextual shower room, and restore the pavilion into a community shop and restaurant.

(5) Create connected routes.

For the purpose of connecting projects with multiple uses, there should be a continuous path with a suitable distance for

walking and jogging. Additionally, an approach should be included to provide access to all hot springs wells to maximize utilization. For example, the path to the steam well should be adjusted since the original one was inaccessible. Furthermore, the interconnectedness of each space encourages individuals to engage.

(6) Optimize empty areas in the most efficient way possible.

It is essential to establish park areas in order to make consistent use of all the available spaces because if left unattended, it will result in a lack of use, which will ultimately result in a lack of maintenance. A resting area should be created adjacent to "the acid pond" and "the natural pond", which were previously underutilized.

(7) Improve the parking areas to facilitate tourism-related travel.

Due to the need to promote tourism, vehicles traveling by car, motorbike, bus, or bicycle should have appropriate parking places, and parking spaces should be set up so that they are more convenient and obvious to find their way into and out of.



Figure 10. Master plan

(8) Increase the space to encourage wellness and align with the community's potential.

In accordance with community activities, health tourism is critical for promoting and supporting the community's potential and strength. To maintain the ambiance and a healthy environment, contribute to a sustainable future by developing exercise areas, children's playgrounds, connecting the herbal garden area to the massage building, and increasing the community innovation space.

6.2 Integration of PAR and DT in the architectural design process

In the architectural design process, the contributions of those involved can be combined with those of people in PAR and design theory (DT). This ensures that both the data and the direction of the analysis are accurate in relation to its actual context. It is a procedure that can be applied to other project designs. Ultimately, this will evaluate the viability and appropriateness of the sustainable health tourism development plan (Figure 11). The integration reveals the research process's hidden essence, namely:

- (1) Learning the true issues and using past errors to uncover effective solutions;
- (2) Understanding the various strengths of the beliefs, faith, hidden values, and knowledge gained from using hot springs;
- (3) Those able to establish a mobility network will be able to advance coordination in the future;
- (4) Raise the area's population's awareness to foster indirect cooperation, which will have a significant influence on the region's development.
- (5) Expand the visibility of the roles and opinions of community members by establishing a platform.

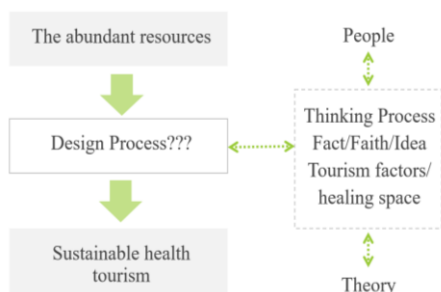


Figure 11. Development of the design process

6.3 Suggestions

This research project solicited input from a variety of stakeholders. However, a small number of them may not be able to communicate in the future. Future developments may provide information exchanges between tourist attractions of each province and promote tourism through these exchanges.

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