



Development of AHP Based SWOT-TOWS Analysis for Hot Spring Development in Thailand: Evidence from Surat Thani Province

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ABSTRACT

Tourism is an important sector that generates economic income in Thailand, and revenue is obtained from seaside tourism, wellness tourism and cultural tourism. Hot spring wellness tourism is gaining more attention and popularity among tourists. Therefore, through the use of a SWOT analysis, the TOWS matrix-based analytical hierarchy process (AHP), semi-structured interviews, and a focus group with 67 stakeholders, this research investigates the guidelines for the promotion and development of hot spring wellness tourism. The study found that the development approach can be divided into four dimensions: 1) Demand-side development focuses on promoting tourism through the use of various media and by creating an identity through tourism publicity, as well as generating income for people in the community and developing an international tourist destination focusing on promoting wellness-conscious tourists. 2) Supply-side development focuses on improving the quality of the hot springs tourist destination, improving the landscape to accommodate a full range of tourists, and developing tourist attractions and new tourism activities, including the development of tourism links with other sectors. 3) The mechanism development side focuses on the development of a comprehensive tourism management system and the determination of the appropriate utilization zones of tourist attractions. 4) Service quality development is based on an important objective, namely, the development of tourism personnel that meet international standards to support the expansion of tourism in the future and the development of first aid and security systems.

1. INTRODUCTION

World wellness tourism grew from US\$ 3,724.4 billion in 2015 to US\$ 4,202.2 billion in 2017, with an average growth rate of 6.4 %. Wellness tourism income grew more than twice as fast as tourism overall, and it is forecasted to grow even faster through 2022, reaching US\$ 919 billion US. The Asia-Pacific region generated 13 % of the world wellness tourism income in 2017. One of the ten wellness sectors was thermal/mineral springs; this sector's market size was valued at US\$ 51 billion in 2015 and had increased to US\$ 56.2 billion in 2017, with an average growth rate of 6.4 %. The Asia-Pacific region was an attractive hot springs tourism destination, generating revenues of US\$ 31.6 billion in 2017, which comprised approximately 56.22 % of the global hot springs tourism income [1]. Among the hot springs tourism destinations in 2017, the top-ten Asia-Pacific region markets, such as China, Japan, Taiwan, South Korea, New Zealand, and Thailand, generated income of approximately US\$ 16.9

million [1]. Thailand launched a campaign for promoting wellness tourism, including hot springs tourism, in the Thailand Strategies Master Plan, which focused on the development of the tourism sectors (2018-2037) through the promotion of hot springs tourism. Regarding supply-side development, the government provided a budget allocation for developing the hot springs tourism supply chain elements, such as basic infrastructure (i.e., roads, electricity and tourism signs), developing the hot springs tourism destination facilities and services, such as the sanitation system and tourism activities offered in the destination, and developing the service quality in the hot springs tourism supply chain, especially in the tourism destination's accommodations, food and beverages [2]. Thailand has 129 hot spring destinations that have been visited by tourists, and these destinations are scattered in every region, except the Northeast. By province, the top-four hot springs destination are Chaingmai Province, with 21 hot spring destinations, followed by Chaingrai Province

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and Maehongson Province, which have 12 hot spring destinations, and Surat Thani Province, which has 10 hot spring destinations. In the southern region, in addition to Surat Thani, Ranong and Krabi each have 7 hot springs [3].

Although the government budget allocation provides for hot springs tourism supply chain development, most hot spring tourism destinations do not take full advantage of the allocation, using it for nothing more than expenditures for foot baths, boiled eggs, and traditional baths. Moreover, the level of the basic infrastructure at hot springs destinations has not achieved the government's minimum standards, such as public bath, sanitation system, cleanliness, safety, and service quality standards; in addition, the tourist attractions lack the identity that can attract tourists [4]. By examining bottom-up process policies, many previous studies have attempted to determine the strategies for developing hot springs tourism in Thailand: Chuamuangphan et al., (2016) [5] focused on the eastern region of Thailand, while Muangdit and Nititrot, (2017) [6] chose Ranong Province to conduct their study. [7] study was concentrated in five provinces comprising Chiang Rai, Chiang Mai, Kamphaeng Phet, Ratchaburi and Ranong. [8] attempted to explain macro aspects but still limited the study to Surat Thani Province, which is the fourth ranked hot springs tourism destination in Thailand [4]. This macro-level point of view was supported by Ólafsdóttir and Tverijonaite, (2018) [9], who reviewed 256 papers during 2002-2018 and found that further research is needed to increase the body of knowledge, gain an understanding of geotourism and of supply chain impacts through the development of an appropriate database, and to examine both the positive and negative aspects of geotourism to facilitate its successful development and management. Local communities are an important group of stakeholders, whose consideration is required for future geotourism development. Sustainable geotourism development can be facilitated through the use of the geopark concept. One of the attraction points for visitors interested in geopark areas includes hot spring tourism destinations, which directly generate local community tourism income [10].

In previous studies, a SWOT analysis (strength, weakness, opportunities and threat) was frequently used for a health tourism development analysis [11] based on field surveys, samples and bibliographic research [9]. A SWOT analysis is a qualitative framework that has two major advantages: 1) The approach is used to analyze a current situation, including both its positive and negative aspects, by identifying internal (strength and weakness) and external (opportunities and threat) factors. 2) Although it can be considered a "current situation" analysis tool, a SWOT analysis can also predict what the future state of the current situation will be. With this ability, it can also be a "future situation" analysis tool [12]. However, this approach cannot quantify each factor in the decision-

making process, and under this approach, the impact of SWOT factors on strategic decisions cannot be determined [11]. [13] integrated the SWOT analysis with the analytical hierarchy process (AHP), which is a quantitative analysis tool commonly used to define priority factors and the final relative weight in any given multi-criteria decision making (MCDM) analysis based on a pairwise comparison. This method can be used to help the SWOT analysis classify the best health tourism strategy, including the hot springs tourism strategy [14]. The integrated SWOT analysis-TOWS matrix with AHP has been used in the field of health tourism [9]; [11]). However, in the literature, there is no study in which the combination of the SWOT analysis-TOWS matrix-based AHP methodology has been used to focus on hot springs tourism development [11], [15]-[18]. This methodology is applied in this study for the first time in the field of hot springs tourism in Thailand. The main contributions of this study are as follows.

1) This article contributes to the literature by proposing the use of the SWOT analysis, a qualitative method, in combination with the TOWS matrix-based AHP method, a quantitative method, to create for the first time guidelines for hot springs tourism development in Thailand. The study develops a systematic tool to manage decisions, creating a stronger evaluation process through analytical methods. The approach provides more realistic results during the evaluation of alternatives, allowing a more flexible environment for decision-makers.

2) This study employs a hybrid SWOT analysis-TOWS matrix with AHP approach, selecting a group of stakeholders identified in the extant literature, namely, local community groups, to formulate hot springs tourism development guidelines for the first time in Thailand.

The study has been organized as follows. The following section provides a background on the research theory concept and the SWOT-TOWS analysis-based AHP approach. The third section details the research methodology. Section 4 presents the results of the study and a discussion. The conclusion and policy implications of the study are illustrated in the final section.

2. RESEARCH METHODOLOGY

The qualitative methods used in this research comprised mixed research methods, semi-structured questionnaires and focus groups, and the quantitative method used was the questionnaire. Purposive random sampling was used to examine the strengths, weaknesses, opportunities, and obstacles in the development of hot spring wellness tourism in the Surat Thani Province.

2.1 Research Case

Through an AHP-based SWOT-TOWS analysis, this research attempts to develop guidelines for hot spring tourism development by focusing on the following seven hot springs destinations that have the potential to become

wellness tourism destinations: 1) Ban Pak Dan, Moo 6, Lamet Subdistrict, Chaiya District 9.355324, 99.183439; 2) Ban Than Nam Ron, Moo 1, Khao Than Subdistrict, Tha Chang District 9.334781, 99.201220; 3) Ratanakosai (Tha Sathon), Moo 6, Tha Satron Subdistrict, Phunphin District 8.97548, 99.26385; 4) Ban Wang Hin (Scout Camp), Moo 5, Permpoon Sap Subdistrict, Ban Na San District 8.80326, 99.41184; 5) Ban Bo Krut, Moo 5, Krut Subdistrict, Kanchanadit District 9.13558, 99.49841; 6) Ban Khao Tok, Khian Sa District 8.84291, 99.22353; and 7) Ban Khao Noi (Tham Singkhon), Moo 5, Khiri Rat Nikhom District 9.030427, 99.028714 (Figure 1),

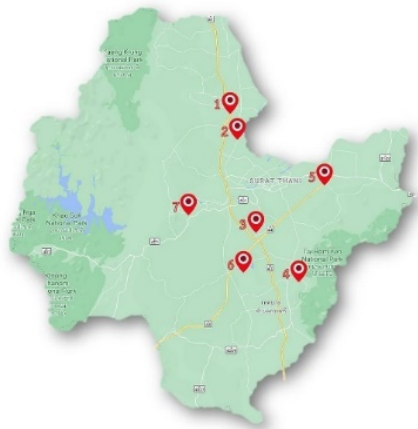


Fig. 1. Study area map of the 7 potential hot springs tourism destinations in Surat Thani.

2.2 Data Collection

The research instruments included semi-structured interviews, group meetings for brainstorming, and questionnaires created based on documents, relevant research, reports, and interviews in the preliminary survey. Mixed methods employed through many mechanisms were selected to achieve the research objective (Figure 2) as follows.

Phase 1 entailed the forming of the SWOT model (strength, weakness, opportunities, and threats). The target of the process was to identify the initial internal factors (strengths and weaknesses) and the external factors (opportunities and threats), i.e., the positive and negative factors, of the seven potential hot spring destinations by reviewing the literature and conducting semi-structured interviews with 67 participants in 2019. The participant organizations and the participants were the following: 1) 10 government agencies, in which the interview participants included 2 officers of Tourism and Sports in Surat Thani Province, 2 officers of the Thailand Tourism Authority, Surat Thani Branch, 2 officers of the Tourism Industry Council of Surat Thani, and 7 local government staff members; 2) 10 private organization agencies, in which the participants included 2 officers of the Surat Thani Province

Chamber of Commerce, 2 representatives of the Surat Thani Tourism Association, 2 entrepreneurs in accommodation businesses, 2 representatives of travel agency businesses, and 2 representatives of tour guide business; 3) Five tourism experts who were academic experts in tourism. 4) Forty-two representatives of the community, including 6 community scholars or community leaders for each of the 7 destinations. Regarding the main criteria for selecting the interviewees, the interviewees were required to have the following: 1) at least 3 years of experience with hot spring tourism destinations; 2) an understanding of the SWOT analysis method and the TOWS matrix; 3) an understanding of the AHP method and prioritization of ranking strategy-based AHP; and 4) a sufficient amount of available time to answer the interview questions. The number of interviewees, their backgrounds, and the time duration of the interviews are shown in Table 1.

Table 1. Interviewees and their backgrounds

No	Type	Position	Frequency	Hour
GA	Government agencies			
GA1	Tourism and Sports in Surat Thani Province	Policy and Planning analysis	2	2
GA2	Thailand Tourism Authority, Surat Thani Branch	Tourism Authority officer	2	2
GA3	Tourism Industry Council of Surat Thani	Vice president	2	2
GA4-10	Local government	Local government official	2	2
PA	Private organization agencies			
PA1-2	Surat Thani Province Chamber of Commerce	Vice president and committee board member	2	2
PA3-4	Surat Thani Tourism Association	President and Secretary of Tourism Association	2	2
PA5-6	Entrepreneurs in accommodation businesses	Representative of entrepreneurs in accommodation businesses	2	2
PA7-8	Travel agency business	Representative of travel agency business	2	2
PA9-10	Tour Guides	Representative of tour guide business	2	2
ET	Expert in tourism/Academic expert in Tourism			
ET1-2	Academic expert in Tourism	University lecturer in tourism department in Surat Thani	2	2
ET3-5	Expert in tourism	Expert in tourism in Surat Thani	2	2
CL	Community representative			
CL1-7	Village Headman	Village Headman of 7 hot springs tourism destinations	2	2
CL8-42	People in the community representative	People who live in community and are engaged in work related to the 7 hot springs tourism destinations.	2	2

Phase 2. Modification of the SWOT model. This process started with a verification of the internal factors (strengths and weaknesses) and the external factors (opportunities and threats) of the 7 potential hot spring tourism destinations. An analysis of the initial strengths, weaknesses, opportunities, and threat factors of the seven destinations was conducted through semi-structured interviews of the 67 participants, resulting in the selection of a focus group of 34 participants. The focus group meeting included the following participant organizations and participants: 1) Ten government agencies, from which the participants were an officer of Tourism and Sports in the Surat Thani Province, an officer of the Thailand Tourism Authority Surat Thani Branch, an officer of the Tourism Industry Council of Surat Thani, and seven local government staff members; 2) five private organization agencies, from which the participants were an officer of the Surat Thani Province Chamber of Commerce, and one representative each from the Surat Thani Tourism Association, entrepreneurs in accommodation businesses, travel agency businesses, and tour guide businesses; 3) five academic experts in tourism; and 4) fourteen representatives of the community, of which 6 were community scholars or community leaders for each of the 7 destinations. Regarding the main criteria for selecting the 34 participants from the 67 participants in the first step, the participants were required to have the following: 1) at least 5 years of experience with hot spring tourism destinations,

2) an understanding of the SWOT analysis method and the TOWS matrix, and 3) a sufficient amount of available time to participate in the meeting. The number of interviewees and their backgrounds and time for interviews (Table 2).

Table 2. Group meeting participants and their backgrounds

No	Type	Position	Frequency	Hour
GA	Government agencies			
GA1	Tourism and Sports in Surat Thani Province	Policy and Planning analysis	2	6
GA2	Thailand Tourism Authority, Surat Thani Branch	Tourism Authority officer	2	6
GA3	Tourism Industry Council of Surat Thani	Vice president	2	6
GA4-10	Local government	Local government officials	2	6
PA	Private organization agencies			
PA1	Surat Thani Province Chamber of Commerce	Vice president of board committee	2	6
PA2	Surat Thani Tourism Association	President of Tourism Association	2	6
PA3	Entrepreneurs in accommodation businesses	Representative entrepreneurs in accommodation businesses	2	6
PA4	Travel agency business	Representative of travel agency business.	2	6
PA5	Tour Guides	Representative of tour guides	2	6
ET	Expert in tourism/Academic expert in Tourism			
ET1-2	Academic expert in Tourism	University lecturer in tourism department in Surat Thani	2	6
ET3-5	Expert in tourism	Expert in tourism in Surat Thani	2	6
CL	Community representative			
CL1-7	Village Headman	Village Headman of 7 hot spring tourism destinations	2	6
CL8-14	People in the community representative	People who live in community and working related with 7 hot spring tourism destinations.	2	6

Phase 3. Forming the TOWS matrix. The use of the TOWS matrix was the next step in the process and was employed to develop alternative strategies on the basis of the relationships between threats, opportunities, weaknesses and strengths, as indicated by the SWOT analysis [19]. This step attempts to generate the development guidelines for 7 potential hot spring tourism destinations by using the TOWS matrix analyses and a group meeting of the same 67 participants from the first step. The target of this process is to obtain the final form of the guidelines for the development for 7 potential hot spring tourism destinations by examining the following four strategic dimensions: 1) SO, denoting the existing advantage of strengths realizable through the good use of opportunities; 2) ST, denoting the excellence of the strengths to eliminate or reduce the impact of threats; 3) WO, denoting the consideration and the awareness of weaknesses to obtain the benefits of opportunities; and 4) WT, denoting the attempt to decrease the impact of threats by taking into account weaknesses [19].

Phase 4. Forming the evaluation model. In this step, in-depth interviews with 67 participants are conducted, and the AHP is used to conduct a pairwise comparison, which shows importance in the TOWS matrix, enabling the creation of alternative strategies for the development of the 7 potential hot spring tourism destinations. The main four strategies created for hot springs are the ST, SO, WO and WT strategies. For example, to develop the ST strategy, the higher scoring factors in the S and T categories are pooled together and analyzed, and suitable policy strategies are created to address them. Often, a focus group discussion or a workshop is conducted to develop ideas for policy strategies. An integrated SWOT-TOWS matrix-based AHP analysis is one of the strategic tools in a bottom-up approach and is widely used to develop policies. The advantage of this method is that stakeholders are involved in the policy planners' envisioning of policies [20]. The weights used in this study ranged from 1 to 9 and were displayed as an ordinal scale of importance in the questionnaires (1 = equal importance; 3 = moderate importance; 5 = demonstrated importance; 7 = essential

importance; 9 = extreme importance). Table 4 shows a typical comparison between three factors A, B, and C. From the pairwise comparisons of factors, the relative priority of each factor within individual guideline groups was calculated by using an eigenvalue technique [21–23].

Table 3. Pairwise comparison extracted from the current study's questionnaire.

Guideline development										
More		Comparison level							Less	
Guideline development	Extreme importance	Essential importance	Demonstrated importance	Moderate importance	Equal importance	Moderate importance	Demonstrated importance	Essential importance	Extreme importance	Guideline development
A										B
B										C

The resulting ranking can be shown as a mutual matrix of weights, where the designated relative weight is keyed into the matrix as an element a_{ij} (element of row i column j) and the reciprocal entry, $1/a_{ij}$, proceeds to the opposite end of the primary diagonal [21–23]. The next step involves the calculation of a consistency ratio (CR), which does not influence the value of factors/groups but measures the consistency of a pairwise comparison matrix. The judgments are trustworthy if the CR is lower than 0.10. The CR is calculated as the ratio between the consistency index (CI) and the random inconsistency (RI) [21].

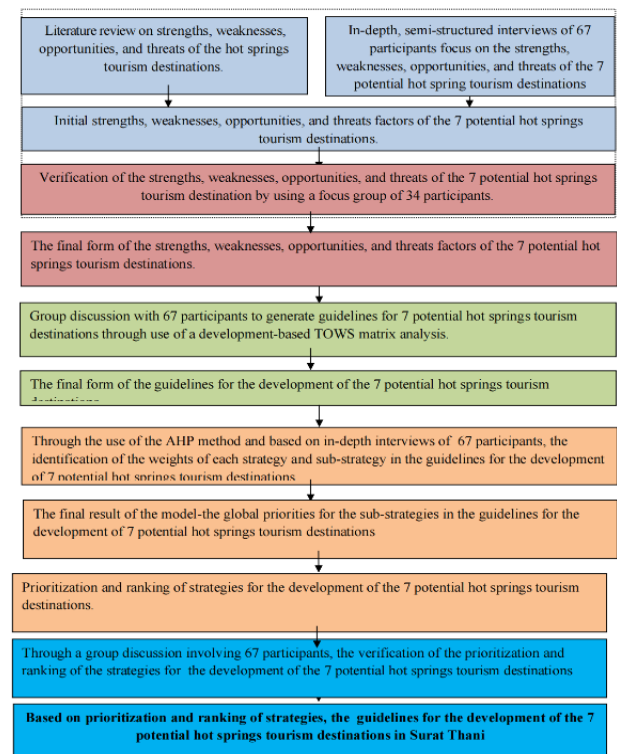


Fig. 2. The process of the study.

3. RESULTS

Study results were obtained for the following: 1) the SWOT analysis of the 7 potential hot spring tourism

destinations; and 2) the creation of guidelines for the development of 7 potential hot spring tourism destinations.

3.1 SWOT analysis of potential hot springs tourism destinations

The results of the analysis of the strengths, weaknesses, opportunities, and barriers of 7 potential hot spring tourism destinations are from Phase 1 and 2 activities, which were discussed in section 3.3. The results show that the strengths of the water quality of the hot springs in Surat Thani Province are as follows: 1) The natural hot springs that serve tourists for bathing/soaking have suitable chemical properties. The water temperature is between 41 - 60 degrees Celsius. 2) The natural hot spring water constantly flows out and is attractive. 3) Because of the strength of the hot baths, the spring water is able to treat disease, beriberi, and aching pains (according to belief). The space is suitable for bathing/soaking. There are large buildings and modified structures. An environmental strength is that the buildings are in harmony with nature. Regarding transport strengths, traveling to the hot springs destinations is convenient for tourists. A tourism strength is the potential link that can be created between wellness tourism and other tourist attractions, as there are other attractions nearby and the hot springs destinations have been known to local people for a long time. The weaknesses of the hot springs destinations in Surat Thani Province are as follows: In terms of water quality, there was no preliminary filtration process used for contaminants. The destination should thus provide staff to manage the cleanness of the hot springs water; e.g., destination staff should manage the removal of leaves from the water before the service is opened.

There were two weaknesses regarding the bathrooms and toilets: 1) The toilets and sanitation facilities are located in an enclosed area and are in good condition; however, cleanliness and maintenance is lacking for these facilities. 2) There are no shower rooms/ toilets designed specifically for disabled or elderly people. Moreover, there were safety weaknesses, which were reflected in a lack of tourist safety information in the hot springs destinations in Surat Thani Province. Some of the weaknesses were as follows: (1) There was a lack of banners or other media to educate users about natural hot springs; (2) There was a lack of signs or other media to show procedures for bathing/soaking in hot springs and a lack of advice, announcements or alerts for users with congenital diseases. These signs should be detailed, easy to understand and clearly visible in both Thai and English. (3) There was a lack of temperature signs or devices in the hot spring bathing/soaking areas. (4) No handrails or other devices were installed for convenience and safety, and there was an issue of insufficient waste bins in the service area. There was no waste management system, and the non-hygienic storage of garbage and sewage is a hot springs environmental weakness. The major weaknesses of hot

springs in management are the lack of a clear supervisory agency and the lack of community participation in tourism development. The major weaknesses in the tourism facilities were the following: 1) There was no souvenir shop. 2) There was no food and beverage shop. 3) There was a lack of public relations mechanisms directed to tourists. 4) The buildings were old and dilapidated.

Regarding tourism, the opportunities for the hot springs destinations in Surat Thani Province are as follows: (1) the trend of wellness tourism has become more popular. Bathing/soaking in the hot springs from natural springs is believed to improve wellness. (2) Thailand's policy emphasizes wellness tourism at both the global and international levels, including public and private agencies, and is focused on Thailand's potential to become a center of wellness tourism. Regarding demographic opportunities, during the years 2010–2040, the proportion of the childhood and labor population experienced a downward trend, while the proportion of the elderly population showed a continuously increasing trend. This group of people is interested in wellness activities that focus on food and wellness tourism.

Regarding the obstacles in the hot springs destinations in Surat Thani Province, the hot springs destinations in Surat Thani Province were revealed to be in a competitive situation with other hot springs destinations. In addition, the main competitor was a hot springs destination in a nearby province, Ranong Province. Ranong has dozens of hot springs, which are notable for their sulfur-free water that contains many beneficial minerals. Ranong is also regarded as having one of the world's best quality mineral waters. Other obstacles were as follows: (1) There was a limited central support budget for building facilities and little or no continued budget support for community activities. (2) There was an inability to build community participation in tourism areas. Moreover, incorrectly soaking in hot mineral water can be dangerous, e.g., taking too long can cause dizziness and fainting (the optimal time is 10-15 minutes at one time). Entering a high-temperature hot spring without making an adjustment or gradually decreasing the temperature can cause the internal organs and the blood to overheat, resulting in the possible occurrence of symptoms of heat stroke syndrome and in kidney failure, liver failure, blood clotting, or even death. If this type of bad news comes out through various media channels, it will impact hot springs tourism. The results from the respondents' prioritization revealed that the approach that the stakeholders emphasized the most was tourism supply development: developing the tourism destination to accommodate a complete range of tourists; improving the quality of the hot springs; and improving the landscape to accommodate the full range of tourists. The respondents also emphasized the need to conduct a study of minerals and properties contained in hot springs, as well as the need to develop tourist attractions and new tourism

activities, including the development of tourism connection routes Table 4).

The strength factors, namely, the surface water temperature of hot springs of 40-54 degrees of Celsius, with water constantly flowing out, and the destinations' very high uniqueness, were similar to those of other hot spring destinations in Thailand [24,25]. The important weakness factors, which were similar to those of other hot spring destinations in Thailand, were the following: 1) the limitation in the quantity of the basic accommodations for tourists, in the standard service quality of the basic accommodations, and in the budgeting allocation for maintenance; 2) a lack of procedures for tourists at hot spring destinations; and 3) little local community participation in hot spring tourism development [25].

Table 4. Summary of Strengths, Weakness, Opportunities and Threats of 7 potential hot spring tourism destinations in Surat Thani

Factor/pond	Ban Pak Dan Hot Spring	Than Nam Ron Temple Hot Spring	Rattanan Kosi Hot Spring	Scouts Camp Hot Spring	Ban Bo Num Ron Hot Spring (Krut)	Khao Tok Hot Spring	Tham Singkhon Hot Spring
Strengths							
Water quality							
1. Natural hot springs that serve tourists for bathing/soaking have suitable chemical properties. The water temperature is between 41 - 60 degrees Celsius.	✓	✓	✓	✓	✓	✓	✓
2. Natural hot spring water constantly flows out and is interesting.	✓	✓	✓	✓	✓	✓	✓
3. The water can be used to treat disease, beriberi and aching pain (according to beliefs).	✓	✓	✓	✓	✓	✓	✓
4. A water quality assessment has been conducted and results obtained.	✓	✓	✓	✓	✓	✓	✓
5. The hot spring is the only salty hot spring in Surat Thani Province.	✓	✓	✓	✓	✓	✓	✓
Hot spring bath							
1. Space for bathing/soaking: there are large building and modified structures.	✓	✓	✓	✓	✓	✓	✓
2. Both outdoor and indoor hot springs are well lit. They have good ventilation systems. The facility is not hot, stuffy, humid, and it does not smell bad.	✓	✓	✓	✓	✓	✓	✓
3. There is an overflow system or a constant flow of water. There is a supply of is served water, and the water is not re-circulated back for service.	✓	✓	✓	✓	✓	✓	✓
4. Two baths (not separated for males and females) are cleaned and replaced every 3 days. For example, when washing pond 1, there must be a 3-day water rest because the hot water is very hot. Individuals cannot soak in it. Pond 2 will be open for replacement service alternately.	✓	✓	✓	✓	✓	✓	✓
5. The indoor hot spring is well lit. It has good ventilation system. It does not feel hot, stuffy, humid, and it does not smell bad.	✓	✓	✓	✓	✓	✓	✓
6. The surface of the service area flooring is a rough contact surface or anti-slip material.	✓	✓	✓	✓	✓	✓	✓
7. There is a square cement pond with a width of 5 meters by 5 meters and hot water rising from the underground so that people who enter the service can use the bowl to scoop up and bathe the body (do not soak). This pond is the largest cement pond in Surat Thani Province.	✓	✓	✓	✓	✓	✓	✓
8. Every bath has a water change system that is used every day. The service water is not brought back to service again.	✓	✓	✓	✓	✓	✓	✓
Shower room/toilet							
1. There are enough toilets for the number of people using the service. There are separate male-female toilets, which are clearly indicated.	✓	✓	✓	✓	✓	✓	✓
Safety aspect							
1. There are signs or other materials to educate users about natural hot springs, e.g., signs showing the destination's natural hot springs types and the benefits from using them.	✓	✓	✓	✓	✓	✓	✓
2. Signs or other materials are available to show the hot spring bathing/soaking practice. There are advices, announcements, notifications or alerts for users with underlying diseases. Signs are detailed, easy to understand, and clearly visible.	✓	✓	✓	✓	✓	✓	✓
3. Handrails or other equipment are installed for convenience and safety.	✓	✓	✓	✓	✓	✓	✓
4. There is a safety officer.	✓	✓	✓	✓	✓	✓	✓
Environment							

Factor/pond	Ban Pak Dan Hot Spring	Than Nam Ron Temple Hot Spring	Rattanan Kosi Hot Spring	Scouts Camp Hot Spring	Ban Bo Num Ron Hot Spring (Krut)	Khao Tok Hot Spring	Tham Singkhon Hot Spring
1. There are enough bins in the service area. There is a hygienic waste and sewage collection system.	✓	✓	✓	✓	✓	✓	✓
2. The buildings on the premises are in harmony with nature.	✓	✓	✓	✓	✓	✓	✓
Transport							
1. Convenient travel	✓	✓	✓	✓	✓	✓	✓
Management							
1. There is a clear supervisory agency.	✓	✓	✓	✓	✓	✓	✓
2. The community is involved in the development of the tourist attractions.	✓	✓	✓	✓	✓	✓	✓
Tourism							
1. There are nearby attractions that can create tourism links.	✓	✓	✓	✓	✓	✓	✓
2. There is a story that can create a unique attraction.	✓	✓	✓	✓	✓	✓	✓
3. There is a nearby accommodation that can accommodate tourists who want to heal their body.	✓	✓	✓	✓	✓	✓	✓
4. There is an infrastructure that has been developed to support the use of tourists.	✓	✓	✓	✓	✓	✓	✓
The other sides							
1. The hot spring has been known to the local people for a long time.	✓	✓	✓	✓	✓	✓	✓
2. Khao Than Hot Spring has managed the area with the various locations named. The main source of hot water is called "Sa Lang Bab", which is located in a limestone area called "Lan Lok Pra Chan".	✓	✓	✓	✓	✓	✓	✓
3. The natural hot springs is in the same location as the non-hunting area, Nong Thung Thong, which comprises an area of 38,438 rai. In addition to the hot springs, there is also a nature study along a 1 kilometer route, offering a flat, comfortable walk, with a view and meaningful signs.	✓	✓	✓	✓	✓	✓	✓
Weakness							
Water quality							
1. The hot springs are large and wide, with open-air hot springs. As a result, the hot water temperature is less hot than the smaller ponds.	✓	✓	✓	✓	✓	✓	✓
2. There is a lack of a preliminary filtration process for removing contamination. For example, no sieve used to stop the leaves that flow from the water source.	✓	✓	✓	✓	✓	✓	✓
Hot spring bath							
1. There are 2 indoor baths, which are separated by male and female, and a private bath. The bath is a pond under a big tree, and there is a temporary roof that covers the pond. The roof is not very good. There are still fragments of leaves falling on the pond.	✓	✓	✓	✓	✓	✓	✓
Shower room/toilet							
1. The toilets and sanitary facilities are in an area that is intact, in good condition, but lacks maintenance.	✓	✓	✓	✓	✓	✓	✓
2. There is no dedicated shower/toilet for the disabled or the elderly.	✓	✓	✓	✓	✓	✓	✓
3. A Boy Scouts' hot springs camp with toilets and showers is under construction.	✓	✓	✓	✓	✓	✓	✓
4. There are 2 changing rooms, which are old and lacking in cleanliness.	✓	✓	✓	✓	✓	✓	✓
5. There is no toilet for washing up before and after taking a hot shower.	✓	✓	✓	✓	✓	✓	✓
6. There is no toilet to accommodate tourists.	✓	✓	✓	✓	✓	✓	✓
Safety aspect							
1. There is a lack of signs or other materials to educate users about natural hot springs or to show the types and benefits of using the natural hot springs of that destination.	✓	✓	✓	✓	✓	✓	✓
2. There is a lack of signs or other materials that show the practice of hot spring bathing/soaking. There are no advices, announcements, notifications or alerts for users with underlying diseases. Signs should be detailed, easy to understand, and clearly visible.	✓	✓	✓	✓	✓	✓	✓
Factor/pond	Ban Pak Dan Hot Spring	Than Nam Ron Temple Hot Spring	Rattanan Kosi Hot Spring	Scouts Camp Hot Spring	Ban Bo Num Ron Hot Spring (Krut)	Khao Tok Hot Spring	Tham Singkhon Hot Spring
3. There is a lack of handrails or other equipment, which should be installed for convenience and safety.	✓	✓	✓	✓	✓	✓	✓
4. There is a lack of safety personnel.	✓	✓	✓	✓	✓	✓	✓
5. There is a lack of temperature signs or equipment signs in the hot springs bath/bathing area.	✓	✓	✓	✓	✓	✓	✓
Environment							
1. There are insufficient trash cans in the service area. It does not have a hygienic waste and sewage collection system.	✓	✓	✓	✓	✓	✓	✓
2. The construction design of the site is inconsistent with the location and landscape of the site.	✓	✓	✓	✓	✓	✓	✓
3. The area of the hot spring is located in the area of the river, causing frequent flooding.	✓	✓	✓	✓	✓	✓	✓
Transport							
1. Traveling to the hot spring is quite difficult.	✓	✓	✓	✓	✓	✓	✓
Management							
1. There is no clear supervisory agency.	✓	✓	✓	✓	✓	✓	✓
2. The community lacks participation in tourism development.	✓	✓	✓	✓	✓	✓	✓
3. There is a lack of continuous and sustainable development from the care unit.	✓	✓	✓	✓	✓	✓	✓
Tourism							
1. There are no nearby attractions that can create tourism links.	✓	✓	✓	✓	✓	✓	✓
2. There are no souvenir shops and lodgings.	✓	✓	✓	✓	✓	✓	✓
3. There are no food and beverage shops.	✓	✓	✓	✓	✓	✓	✓
4. There is a lack of tourism publicity.	✓	✓	✓	✓	✓	✓	✓
The other sides							
1. The buildings and structures are old and dilapidated.	✓	✓	✓	✓	✓	✓	✓
Opportunity							
Tourism							
1. The trend of health tourism is becoming more popular. Bathing/soaking in the hot springs that come from the natural springs are believed to improve your health.	✓	✓	✓	✓	✓	✓	✓
2. Thailand's policy emphasizes health tourism both at the global and international level, including public and private agencies. Thailand has the potential to become a center of health tourism.	✓	✓	✓	✓	✓	✓	✓
3. The policy of Surat Thani province is to appeal to the herbal community to connect to the health tourism destination.	✓	✓	✓	✓	✓	✓	✓
Demographic							
1. During the years 2010 - 2040, the proportion of the childhood and labor age population is forecasted to show a downward trend, while the proportion of the elderly population is likely to increase continuously, this elderly group of people is interested in healthy activities and is focused on food and health tourism.	✓	✓	✓	✓	✓	✓	✓
2. People in society have more illnesses.	✓	✓	✓	✓	✓	✓	✓
Barrier							
Competitive side							
1. The hot springs location in Surat Thani province has competitors that are other hot springs destinations scattered in Surat Thani Province. In addition, the main competitor is a hot springs destination in a nearby province such as Ranong, as Ranong province has dozens of hot springs and is notable for its sulfur-free water that contains many beneficial minerals. Ranong has been regarded as having one of the world's top quality mineral waters.	✓	✓	✓	✓	✓	✓	✓
The other sides							

Factor/pond	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring	Ban Pak Dan Hot Spring
1. In building a facility to support community activities with tourist attractions, central funding has been limited and has not been continuous.	✓	✓	✓	✓	✓	✓	✓
2. Incorrectly soaking in hot mineral water can be dangerous; for example, soaking too long can cause dizziness, fainting (the optimal time is 10-15 minutes per visit). Entering a high temperature hot spring without adjustment or gradation can cause the internal organs and the blood that nourishes them to overheat. Symptoms of heat stroke syndrome may occur, resulting in kidney failure, liver failure, blood clotting, or death. When this type of news comes out in the media, it affects hot spring tourism.	✓	✓	✓	✓	✓	✓	✓
3. The economic slump in Thailand has resulted in the lack of tourism capability.	✓	✓	✓	✓	✓	✓	✓
5. The location of the hot springs area is vulnerable to natural disasters.			✓				
6. The problem of changing local politics has resulted in the development policy and the focus on various tourist attractions.			✓				

3.2 Guidelines for 7 potential hot spring tourism destination development based AHP analysis

This section illustrates the guidelines for the development of 7 potential hot spring tourism destinations. A TOWS matrix analysis was used to prioritize the guidelines and strategies. For all pairwise comparisons, the consistency ratio was less than 0.1 in the current study.

3.2.1 Priority analysis and guidelines for the development of hot springs tourism in Ban Pak Dan

There are six guidelines and eighteen strategies for the development of the hot springs at Ban Pak Dan, and the top three priorities for the development of hot springs tourism are as follows. 1) the development of the area as an international service center for both tourists and local people and the promotion of the destination as a leading tourist destination for health-conscious people; 2) the construction of a comprehensive service system to accommodate tourists; and 3) the improvement of the hot springs quality and landscape to attract tourists (Figure 3A). The results of a hierarchical analysis (AHP) of the strategies found that to be a leading tourist destination for health lovers, the highest priority for the development of health tourism is to develop the area as an international service source, increase the public relations efforts to attract tourists, and increase the involvement of people in the local community. This was followed by the construction of a comprehensive service system to accommodate tourists by making landscape improvements, such as adding or improving bathrooms, changing rooms, and freshwater showers within clean areas (Figure 3B). Regarding the prioritized approach for the development of hot springs tourism in Ban Pak Dan, no actions have yet been taken to improve or change the location. There is an issue concerning the organization responsible for taking care of and allocating areas. This destination is currently under the authority of the Surat Thani Area Treasury Office, which is in the process of transferring the official management authority to the Ban Pak Dan Subdistrict Administrative Organization. As a result, no plans have been implemented or developed.



Fig. 3. Summary of priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), for the Ban Pak Dan Hot Spring.

3.2.2 Priority analysis and guidelines for the development of hot springs tourism at the Ban Than Nam Ron Temple Hot Spring

For the development of the Ban Than Nam Ron Temple Hot Spring, there are eighteen strategies under six guidelines, and the three important priorities for the development of hot springs tourism are as follows: 1) the construction of a comprehensive service system to accommodate tourists by creating areas with natural hot spring attractions, such as massage parlors, spas, and organic coffee shops, to increase tourist interest; 2) tourist attraction public relations promotion and development undertaken proactively with the community to make the destination a leading tourist destination for health lovers and the establishment of security and safety standards to certify tourist facilities, such as bathrooms, changing rooms, and freshwater showers; and 3) the establishment of the Hot Springs Management Committee of Ban Than Nam Ron Temple Hot Springs as part of the development of a collaborative plan to guide the management of the hot springs. In addition, the promotion of products from those individuals who want to create products for distribution and the creation of careers, encouraging thus people in the community to support tourism, was also considered important (Figure 4A). The results of the weighting strategies developed through AHP showed that the highest priority is the construction of a comprehensive service system to accommodate tourists by creating an area with natural hot spring attractions, such as massage parlors, spas, and organic coffee shops, to increase the interest of tourists. This was followed by the tourist attraction public relations promotion done proactively with the community by promoting the location as a leading tourist destination for health lovers and the creation of a security and safety standards to certify tourist facilities, such as toilets, changing rooms, freshwater showers (Figure 4 A).

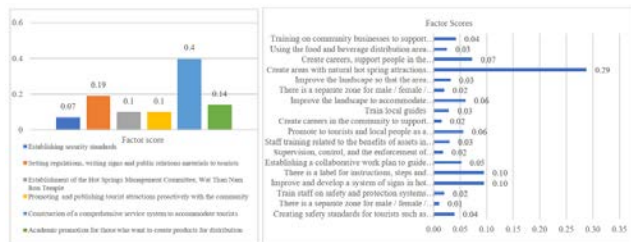


Fig. 4. Summary of priorities in the guideline for development, group (A), and in the sub-guidelines for development, group (B), for the Ban Than Nam Ron Hot Spring.

3.2.3 Priority analysis and guidelines for the development of hot springs tourism at the Rattana Kosai (Thasathon) Hot Spring.

There are 4 guidelines and 13 strategies for the development of hot springs tourism at the Rattana Kosai (Thasathon) Hot Spring, and the highest three priorities for the development of hot spring tourism are as follows: 1) conducting research on the properties/minerals that are beneficial to the body to build credibility, to promote learning and to empower the communities; 2) developing hot spring destinations into international tourist destinations by providing training on health tourism management and community tourism; and 3) constructing a comprehensive service system to accommodate tourists by improving the landscape to accommodate tourists, providing new or improved bathrooms, changing rooms, and freshwater showers within a clean area (Figure 5A). The AHP strategy results revealed that the most important priority was the establishment of the destination's credibility by conducting research on the properties/minerals that are beneficial to the body. Next in priority was promoting learning and empowering communities by providing training on health tourism management and community tourism and improving the landscape to accommodate tourists by providing facilities, such as bathrooms, changing rooms, and freshwater baths, in clean areas (Figure 5B).

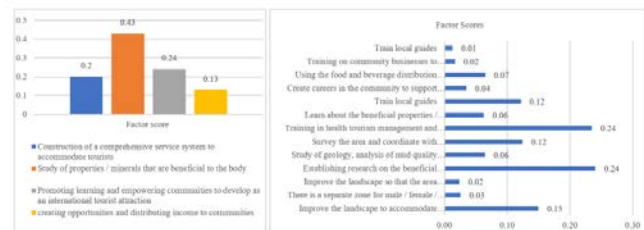


Fig. 5. Summary of priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), of the Rattanakosai Hot Spring.

3.2.4 Priority analysis and guidelines for the development of hot springs tourism at the Ban Wang hin (Scouts Camp) Hot Spring

Four important guidelines and 12 strategies were formulated for the development of the Ban Wang Hin

(Scouts Camp) Hot Spring, and the top two priorities for the development of hot springs tourism were as follows: 1) The construction of a comprehensive service system to accommodate tourists by improving the landscape for tourists through the provision of new or improved bathrooms, changing rooms, and freshwater showers in clean areas; and 2) the promotion of learning and the empowerment of communities to develop the location into an international tourist destination (Figure 6A). The highest priority strategy in the development of hot springs tourism was the construction of a comprehensive service system to accommodate tourists by improving the landscape, providing thus new or additional bathrooms, changing rooms, and freshwater showers, which would be maintained as clean areas. This was followed by providing training in health tourism management and community tourism and improving the landscape to accommodate elderly and disabled tourists, providing them designated bathrooms, changing rooms, and freshwater baths, maintained as clean areas. Other priorities included creating new tourist attractions and tourism activities, defining routes and activities that are of interest to tourists, assisting tourists in travel planning, and establishing linkages with tourist routes in the nearby area. Ban Na San District is a famous source of fruits, such as rambutan, durian, mangosteen and sweet santol. Due to mountainous conditions, the area also contains a watershed and has beautiful landscapes, enabling people in the community to create home-stay resorts. Many water attractions invite people to come and visit, and there are other tourist attractions, such as Sala Khun Athit Gardens and the Tham Phra Temple Monastery. (Figure 6B).

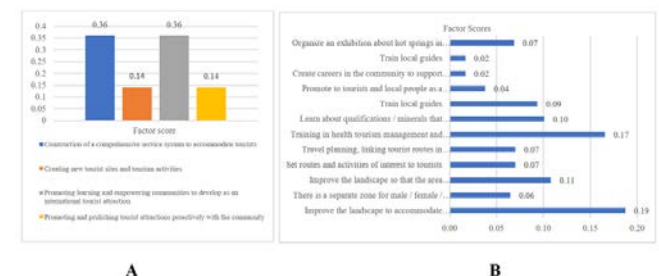


Fig. 6. Summary of priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), of the Ban Wang Hin (Scout Camp) Hot Spring.

3.2.5 Priority analysis and guidelines for the development of hot spring tourism at the Ban Bo Krut Hot Spring.

There are eight important guidelines and 26 strategies for developing the Ban Bo Krut Hot Spring, and the top-three priorities for the development of health tourism are as follows: 1) the establishment of a Ban Bor Krut Hot Springs Management Committee as part of the creation of a work plan to guide the management of the hot springs; 2) the development of budget that focuses on improving the

water filtration system/cleanliness/hygiene levels to meet acceptable standards by allocating expenditures for activities to clean/restore resources/water sources to improve their beauty and cleanliness; 3) the determination of appropriate tourism utilization zones by defining the scope and areas providing the best benefit (Figure 7A). The results of the AHP strategies revealed that the highest priority was the construction of a comprehensive service system to accommodate tourists by establishing the Ban Bor Krut Hot Springs Management Committee as part of the creation of a work plan to guide the management of the hot spring. The appropriate utilization zone should be determined by defining the scope and area whose management will provide the best benefit, and activities should be undertaken to clean up/restore resources/water sources to improve their beauty and cleanliness (Figure 7B). Currently, no action has been taken in the form of an implementation process to improve or change the location. For the natural hot springs of Ban Bor Krut, there is an issue regarding the determination of the agencies responsible for management, the area's budget allocation, and for the direct establishment of a working group. This destination is currently managed by the Surat Thani Area Treasury Office. As a result, it is difficult to perform any construction or action in the area; permission must first be sought from the supervising agency.



Fig. 7. Summary of priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), of the Ban Bo Krut Hot Spring.

3.2.6 Priority analysis and guidelines for the development of hot spring tourism at the Ban Khor Tok Hot Spring

There are 4 guidelines and 14 strategies for the development of the Ban Khor Tok Hot Spring, and the three important priorities for the development of hot spring tourism are as follows: 1) establishing a standard of medical services to support the Thailand development strategy, namely, the Wellness City, by conducting research in geology, quality analysis and the use of water temperature for treating disease; 2) capacity building of the community, with the aim of making it a self-reliant community and facilitating the distribution of income to the community by creating careers in the community to support tourism; and 3) the development of the utilization

of natural hot spring sources by establishing safety and cleanliness standards for tourist facilities, such as toilets, changing rooms, and freshwater showers (Figure 8A). The results of the strategy weighting revealed that the most important priority was the conducting of research in geology and in the analysis of water quality and water temperature for treating diseases. Next, to build trust in the destination and to empower the community to become a self-reliant community, research should be established on qualifications/minerals that are beneficial to the body. In addition, the distribution of income to the community should be facilitated by creating careers in the community to support tourism (Figure 8B). Regarding the priority guidelines for the development of hot springs tourism in Ban Khao Tok, no action has been taken in the form of an implementation process to improve or change the location. The natural hot springs in Ban Khao Tok are located in a non-hunting area, and Nong Thung Thong and the park staff manage the destination. The potential for state involvement in the area is extremely high.

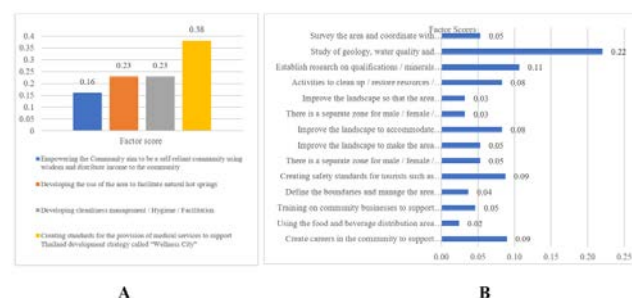


Fig. 8. Summary of priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), of the Ban Khao Tok Hot Spring.

3.2.7 Priority analysis and guidelines for the development of hot springs tourism at the Ban Kho Noi (Tham Singkhon) Hot Spring

A total of 8 guidelines and 30 strategies were formulated for the development of the Ban Kho Noi (Tham Singkhon) Hot Spring, and the top three priorities for the development of hot spring tourism are as follows: 1) the promotion of products of groups/organizations that want to create products for distribution, the creation of careers for people in the local community to support tourism, the development of a budget that allocates expenditures for hiring a caretaker for the facility, and the provision of training on health tourism management and community tourism; 2) community involvement in the supervision/operation/activities related to hot springs tourism and the enforcement of common law custody and enforcement measures; and 3) the establishment of a team with representatives from relevant departments to exchange information on hot springs tourism and to create a joint plan to guide the management of the hot springs. Other priorities included the creation of products/community

products to generate income, i.e., empowering the community by creating careers in the community to support tourism (Figure 9A). The results of the strategy weighting showed that the most important priority was training in health tourism management and community tourism, followed by the promotion of groups/organizations that want to create products for distribution, the creation of alternative careers for people in the community to support tourism, and the facilitation of the distribution of income to people in the community (Figure 9B). One of the priority guidelines for the development of hot spring health tourism of Ban Khao Noi (Tham Singkhon) was the involvement of the community in the administration/operation/activities related to hot springs tourism through the supervision and enforcement of pact measures and common law. In this destination, a Subdistrict Administrative Organization has direct responsibility for development, and network partners, such as the elderly, schools, entrepreneurs, and the public, should cooperate in the development. It was considered important to expand the area to improve the landscape, thereby making the service area more usable and the landscape more beautiful. The results of the priorities revealed that the top priority for the stakeholders was tourism supply development, i.e., the development of the tourism destination to accommodate the integration of tourists. It was considered important to improve the hot springs quality and to improve the landscape to accommodate a full range of tourists. Moreover, also considered important were the study of minerals and properties present in hot springs, the development of a system of meaningful signs and sign posts, and the development of new tourist attractions and tourism activities, including the development of tourism links.

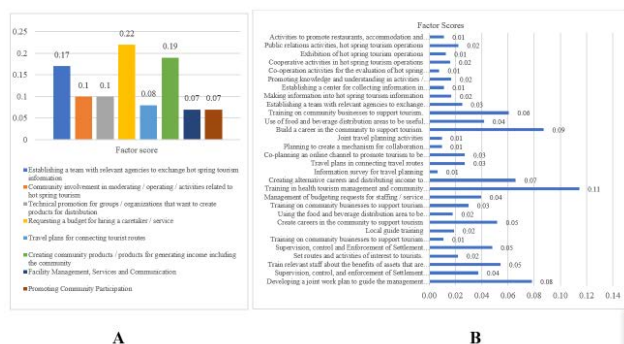


Fig. 9. Summary of Priorities in the guidelines for development, group (A), and in the sub-guidelines for development, group (B), of the Ban Khao Noi (Tham Singkhon) Hot Spring.

Based on the similarity of the views and the perceptions regarding the development of 7 hot spring tourism destinations in Surat Thani, the top-four ranking guidelines for development are the following: 1) Consistent with other Thailand hot springs tourism destinations' guideline

development [26–29], the construction of a comprehensive service quality system to accommodate tourists was considered important. This conclusion was supported by (Fu and Tzeng, 2016) and (Chen and Li, 2020), who pointed out that an important guideline for the development of hot spring tourism destinations and one that affects tourist revisits is the establishment of a professional service quality system. 2) The promotion of learning by training, facilitating the development of tourism labor skills and fostering local community product development, with the aim of generating sustainable income for the local community and preventing the destruction of natural resources, should also be a priority. These results are also similar to those of [25] (Chuamuangphan, 2016) and [29], who suggested that the participation of local communities was a key success for hot springs tourism sustainable development. As noted by [10] (Dowling and Newsome, 2018) and (Ólafsdóttir and Tverijonaite, 2018), the participation of local communities in management and planning is one of the main principles of hot spring tourism sustainable development, affecting job opportunities and facilitating the increase in the personal income of local people by creating the tourists' demand for tourism services, such as accommodations, transportation, food and beverage businesses and local guides. 3) Another top-ranked guideline is the creation or renovation of hot springs tourism destinations by making improvements, such as new bathrooms, changing rooms, freshwater showers, which are maintained as clean areas, and massage parlors, spas, and organic coffee shops, thus enabling the international hot spring tourism destinations to attract tourists. According to [25] Chuamuangphan, (2016); [29] and [27], having standard facilities and other tourism services can attract tourists to engage not only in leisure experiences but also in experiences in natural landscape areas designed for relaxation, recreation and other attractive activities. These results are supported by (Zhong and Deng, 2019), (Kurata and Ohe, 2020), (Liu et al., 2021) and [1], who point out that the thermal/mineral spring bathing experiences attract tourists who are seeking to connect with nature, experience cultural traditions, and pursue alternative patterns for relaxation, treatment, recuperation and prevention. The last guideline development is the promotion of hot spring tourism locations as destinations for tourists, both domestic and international. Offering the beauty of nature, an attractive hot spring destination enables a tourist to enjoy not only leisure (bathing) experiences but also alternative activities held in the surrounding hot spring destinations and local communities, as mentioned above. The promotional campaign must be designed based on the generation to which it would like to cater. Some potential tourist generation groups will be more attracted to engage in leisure activities. These guidelines were supported by Özen and Kürüm Varolgüneş, (2018), Liu et al., (2019) and Chen

and Li, (2020), who suggested that learning local traditional activities during bathing experiences can increase the perceived service quality and affect the revisit intention of tourists. Moreover, surfing by using digital technology, such as computers and the internet, has become an integral leisure activity in which tourists post pictures on social networks, such as Twitter, Facebook and Instagram, especially Gen-X and Gen-Y. The study's findings confirmed four important dimension guidelines for hot spring tourism development in Surat Thani: 1) demand side development, which aims to increasing local personal income from tourists by creating attractive activities; 2) supply side development, which focuses on creating or renovating hot spring destination to become an international hot spring destination with a beautiful natural landscape in the surrounding areas; 3) service quality systems, including professional standards for service quality and safety, which are important for tourism sector destinations and affect a number of tourists; and 4) destination development mechanisms, such as the development of destination management, local community participation and of land use management.

4. DISCUSSION

- 1) Node RF et al. [39] state that the strong point of Ardebil is the presence of multiple hot springs in the province. Regarding strengths, in all hot springs locations, there are natural hot springs that serve tourists. There is water flowing out all the time. There are large buildings and modified structures. There are well-lit outdoor ponds and indoor ponds with a good ventilation system and environmental management. The destinations meet the tourist needs for cleanliness and environmental sustainability [16]. The hot spring is also believed to be able to heal disease, beriberi, and aches, and it is similar to a hot spring in China that has medical properties to treat physical patients [40]. At the same time, management has clear supervisory departments and communities involved in the development of tourist attractions. Additionally, [15] stated that this is an opportunity for the government to set a policy to promote tourism in the countryside around the city and to use wellness tourism, ice tourism and hot springs to promote tourism and good culture.
- 2) The weaknesses in the development of hot springs locations as a tourist destination are still the lack of building readiness, the lack of availability of the services, and lack of responsible personnel. In Indonesia, [16] studied the weaknesses, lack of electricity, and availability of employees. In China, (Zhang and Lin, 2018) found that hot springs lack certain qualifications in the development of Chinese medicine tourism. These results are supported by (Chen and Li, 2020) and (Liu et al., 2019), both of which point out that beautiful landscape areas with

natural construction, accessibility of basic infrastructure, official standards of water supply systems, professional counselling services and attractive leisure activities are very important for tourists.

- 3) All hot springs locations have tourism-related opportunities: the issue of wellness tourism has become more popular, and Thailand's policy issues emphasize wellness tourism both at the global and international level, including public and private agencies, and realizes the potential Thailand has to enter into the center of the wellness tourism market. As pointed out by the [1], the total Asia-Pacific hot spring tourism revenues are approximately US\$ 31.6 billion (4% CAGR from 2015-2017), or 56.22% of world hot spring tourism revenues in 2017, generating the employment of 1,244,661 individuals. The Thailand government has designated hot springs areas for tourism development, with Klong Thom targeted as a pilot "spa city", and provides 58 attractive hot spring tourism destinations for tourists. The top-ten thermal/mineral spring markets in the Asia-Pacific region in 2017 generated approximately US\$ 16.9 million in income [1].
- 4) A lack of knowledge on the proper use of hot springs can be dangerous. For example, soaking for too long may cause dizziness and fainting (the optimal time is 10-15 minutes per session). Soaking in hot springs with high temperatures without making a temperature adjustment or decreasing the soaking time can cause the internal organs of the body as well as the blood that nourishes them to overheat, causing symptoms of heat stroke syndrome and potentially resulting in kidney failure, liver failure, blood clotting, or even death. The budget for central support is limited for building facilities. There is a low and inconsistent budget to support community groups and tourist activities and a lack of cooperation with partners from other agencies [39,40].
- 5) However, the results of this study showed that hot spring tourism destinations lack proper policies and regulation in four dimensions: 1) tourists' regulations during visits to hot spring tourism destinations, 2) hot spring tourism destination standards, such as water quality, facilities quality, and land use standards, 3) service quality systems regulations focusing on official services quality standards and safety quality standards, and 4) hot springs destination management regulations, such as general management destination, hot spring tourism entrepreneur, environmental and local community participation guidelines. This conclusion is supported by Muangdit and Nitirot, (2017) [8]), who point out that hot spring tourism destinations should create policies and regulations to meet the Ministry of Tourism and Sports requirements, such as water quality, facility quality, safety and environmental standards. However, only

three hot spring tourism destinations in Surat Thani have developed policies and regulations for hot springs: the Ban Pak Dan Hot Spring, the Ban Than Nam Ron Hot Spring and the Ban Bo Krut Hot Spring. In addition, in terms of the weighting of priorities, the improvement in the stakeholders' perception was one of two guidelines ranked last (score 0.13) out of the six guidelines for the Ban Pak Dan Hot Spring, was the second highest ranked priority (score 0.19) of the six guidelines for the Ban Than Nam Ron Hot Spring, and was the least important (score 0.04) guideline for the Ban Bo Krut Hot Spring.

5. CONCLUSION

Through the development of AHP-based SWOT and TOWS analyses, this paper examines the guidelines for the development of hot springs tourism in Surat Thani Province. The results showed that in the context of water quality, the hot springs in Surat Thani Province have the following strengths: (1) The natural hot springs serving tourists for bathing/soaking are chemically suitable. (2) The natural hot springs water consistently flows. The results also revealed that the hot springs' strengths are their eco-friendly environment and accessibility. Regarding weaknesses, the results for water quality showed that the hot springs lack a preliminary filtration process for use against chemical contaminants. In addition, the following weaknesses in site security were revealed: (1) a lack of any signs or any instructions to guide or educate individuals regarding the hot springs; (2) a lack of signs or other media to show procedures and etiquettes for using the hot springs; and (3) a lack of signs or devices for indicating temperature in the hot springs area. The major tourism weaknesses were the following: 1) there are no souvenir shops; 2) there are no restaurants or beverage shops; 3) there are no public relations mechanisms directed to tourists; and 4) the buildings are old and dilapidated. The opportunity strengths include the following: (1) The trend of health tourism is currently popular, and (2) Thailand's policy has a strong focus on health tourism at both the global and international levels. Regarding obstacles, hot springs tourism in Surat Thani Province is extremely competitive. The guidelines for approaches to improve the hot springs tourism in Surat Thani Province can be divided into the following 4 areas: 1) The tourism demand-side development should focus on promoting tourists through various media and should create a unique destination identity for use in tourism publicity to raise the local community's income. 2) From the supply side, to support the full range of tourists, the development of tourism should include improvements in the hot springs quality and aesthetic landscape, as well as the study of minerals and properties at the present hot springs. 3) In the context of a development system, full-cycle tourism needs to be

developed, and a determination needs to be made of the appropriate utilization zones and tourist attractions. In addition, a cooperative development of the destination with the participation of the community should be pursued, and the community should be developed such that income from tourism can be generated. 4) The quality of service should be improved by leveling up the local staffs' service performance to international tourism standard levels to support the future expansion of tourism, and first aid and security systems should be developed. According to the results of the prioritization guidelines for hot spring tourism development, when classified by the ability of an activity to attract tourists, public relations was the activity with the highest score in the top-3 rankings for each destination. This activity comprised public relations efforts directed toward wellness-conscious tourists and toward both the internal and external communities and included public relations conducted through various media. Consistent with (Muangdit and Nitiro, (2017), public relations efforts conducted through stories and exhibitions were revealed to be the main activities that tourism stakeholders pay attention to in the development of hot springs tourism demand in Surat Thani Province. For the development of the tourism supply side, it is important to improve the quality of hot springs and to improve the landscape to accommodate the full range of tourists, as well as to study the minerals and properties contained in hot springs and to develop meaningful signs and signposts. In addition to the development of tourist attractions and new tourism activities, tourism connection routes should also be developed. For the development of wellness tourism in Surat Thani Province, consistent with the research of [17] and [41], it is important to undertake activities related to the destinations' development mechanisms. For example, in line with the research of (Chuamuangphan et al., 2016) and [17], it is important to develop a comprehensive tourism management system and to determine the appropriate utilization zones of tourist attractions, as well as to provide a systematic budget for the development of tourist attractions. Tourism personnel development to support the expansion of tourism should include the development of related service businesses to support tourism development, which, in line with the research of [29] and (Shavanddasht and Allan, 2019), has been revealed to be an important service quality activity. The limitation of this study is the time taken for collecting data during the first round of the COVID-19 pandemic, as it took some time to obtain sufficient data for analysis; however, the researcher was able to achieve the sample's target. This study did not concentrate on tourists, as neither domestic nor international tourists were included in the stakeholder groups used in the hot springs tourism guidelines' development. Moreover, the researcher did not consider the COVID-19 pandemic, which affected the tourism sectors and created a new norm for tourism. Future

research might include tourists, both domestic and international, in the stakeholder groups to examine hot springs tourism guideline development and, providing a timely update, might determine how the new tourism norm created by the COVID-19 epidemic has impacted the guidelines' development.

ACKNOWLEDGEMENT

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