Assessing the competitive advantages of tourism potentials in Tuy Hoa city, Phu Yen province

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ABSTRACT

This paper presents a Quantified SWOT (Strengths, Weaknesses, Opportunities and Threats) analytical method and an analytical hierarchy process method which provides more detailed and quantified information on tourism potential in Tuy Hoa city. Quantified SWOT analysis was used to assess the competing strength of Tuy Hoa's tourism potential with other places. The results of the study presented that Tuy Hoa city has many advantages of beautiful natural landscapes, nature, rivers and mountains. The results of the comparing value of internal and external factors of Tuy Hoa's tourism potential indicated it under high competitive pressure from neighbor destinations such as Phan Thiet, Hue, Nha Trang and Da Nang. Tuy Hoa's tourism potential was lower than that of neighbor cities but it has more attractive tourism features.

Keywords: competitive advantages, QSWOT, tourist, Tuy Hoa

1. Introduction

Tourism has important contribution in maintainable development, economic benefits and social willing, if planned methodically (Abdulla Al Mamun & Soumen Mitra, 2012). It has the potential to contribute towards environmental protection and poverty

reduction. Environment and tourism contribute very significant role to the improvement of each other. Without appropriate management of environment, there is no scope of tourism while in other hand, the revenue generated from tourism assists in the good protection of the environment. Therefore, tourism and environment are interconnected playing a great position for the sustainable development of the region (Ramesh Neupane, Anup, & Ramesh Raj Pant, 2013).

Tourism potential is extensively used and acknowledged term in tourism field. Tourism potential mentions to the capability of a destination to interest and attract tourists with concerns about convenience, landscape quality, understanding of resources, and so on (Libo Yan, Bo Wendy Gao, & Meng Zhang, 2017). The methodologies applied in many previous researches were different. Abel González-Ramiro, Gil Gonçalves, Alonso Sánchez-Ríos, and Jin Su Jeong (2016) used volunteered geographic information and gis-based multi-criteria approach for assessing the potential of rural tourism, Ballis, John Paravantis, and Moschovou (2018) applied regression model, Mehmet Cetin, Ilknur Zeren, Hakan Sevik, Cansel Cakir, and Huseyin Akpinar (2018) analyzed and surveyed the most important feature of the Yesilyuva Nature Park by SWOT.

There is a practice to assess tourism potential and quantify all the features or characteristics towards a single value using numerous tools of Multi-Criteria Decision Methods (MCDM) such as SWOT analysis. The SWOT analysis is broadly applied in planned decision support for business management. Recent growths have improved the usability of SWOT by integrating quantitative approaches, such as the analytic hierarchy process (AHP) (Rocco Scolozzi, Uta Schirpke, Elisa Morri, Dalia D'Amato, & Riccardo Santolini, 2014). In Vietnam, a variety of the researches have conducted to evaluate Vietnam's tourism potential. However, almost studies were used to applying quantitative methods in many reports. In this study, there was integrated quantified SWOT and Analytic Hierarchy Process to assess the tourism potential of Tuy Hoa city.

Tuy Hoa is a coastal city and the political, economic, cultural and scientific center of Phu Yen province, Vietnam. Tuy Hoa city has an area of 107 km², located within Tuy An district in the North, Phu Hoa district in the West, Dong Hoa district in the South and the sea in the East with the entire coast length of over 30 km, about 560 km north of Ho Chi Minh City. The topography of the city is mainly alluvial plain due to the downstream of Ba River (another name is Da Rang river). There are two peaks of Chop Chai and Nhan Mount in the centeral city. Besides, Da Rang bridge - the longest bridge in the Central is located on Highway 1 connecting the city center with the southern provinces. Tuy Hoa beach is a stretching, poetic beach with white sand, a famous tourist destination of the city. As a place close to the sea and adjacent to the delta, Tuy Hoa city's climate is generally located in the monsoon tropics, but it has its own

characteristic with average climate, is lower than other places. However, there has not been any study to quantify the tourism potential of Tuy Hoa city and compare the competitiveness with the surrounding area up to now. Therefore, this study will clarify the potential and competitive advantages of Tuy Hoa city tourism. The results of the study will contribute to develop the tourism in Tuy Hoa city in particular and Phu Yen in general.

2. Methods

Quantified SWOT analysis

The study used QSWOT method to assess the competitive advantage of tourism in Tuy Hoa City. The process of QSWOT analysis is performed in 7 steps as follows (Figure 1):

Step 1: Deciding what to compare, for example tourist destinations in Tuy Hoa and Quy Nhon

Step 2: Researching and proposing the list of important factors of internal and external assessment to build a hierarchical structure.

Step 3: Collecting data of objects were compared to each other.

Step 4: Conducting an interview with two purposes, studying the weights of important factors using analytical hierarchy process method and collecting qualitative data (such as tourism satisfaction level) of Tuy Hoa city and some other localities (Phan Thiet, Nha Trang and Quy Nhon).

Determination of the weights of comparing factors by AHP method: The value of weights will be standardized to distribute from 0 to 1. The total weight value is 1.

The weights for the adaptive factors are determined by the AHP method. The AHP method is the most optimal method to determine the factor weights that satisfies both objective (consistency and statistics) and subjective requirements (priority in current development). In this method, the comparison is based on the questions: "A is several times higher than B", "C is several times more important than B"(Nguyen Kim Loi and Tran Thong Nhat, 2007).

The steps for determining factor weights by AHP method are as follows:

- There are competitive elements considered relating to the weight of each factor in an internal and external group j for the purpose of tourism development competition (G). Establishing I_J groups (j = 1, 2, 3,..., n).

- Conduct a pairwise comparative assessment of the importance of each factor on a scale of 1 to 9 as follows.
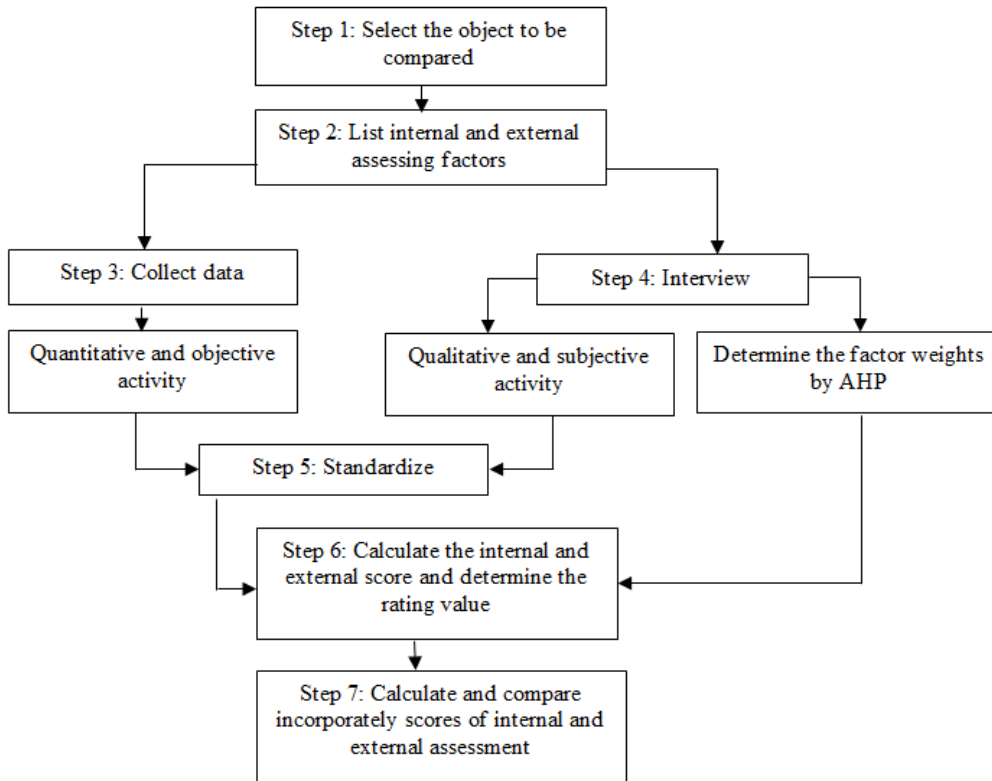
Figure 1. *Flowchart of Quantified SWOT analysis*

TABLE 1. The rating value by Saaty in pairwise comparison (Damjan Krajnc & Peter Glavic, 2008).

Comparative value of Saaty	Definition of judgment
1	Equal importance
3	Week dominance
5	Strong dominance
7	Demonstrated dominance
9	Absolute dominance
2, 4, 6, 8	Intermediate values

The evaluation results are showed in the relationship matrix of the factors with each other.

$A = \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ 1/a_{21} & 1 & \cdots & x_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ 1/a_{1n} & 1/a_{2n} & \cdots & 1 \end{bmatrix},$	Equation 1

Calculating geometric average score for each indicator of each row:

$$m_i = \prod_{i=1}^{n} a_{ij}, \quad \overline{w_i} = \sqrt[n]{m_i}, \quad w_i = \overline{w_i} / \sum_{i=1}^{n} \overline{w_i} \quad m_i = \prod_{i=1}^{n} a_{ij}, \quad \overline{w_i} = \sqrt[n]{m_i}, \quad w_i = \overline{w_i} / \sum_{i=1}^{n} \overline{w_i}$$

The obtained weight vector were factors: W_{11}, W_{22}, W_{33},... W_{nn}. $W = (W_{11}, W_{22}, W_{33},... W_{nn}) = \sum_{j=1}^{n} w_j = 1$.

Conducting the consistency test of comparative matrix between factors

We obtained the weight vector $\vec{w} = \begin{bmatrix} W_{11} \\ W_{22} \\ W_{nn} \end{bmatrix}$ and matrix A from the importance evaluation matrix.

The consistency of matric A is calculated as follow:

Calculating the total weight vector W of each row to get the vector B: $\vec{B} = \sum_{j=1}^{n} a_{ij} = \begin{bmatrix} b_1 \\ b_2 \\ b_n \end{bmatrix}$

Dividing each element of vector B by the corresponding element in vector W (W_{11}, W_{22}, W_{33},... W_{nn}) to get the new vector c: $\vec{c} = \begin{bmatrix} b_1/w_1 \\ b_2/w_2 \\ b_n/w_n \end{bmatrix}$, λ_{max} is the average of elements of vector c: $\lambda_{max} = \frac{1}{n} \sum_{j=1}^{n} c_j$. Then, the consistency ratio is calculated according to the following formula:

$CI = \frac{\lambda max - n}{n-1}$	Equation 2

The consistency ratio: CR = CI/RI, CR < 0,1 the evaluation matrix is reasonable, on the other hand, we have to conduct the assessment at the corresponding level. In particular, RI is taken according to the following table of values:

TABLE 2. RI scale

n	3	4	5	6	7	8	9	10	11	12	13	14	15
RI	0,58	0,9	1,12	1,24	1,32	1,41	1,45	1,49	1,51	1,48	1,56	1,57	1,59

Step 5: Standardize

Standardize all key factors including quantitative and qualitative activities. The purpose of standardization is to unify the ratio of comparative factors. The standardized method is as follows:

The higher element is the better.

$$r_{ij} = \frac{p_{ij}}{\max_j p_{ij}}, \forall_j \qquad \text{Equation 3}$$

The lower element is the better.

$$r_{ij} = \frac{\min_j p_{ij}}{p_{ij}}, \forall_j \qquad \text{Equation 4}$$

With the standard of median (the average is better)

Equation 5

$$r_{ij} = \frac{\min\{p_{ij}, p_0\}}{\max\{p_{ij}, p_0\}}$$

Where: $p_0 = \dfrac{1}{n} \displaystyle\sum_{j=1}^{n} p_{ij}$

Step 6: Calculating the internal and external scores of objects compared separately and determined the rating value. Rating values could be determined by two approaches: 1) taking the average; 2) taking the rank of the object as the rank value. In this study, we determined the classification value according to the first approach.

Step 7: Calculating and comparing the aggregate value of the internal and external assessments and show them on the chart of quadrants.

First, the internal and external points of the comparable objects were added and then subtracted from the rating value. The final value was the aggregate value of the object compared in the QSWOT analysis matrix. The aggregate value obtained in the range of -1 to +1. Subjects possess opportunities and strengths when the aggregate value was greater than the rating value, whereas the object was relatively weak points and challenges when the aggregate value was smaller than the rating value.

$$IC_j = I_j - IB \qquad j = 1,2,\ldots,n$$
$$EC_j = E_j - EB \qquad j = 1,2,\ldots,n$$

Equation 6

Where:

IC_j: value of the coordinates for internal evaluating of object j

I_j: score of internal evaluating of object j

IB: classification value for internal evaluating

EC_j: value of the coordinates for external evaluating of object j

E_j: score of external evaluating of object j

EB: classification value for external evaluating (Hsu-Hsi Chang & Wen-Chih Huang, 2006).

For comparison on a quadrant plot, the ordinate (y) was specified for the external environment location (opportunities and challenges). The abscissa axis was defined for the internal environment (strengths, weaknesses).

3. Research result and discussion

3.1 Analyzing strengths, weaknesses, challenges and opportunities of tourism development in Tuy Hoa city

Strengths	Weaknesses
Advantage of geographical location, traffic	The operation effectiveness of the tourist spot is not high
Advantage of diverse marine resources	Environmental protection in tourist destinations has not been paid attention
Many beautiful natural landscapes (bays, lakes, mountains)	There are no specific tourism products
Many historical cultural relics, landscapes	Some monuments, famous landscapes are in danger of degradation and abuse
Warm climate throughout the year	Tourism infrastructure has not met the demand
The increasing number of accommodations and tourism services	Human resources for tourism are still lacking and weak
Tourism advertise is focused	The provincial People's Committee funding for tourism development is limited
	Linkages among sectors are not yet comprehensive
	Special traditional festivals have not been paid attention to promote tourism development
	Cling and dragging tourists

Oppotunities	Threats
Travel demand is on the rise	Competition from other localities
The effectiveness of tourism management of the local Goverment is increasingly improved	Demand for tourist attraction are getting higher and higher
The number of visitors is increasing	The global and domestic economic situation is facing many difficulties
Investment in building tourism infrastructure is focused	Awareness on sustainable tourism development of the community and businesses is low

Attracting the attention of many investors

Transportation system to key tourist sites and destinations has been built

3.2 QSWOT matrix for analyzing the competitive advantage of tourism in Tuy Hoa City and surrounding areas

Based on the SWOT matrix and tourism information of nearby areas, it was possible to determine factors used to compare the tourism potential between Tuy Hoa city and surrounding areas. The vicinities having high competitiveness with Tuy Hoa city accompanied by Quy Nhon city, Hue city, Da Nang city, Nha Trang city and Phan Thiet city Table 3 to Table 5.

TABLE 3. The internal factors impacting on the development of tourism potential

Subjects	Factors	Unit	Code	Indicator type
Travel resources	Advantage of diverse marine resources	Scale	I1	+
	Many beautiful natural landscapes	Scale	I2	+
	Many historical cultural relics, landscapes	Scale	I3	+
	Attractive tourism spot	Scale	I4	+
Natural condition	Advantage of geographical location, traffic	Scale	I5	+
	Warm climate throughout the year	^{0}C	I6	+/-
Tourism effectiveness	Serving quality	Scale	I7	+
	Tourism products are not plentiful	Scale	I8	-
	Tour guide qualifications are poor, not enthusiastic yet	Scale	I9	-
Infrastructure	Number of accommodation facilities and tourism services	Facility	I10	+
	Rate of urban water supply	%	I11	+
Tourism operation and development	Tourism advertise is focused	Scale	I12	+
	Cheap goods	Scale	I13	+
	Human attitude	Scale	I14	+
	Annoyed by street vendors	Scale	I15	-
	The habit of indiscriminate littering of Vietnamese people	Scale	I16	-
	Linkage among sectors	Scale	I18	+

TABLE 4. The external factors impacting on the tourism development

Subjects	Factors	Unit	Code	Indicator type
Competition	Tourism competitiveness	Scale	E1	+
	The number of tourists	Scale	E2	+
Tourism environment policy	The interest level of investing in construction of tourism infrastructure	Scale	E4	+
	The effectiveness of the Government on tourism	Scale	E5	+
	Transportation system to tourist areas and destinations is invested and upgraded	Scale	E6	+
Tourism environment	Awareness on sustainable tourism development of the community and businesses	Scale	E7	+

According to Noga Collins-Kreiner and Geoffrey Wall (2007), the aspects of the tourism potential of Tuy Hoa city was built in related to social, cultural, economic, infrastructure, political, geographic and environment. The internal subjects of tourism Tuy Hoa included travel resources, natural condition, tourism effectiveness, infrastructure and tourism operation and development. The external factors in term of weakness and threats of Tuy Hoa city were competition, tourism environment policy and tourism environment. Based on "*Results of tourist expenditure survey in the period 2003 - 2015*" by General Statistics Office (General Statistics Office, 2017), QSWOT analysis for tourism development advantages of Tuy Hoa city and neighboring cities were calculated and the results were shown as follows:

TABLE 5. QSWOT analysis for tourism development advantages of the regions

| QSWOT Group	Tuy Hoa	Phan Thiet	Nha Trang	Quy Nhon	Hue	Da Nang
Tourism resources	0.31	0.35	0.39	0.27	0.31	0.33
Natural condition	0.07	0.07	0.08	0.08	0.07	0.08
Tourism effectiveness	0.06	0.11	0.11	0.06	0.11	0.08
Infrastructure	0.08	0.10	0.14	0.08	0.13	0.12
Tourism operation and development	0.19	0.20	0.20	0.19	0.20	0.21
Internal evaluating value	**0.72**	**0.82**	**0.92**	**0.68**	**0.83**	**0.82**
Competition	0.04	0.08	0.12	0.07	0.10	0.12
Tourism business policy	0.30	0.52	0.56	0.39	0.50	0.56
Tourism environment	0.20	0.24	0.28	0.20	0.28	0.32
External evaluating value	**0.54**	**0.84**	**0.96**	**0.66**	**0.88**	**1.00**
Internal evaluating coordinate value	**-0.08**	**0.02**	**0.12**	**-0.12**	**0.03**	**0.02**
External evaluating coordinate value	**-0.27**	**0.03**	**0.14**	**-0.16**	**0.06**	**0.19**
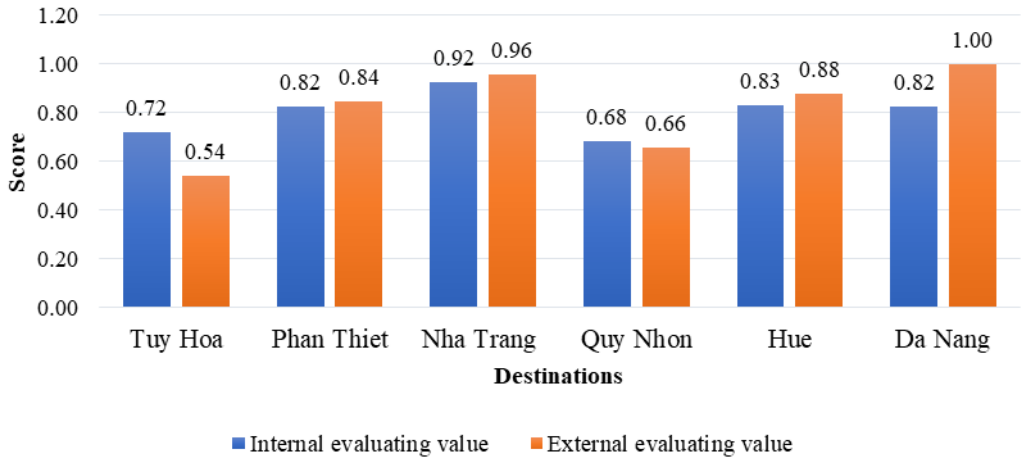
Figure 2. *Internal and external evaluating factors in Tuy Hoa city and other cities*

The results of the QSWOT analysis showed that Tuy Hoa was advantages of internal factors comparing to neighboring localities such as Quy Nhon. However, compared to other localities such as Nha Trang, Phan Thiet, Hue, and Da Nang, the internal factors of Tuy Hoa was lower scores. Although the internal factors of Tuy Hoa were higher than Quy Nhon, but he external factors (opportunities and challenges) of Tuy Hoa were lower than Quy Nhon and other localities. This showed that Tuy Hoa city was the potential of tourism, but was not grasped and overcome challenges. For more specifically, we could saw at the point histogram of the evaluating coordinate value (Figure 3).
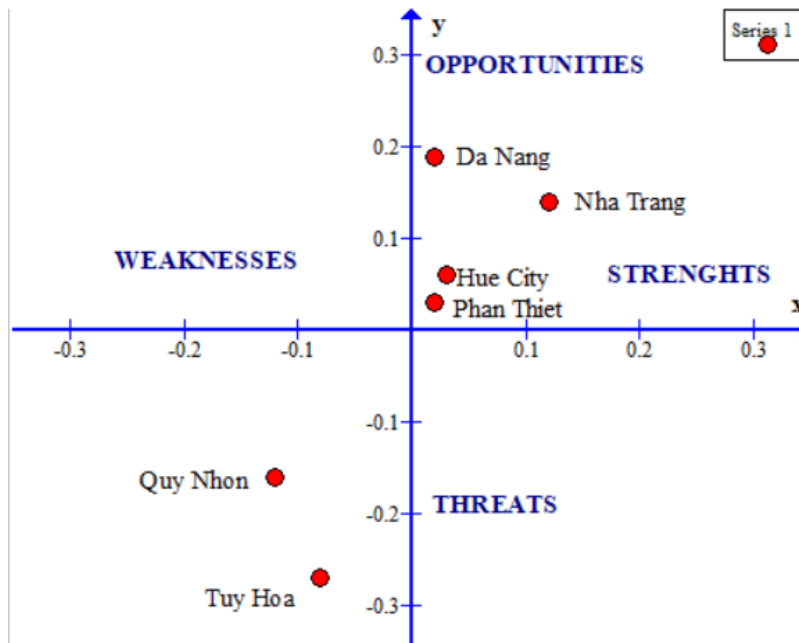

Figure 3. Distribution of internal and external factors of competitive advantages of tourism in Tuy Hoa city and surrounding spots

Comparing the internal factors between Tuy Hoa and Quy Nhon, Tuy Hoa was more profitable in tourism resources than Quy Nhon. Other factors (infrastructure, natural conditions, tourism effectiveness, tourism activities and development) were not much different. However, it can be seen that Quy Nhon was better competitiveness and tourism policies than Tuy Hoa. Thus, developing tourism and exploiting tourism potentials of Tuy Hoa city needed to promote taking advantage of the capabilities and make full use of maximum opportunities from the outside as like recommendation from Keivan Saeb, Razieh Jafari Hajati, and Shiva Rezai (2012). Because of the neighborhoods of Tuy Hoa such as Nha Trang (very strong competitiveness) and Quy Nhon (more competitive), Tuy Hoa needed to develop tourism that was unique and specific.
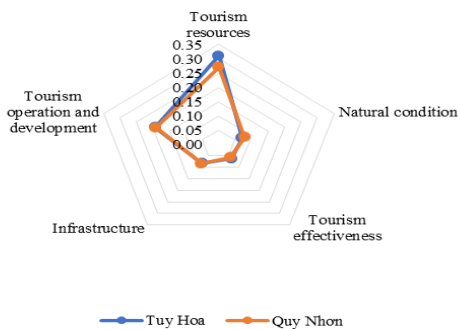

Figure 4. Compare internal factors of Tuy Hoa city and Phu Yen
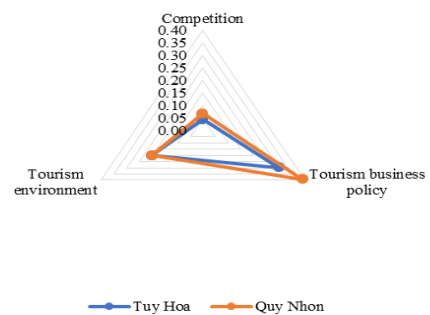

Figure 5. Compare external factors of Tuy Hoa city and Phu Yen

Tuy Hoa city is located in an area with many advantages of beautiful natural landscapes, nature, rivers winding around Truong Son mountain range, creating many beautiful lagoons, bays and pools. Monuments and landscapes are such as Nhan Tower, Da Rang River, Da Rang Bridge, many pagodas like Ho Son, Hoa Son, Minh Son, Khanh Son, Bao Tinh, Bao Lam, Kim Cang, Da Ban Tourist Areas, Chop Chai Mountain, Wind Afternoon Tourism, Tuy Hoa Beach, Ganh Da Dia, Han dam ...Currently, Tuy Hoa has not exploited all its opportunities and strengths to develop tourism. According to Dijana Oreski (2012), an effective marketing promotional strategy was the best solution could have been implemented to plan for tourism development.

4. Conclusion and recommendation

Conclusion: SWOT analysis is very important in the process of tourism development. In this study, a Quantified SWOT analysis pattern has been achieved. Tuy Hoa's comparative advantages for tourism development are lower than those of other localities although Tuy Hoa's tourism resource advantage is very large (higher than Quy Nhon).

Sea and cultural tourism is one of the strong fields in Tuy Hoa city. The result of the study indicated that although Tuy Hoa city has a variety of the great potential for tourism development, it has not exploited and taken advantage of this strength. The results of QSWOT analysis showed that Tuy Hoa city still has many barriers due to internal weaknesses and external threat factors of tourism potential. This is the restriction that the tourism industry of Tuy Hoa city needs to be overcome to increase the tourism competitiveness with the neighbor regions. In this work, we were quantified internal and external factors affected to tourism development of Tuy Hoa city but we did not assess the tourist values of Tuy Hoa city. This was the limits of our study.

*Recommendation***:** Tuy Hoa should promote investment policies to attract tourism development and needs to focus on developing resort tourist in combination with cultural tourism. In this study, we were focused on the tourism potential of Tuy Hoa city, the landscape and exploration value of Tuy Hoa city weren't mentioned. The landscape and exploitation value assessment of Tuy Hoa should be conducted in the future to clarify the quantitative value of the tourism potential in Tuy Hoa city.

References

A Ballis, John A Paravantis, & T Moschovou (2018). *Assessing the tourism potential of the Greek islands of South Aegean.* Paper presented at the 2018 9th International Conference on Information, Intelligence, Systems and Applications (IISA).

Abdulla Al Mamun, & Soumen Mitra (2012). A methodology for assessing tourism potential: case study Murshidabad District, West Bengal, India. *International Journal of Scientific and Research Publications, 2*(9), 1-8.

Abel González-Ramiro, Gil Gonçalves, Alonso Sánchez-Ríos, & Jin Su Jeong (2016). Using a VGI and GIS-based multicriteria approach for assessing the potential of rural tourism in Extremadura (Spain). *Journal Sustainability, 8*(11), 1144.

Damjan Krajnc, & Peter Glavic (2008). Fuzzy AHP assessment of water management plans. *Water Resources Management, 22*(7), 877–894. doi: 10.1007/s11269-007-9197-5

Dijana Oreski (2012). Strategy development by using SWOT-AHP. *Tem Journal, 1*(4), 283-291.

General Statistics Office (2017). Results of tourist expenditure survey in the period 2003 - 2015 (Vol. 1). Ha Noi: Statistical Publishing House.

Hsu-Hsi Chang, & Wen-Chih Huang (2006). Application of a quantification SWOT analytical method. *Mathematical and Computer Modelling, 43*(1-2), 158-169.

Keivan Saeb, Razieh Jafari Hajati, & Shiva Rezai (2012). An Investigation into Eco-tourism Potential of the Alamut Region of Iran using SWOT Analysis Model. *Ecologia Balkanica, 4*(1).

Libo Yan, Bo Wendy Gao, & Meng Zhang (2017). A mathematical model for tourism potential assessment. *Tourism Management, 63*, 355-365.

Mehmet Cetin, Ilknur Zeren, Hakan Sevik, Cansel Cakir, & Huseyin Akpinar. (2018). A study on the determination of the natural park's sustainable tourism potential. *Environmental monitoring assessment, 190*(3), 167.

Nguyen Kim Loi and Tran Thong Nhat (2007). Arcview software geographic information system 3.3. Ho Chi Minh: Agriculture Publishing House

Noga Collins-Kreiner, & Geoffrey Wall (2007). Evaluating tourism potential: A SWOT analysis of the Western Negev, Israel. *Turizam: međunarodni znanstveno-stručni časopis, 55*(1), 51-63.

Ramesh Neupane, KC Anup, & Ramesh Raj Pant (2013). Assessing tourism potential in Bhaktapur durbar square, Nepal. *International Journal of Environment, 2*(1), 250-261.

Rocco Scolozzi, Uta Schirpke, Elisa Morri, Dalia D'Amato, & Riccardo Santolini (2014). Ecosystem services-based SWOT analysis of protected areas for conservation strategies. *Journal of Environmental Management, 146*, 543-551.