

# JATIT-SAW, Juli 2018

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**Submission date:** 12-Jun-2019 02:16PM (UTC+0700)

**Submission ID:** 1142848221

**File name:** JATIT-SAW\_scopus\_,\_Juli\_2018.pdf (325.25K)

**Word count:** 8321

**Character count:** 44413

## MAPPING SPORTS TOURISM IN BULELENG-BALI USING GOAL-ORIENTED EVALUATION MODEL BASED ON SAW

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### ABSTRACT

The main purpose of this study was finding the calculation process to determine the mapping of tourism object in Buleleng Regency which is potential to be sports tourism by using goal-oriented evaluation model based on SAW method. This study used two approaches namely qualitative approach to determine tourism objects in Buleleng Regency which are potential to be sports tourism, and evaluative approach to determine high potential tourism object to be sports tourism and mapping the tourism objects based on the highest and lowest potential places to be sports tourism. Subjects of this study were people who had micro business in sports tourism in three districts of Buleleng Regency. The technique of collecting data in the study used observation, documentation, interview, and questionnaires. The data analysis techniques of this study were qualitative descriptive to analyze data of identification result about tourism objects in Buleleng Regency which are potential to be sports tourism, and quantitative descriptive to analyze data of calculation result of SAW method for mapping and to determine the most dominant tourism object to be sports tourism. The finding of this study produced a map of tourism object in Buleleng Regency started from the highest to the lowest potential place, of which finally Lovina was considered as the most dominant or the highest potential tourism object to be sports tourism in Buleleng Regency.

**Keywords:** Mapping, Sports Tourism, Goal-Oriented Evaluation Model, SAW

### 1. INTRODUCTION

Bali has various tourism potencies, such as dazzling mountains, beautiful marine nature, natural and incredible lakes, unique customs and culture which make tourist interest to the natural tourism and it is potential for the regions to develop for many kinds of tourism activities.

Buleleng Regency is the regency located in the north of Bali. Geographically, the condition of this regency is highly potential to be developed as a tourism destination region. Buleleng Regency is located in the north of Bali stretching from west to east and occupies 144 km coastline. It is located in  $8^{\circ} 03' 40'' - 8^{\circ} 23' 00''$  south longitude and  $114^{\circ} 25' 55'' - 115^{\circ} 27' 28''$  east longitude.

Buleleng Regency has many natural potencies and local cultures which can be developed into tourism attraction, but the development has not been most significant. Buleleng Regency has nine districts which have high potency to be developed as reliable sports tourism and prospering the community. Eventually, every district in Buleleng Regency has abundant natural tourism activities and local cultures which can be managed into many kinds of sports tourism such as water sports tourism, land sports tourism and aerospace sports tourism fancied by both local and foreign tourists. Those potencies should be traced, managed and developed appropriately so the goal and purpose can be achieved.

Minimum tourist visit to tourism objects in Buleleng is caused by the weak empowerment of

the existing potency and less comprehensive socialization to the community, for the land, water, and aerospace sports tourism, so the movement and opportunity of the tourist to enjoy sports tourism become limited.

Therefore, by exploring the topography of Buleleng Regency as tourism object so it is needed the mapping of the entire potential tourism object/sports tourism so there will be innovations to be developed as product diversification of superior sports tourism attraction into a prosperous community.

In the future, there should be a map of tourism object especially for sports tourism (land, water, and aerospace) functioning as action pattern in improving the management and empowerment of natural and local culture potency in every district in Buleleng regency so there will be more meaningful tourism object development.

To get a more appropriate recommendation in determining tourism location which can be used for sports tourism, so an evaluation is needed. Basically, evaluation is an activity based on data collection, data processing, and data analysis to get a precise recommendation, so it will help to make an accurate decision. The definition of evaluation put forward is basically also in accordance with the explanation of the meaning of evaluation presented by researchers who have researched on evaluation, such as Aspinwall, Pedler, and Radcliff in 2018 [1]; Samperiz and Herrero in 2018 [2]; Mahayukti, *et al* in 2018 [3]; Koedel, *et al* in 2017 [4]; Ardana, Ariawan, and Divayana in 2017 [5]; Edmonstone in 2015 [6]; Cincera and Simonova in 2017 [7]; Han, Borgonovi, and Guerriero in 2018 [8]; Ariawan, Sanjaya, and Divayana in 2016 [9]; Cho, *et al* in 2017 [10]; Panezai, and Channa in 2017 [11]; Sanjaya and Divayana in 2015 [12]; Campanotta, Simpson, and Newton in 2018 [13]; Ainsa in 2017 [14]; Jampel, *et al* in 2017 [15]; Huang in 2018 [16]; Brink and Bartz in 2017 [17]; Divayana, Adiarta, and Abadi in 2017 [18]; Mapitsa and Khumalo in 2018 [19]; Divayana and Sugiharni in 2016 [20]; Muammar, Widodo, and Sulhadi in 2018 [21]; Sumual and Ali in 2017 [22]; Divayana in 2017 [23]; Liu, Xu, and Stronge in 2016 [24]; Divayana, Ardana, and Ariawan in 2017 [25]; Finucane, Martinez, and Cody in 2018 [26]; Suandi, Putrayasa, and Divayana in 2017 [27]; Madigan, *et al* in 2016 [28]; Divayana, Adiarta, and Abadi in 2017 [29]; Erford, *et al* in 2017 [30]; Jin, *et al* in 2018 [31]; Amyana, *et al* in 2017 [32]; Wotela in 2017 [33]; Divayana in 2016 [34]; Bichi, Hafiz, and Bello in 2016 [35]; Prihatiningsih and Qomariyah

in 2016 [36]; Divayana, *et al* in 2017 [37]; Donaldson and Papay in 2015 [38]; Divayana and Sanjaya in 2017 [39]; Cornelius, Wood, and Lai in 2016 [40]; Cutts, *et al* in 2017 [41]; Divayana, *et al* in 2017 [42]; Hepplestone, *et al* in 2016 [43]; Divayana in 2017 [44]; Southall and Wason in 2016 [45]; Opposs in 2016 [46]; Divayana in 2015 [47]; Utari and Djukri in 2017 [48]; Divayana, *et al* in 2017 [49]; Zumbach and Funke in 2014 [50]; Divayana, Adiarta, and Abadi in 2018 [51]; Prinsloo and Harvey in 2016 [52]; Divayana in 2017 [53]; Abrams, Varier, and Jackson in 2016 [54]; Divayana, *et al* in 2017 [55]; Derrington and Kirk in 2017 [56]; Divayana in 2015 [57]; Bolyard in 2015 [58]; Hammonds, *et al* in 2017 [59]; Divayana, Adiarta, and Abadi in 2017 [60]; Comings, Strucker, and Bell in 2017 [61]; Saunders in 2012 [62]; See, Gorard, and Siddiqui in 2017 [63]; Saucier, *et al* in 2014 [64]; de Klerk, Veldkamp, and Eggen in 2018 [65]; Delahunty, Seery, and Lynch in 2012 [66]; de Jager, *et al* in 2017 [67]; O'Keeffe in 2017 [68]; Yuan and Kim in 2018 [69]; Reinking in 2015 [70].

There are some models which can be used to evaluate a researched object. However, especially for mapping tourism object used for sports tourism, it should use evaluative model oriented on the goal and be able to determine the most dominant and potential tourism object to be used as sports tourism. Therefore, the most appropriate evaluation model for sports tourism is goal-oriented evaluation model based on SAW method. This evaluation model is a new innovation which combines education evaluation concept (goal-oriented evaluation model) with decision support system method (SAW method), in which measurement criteria is the goal of evaluation, while calculation process of dominant score/most ideal determines tourism object location for sports tourism. It is called SAW method.

Goal orientations of this evaluation model are: 1) sports potency, 2) people participation in sports tourism development, 3) local people empowerment, 4) the contribution of sports tourism activity upon local people, and 5) potency level of sports tourism. Likewise, criteria used to calculate SAW method is based on these five goals.

The goals of this study are 1) to have an explanation about some tourism objects in Buleleng Regency which are potentially developed for sports tourism; 2) to find out the most dominant or highest potential tourism object as sports tourism in Buleleng Regency; 3) to find out the mapping of some tourism objects which are potentially

developed to be sports tourism based on their quality level from the highest to the lowest level.

Based on these goals, the problems statements of this research are: 1) are tourism objects potentially developed to be sports tourism in Buleleng Regency?; 2) how is the calculation of determining the most dominant tourism object potentially used as sports tourism in Buleleng Regency?; 3) how is the mapping of some tourism objects which are potentially developed to be sports tourism in Buleleng Regency?

This study is conducted based on some previous research by others researchers, such as research conducted by Sudiana in 2013 [71] who stated that “almost all over the world, including Indonesia, sports tourism has emerged lately so many sports have been used as tourism object to attract tourists especially sport utilizing natural facilities such as mountains, lakes, rivers, and seas. Therefore, there should be an appropriate mapping of tourism object which can be developed to be sports tourism”. The obstacle found in the research by Sudiana in 2013 was inaccurate calculation process of determining the map of tourism object developed to be sports tourism.

Danasaputra proposed a finding based on his research in 2009 [72] who stated that “sports tourism is a kind of vast developed sports activity in Indonesia because it has many mountains, seas, rivers, and lakes. Since every region has different geographical characteristics, so sports tourism development is high potential to be developed as an alternative of recreational sport for sports lovers such as mountain sport (hiking, camping, jungle trekking, cycling, tracking, etc), water sport (diving, canoeing, snorkeling, surfing, etc). However, Danasaputra didn't provide detail explanation of how to determine precisely the mapping of tourism objects which can be used as sports tourism.

Based on the problems, the proposed innovation as solution and previous research findings, so the researcher is highly interested in mapping sports tourism in Buleleng-Bali using goal-oriented evaluation model based on the SAW.

## LITERATURE REVIEW

### 2.1 Goal Oriented Evaluation Model

Goal-oriented evaluation model aims to measure whether the goal of a policy, program or project can be achieved or not [73].

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The goal-oriented evaluation model is an evaluation measuring the success of program/project achievement reviewed based on the appropriateness of the result and the established goal [74].

Based on these two definitions, so it can be concluded that generally, goal-oriented evaluation model is an evaluative model that is used to measure or evaluate specific object based on the established main goal.

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### 2.2 SAW (Simple Additive Weighting)

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SAW (Simple Additive Weighting) method requires normalization process of decision matrix into a scale which can be compared with all the existing alternative rating [75],[76]. Here is a formula that can be used to obtain a normalized result [1]:

$$r_{ij} = \begin{cases} \frac{x_{ij}}{\max_i x_{ij}} & \text{if } j \text{ is benefit attribute} \\ \frac{\min_i x_{ij}}{x_{ij}} & \text{if } j \text{ is cost attribute} \end{cases} \dots (1)$$

In which  $r_{ij}$  is normalized performance rating from alternative  $A_i$  in attribute  $C_j$ ;  $i=1,2,\dots,m$  and  $j=1,2,\dots,n$  [76].

The formula used to calculate preference score in every alternative ( $V_i$ ) is as follow [15].

$$V_i = \sum_{j=1}^n w_j r_{ij} \dots (2)$$

The chosen alternative  $A_i$  is the highest  $V_i$ .

One of the SAW calculations can be explained as follows [77].

In Universitas Pendidikan Ganesha, it was evaluated during in the teaching-learning process. The evaluation model used was CIPP (Context, Input, Process, and Product). The evaluated aspects were program condition, completeness of digital learning material, administrator readiness, user readiness. Determine the order of aspect priority which influences the success of digital library program in Universitas Pendidikan Ganesha started from the most important or the most dominant.

The decision maker gave measurement weight for each criteria as follow:  $C1 = 25\%$ ;  $C2 = 25\%$ ;  $C3 = 25\%$ ; and  $C4 = 25\%$ . If the data were as follows.

Table 1: Data of the Result of E-Learning Evaluation in Universitas Pendidikan Ganesha with SAW Method

Alternative	Criteria			
	Context	Input	Process	Product
Program Conditions	92	93	84	90
Completeness of Digital Learning Material	90	90	85	86
Administrator Readiness	85	83	82	80
User Readiness	80	79	79	78

Answer:

Category of each evaluation component:

- a. Context component is benefit criteria.
- b. Input component is benefit criteria.
- c. Process component is benefit criteria.
- d. Product component is benefit criteria.

Normalization:

$$r_{11} = \frac{92}{\max\{92;90;85;80\}} = \frac{92}{92} = 1.000$$

$$r_{21} = \frac{90}{\max\{92;90;85;80\}} = \frac{90}{92} = 0.978$$

$$r_{31} = \frac{85}{\max\{92;90;85;80\}} = \frac{85}{92} = 0.924$$

$$r_{41} = \frac{80}{\max\{92;90;85;80\}} = \frac{80}{92} = 0.870$$

$$r_{12} = \frac{93}{\max\{93;90;83;79\}} = \frac{93}{93} = 1.000$$

$$r_{22} = \frac{90}{\max\{93;90;83;79\}} = \frac{90}{93} = 0.968$$

$$r_{32} = \frac{74}{\max\{93;90;83;79\}} = \frac{83}{93} = 0.892$$

$$r_{42} = \frac{83}{\max\{93;90;83;79\}} = \frac{79}{93} = 0.849$$

$$r_{13} = \frac{84}{\max\{84;85;82;79\}} = \frac{84}{85} = 0.988$$

$$r_{23} = \frac{85}{\max\{84;85;82;79\}} = \frac{85}{85} = 1.000$$

$$r_{33} = \frac{82}{\max\{84;85;82;79\}} = \frac{82}{85} = 0.965$$

$$r_{43} = \frac{79}{\max\{84;85;82;79\}} = \frac{79}{85} = 0.929$$

$$r_{14} = \frac{90}{\max\{90;86;80;78\}} = \frac{90}{90} = 1.000$$

$$r_{24} = \frac{86}{\max\{90;86;80;78\}} = \frac{86}{90} = 0.956$$

$$r_{34} = \frac{80}{\max\{90;86;80;78\}} = \frac{80}{90} = 0.889$$

$$r_{44} = \frac{78}{\max\{90;86;80;78\}} = \frac{78}{90} = 0.867$$

The result of normalization was then converted into the following matrix.

$$R = \begin{bmatrix} 1.000 & 1.000 & 0.988 & 1.000 \\ 0.978 & 0.968 & 1.000 & 0.956 \\ 0.924 & 0.892 & 0.965 & 0.889 \\ 0.870 & 0.849 & 0.929 & 0.867 \end{bmatrix}$$

Ranking process by using given weight by the decision maker:  $w = [0.25 \ 0.25 \ 0.25 \ 0.25]$ . The results are as follows.

$$V_1 = (0.25)(1.000) + (0.25)(1.000) + (0.25)(0.988) + (0.25)(1.000) = 0.997$$

$$V_2 = (0.25)(0.978) + (0.25)(0.968) + (0.25)(1.000) + (0.25)(0.956) = 0.975$$

$$V_3 = (0.25)(0.924) + (0.25)(0.892) + (0.25)(0.965) + (0.25)(0.889) = 0.917$$

$$V_4 = (0.25)(0.870) + (0.25)(0.849) + (0.25)(0.929) + (0.25)(0.867) = 0.879$$

The highest score was 7 in  $V_1$ , and then followed by  $V_2$ ,  $V_3$ , and  $V_4$ . It means that the most dominant/main aspect which influences the success of digital library program in Universitas Pendidikan Ganesha was program condition. Next, it is followed by other aspects namely: completeness of digital learning material, administrator readiness, and user readiness.

### 3. RESEARCH METHODOLOGY

#### 3.1 Research Design

There were two approaches used in this study, namely: (1) qualitative approach with exploration method to identify tourism objects in Buleleng Regency which were potential to be developed as sports tourism; and (2) evaluative approach by using the goal-oriented model based on SAW method which was used to determine the most potential tourism object to be sports tourism and to map all tourism objects which were potential to be sports tourism started from the highest into the lowest potential.

#### 3.2 Research Sample

The samples were chosen by using purposive are sampling, because tourism objects in Buleleng Regency are spread from the west to the east. Three zones division was used as the basis for taking a sample of the tourism object, which was Air Samih in Kubutambahan District, Lovina in Banjar District, and Pemuteran Village in Gerokgak District. Subjects of this study were small business owners in sports tourism industry (land, water, and aerospace) in those three districts of Buleleng Regency. Samples of the subject were chosen

purposively on tourism object location which required the condition and represented the aspects of observation and evaluation related to sports tourism.

### 3.3 Technique of Data Collection

Data collection techniques of this study were observation, interview, questionnaires, and documentation.

### 3.4 Research Location

The location of this research at Kabupaten Buleleng.

### 3.5 Data Analysis

The technique used in this study in analyzing the data was qualitative descriptive to analyze the data of all tourism objects in Buleleng Regency which were potential to be used as sports tourism, while quantitative descriptive analysis was used to analyze data of calculation to determine the most potential or dominant tourism object to be used as sports tourism started from the highest into the lowest category.

## 4. RESULTS AND DISCUSSION

### 4.1 Description of Tourism Objects which are Potential to be Sport Tourism

There are some tourism objects in Buleleng Regency which are potential to be used as sports tourism, as explained below.

#### a. Air Sanih

Tourism object of *Air Sanih* is located in Kubutambahan District, exactly in Yeh Sanih village of Buleleng Regency. The location is 17 kilometers from downtown is not very difficult to find by the tourists who want to visit this place because it is precisely located beside the main road which connecting Buleleng and Karangasem regencies.

One of tourism potential attractions in this place is the natural spring water which is accommodated in a big natural pool. The water of this pool is so natural and different with other pools which contain chlorine with the pungent smell. Other attraction of this place is the astonishing pool stretching to the sea, so the visitors can enjoy the sea view while swimming in the pool.

Access to *Air Sanih* is very good because it is beside the main road, although public transportation facility is rare, but the tourists can use private transportation or rent vehicle. Around the tourism object, there are many hotels and villas to be rented. The distance of the hotels or villas is close so that the tourism object can be reached by foot. This place is also suitable for the family gathering

because the pool is structured for children and adults.

*Air Sanih* tourism object is managed privately by the traditional village of Yeh Sanih. Yeh Sanih traditional village is a part of Bukti Official Village which is consisted of Bukti traditional village and YehSanih traditional village. Based on the interview conducted by the researchers to people's figure of YehSanih village Mr. Gede Wardana (Headman of Bukti village) stated that "The role of traditional village is very important here, in term of human resources, the employees are local people. It gives good feedback for the economy of local people. All rules and problems are adapted and solved based on the existing local customs".

Mr. Gede Wardana also said that although the pool is significantly attractive for tourists, but Bukti Village manages to develop sports tourism attraction such as snorkeling and diving. This statement is supported by the implementation of coral reef and coral reef cultivation by local people. It is hoped that the coral reef will grow properly and able to attract more tourists to their village so it will positively affect the local economy.

The view of *Air Sanih* can be seen in the following Figure 1 [78].



Figure 1: Air Sanih

#### b. Lovina Beach

*Lovina Beach* is one of North Bali tourism destinations. It is located 10 Km western of Singaraja Town, exactly located in Kali Bukbuk Village of Buleleng Regency. It has exotic black sand and attractively interesting to visit, as well as the perfect place for sunbathing. Its calm wave is safe for the visitors to swim.

This north-coast Bali beach has another tourism activity such as wild dolphin's attraction in the sea, coral garden, *Lovina* festival which is held annually in September. Based on our interview with Mr. I Ketut Suka (Headman of Kalibukbuk village) stated that besides dolphin attraction and coral garden, there is *Lovina* Festival as another tourism activity as the annual event. This festival was proposed by

Local Government of Buleleng with some supports of tourism stakeholders in Buleleng which has a purpose to develop hospitality industry in Buleleng Regency.

*Lovina* Festival accommodates many attractions, entertainments, culinary, art and unique cultural products of Buleleng. *Lovina* Festival has been held twice on the first time was on September, 25<sup>th</sup> 2014 until September, 27<sup>th</sup> 2014 which was continued with Sail Indonesia 2014 in *Lovina* Beach, Kalibukbuk Village by presenting: a) Sampi Gerumbungan Competition; b) Catching duck competition, and c). Pillow Battle Competition.

The second *Lovina* Festival was held on September, 27<sup>th</sup> 2015 until October, 1<sup>st</sup> 2015 by presenting: a) Sampi Gerumbungan Competition; b). Kite Competition; c) 5K Run Competition; d) Sailboat Competition, and e) Traditional Game of Megangsing.

Dolphin attraction can be enjoyed in the morning at 06.00-08.00 a.m. local time. The access is easy because there are fishermen boats that can be rented for 75.000 IDR/person. The tourists will be taken around 1-2 Km into the sea by the fishermen to watch the dolphin. The tourists will be taken sailing around to watch the dolphin attraction around one hour in the sea. After enjoying the dolphin attraction, the tourists will not be taken directly to the coast, but they will be sailed to another attraction, namely Underwater Garden. There, the tourists are invited to enjoy the beauty of coral reef with so many colorful small fish. Besides enjoying the coral reef from the boat, the tourists can also do snorkeling and swimming to get closer to the coral reef.

*Lovina* area is also occupied by much well-managed transportation and accommodation. The restaurant and hotels are providing affordable price and delicious food. Some hotels also provide trained dolphin attraction. There is also art market which provides various Balinese clothing and *Lovina* merchandises.

The role of a traditional village has significantly supported the tourism development of *Lovina*. It cannot be separated from the enthusiasm of local people who keep and preserve the environment. The development of *Lovina* as a tourism destination is significantly improving the local economy. It can be seen from the number of hotels, motel, and restaurant in this area which employ local people. In term of developing, promoting, and solving problems the tourism stakeholders always coordinate with the village official and adjust the rules with the existing local customs in Kalibukbuk

village. The display of *Lovina* Beach can be seen in the following Figure 2 [79].



Figure 2: Lovina Beach

#### c. Pemuteran Village

*Pemuteran Village* is located in Gerokgak District of Buleleng Regency around 55 Km from Singaraja Town. This small village is precisely located on the north-west coast of Bali. It is located 15 Km from West Bali National Park which has many marine tourism attractions. Different from other tourism destination with their city attraction, *Pemuteran Village* offers tranquility and peaceful village atmosphere. Besides offering village tranquility which is appropriate for mediation, *Pemuteran village* also offers marine tourism attraction. Some tourism events that can be done in this village are snorkeling, diving, coral view from the glass boat, or sunbathing on white sand.

*Pemuteran* area is also well-known as the marine conservation area for the world biggest artificial coral reef of "Biorock". Tourists who love to dive will be offered world class Sea Garden located on Menjangan Island which is 15 minutes boating from *Pemuteran*. The divers will be astonished by the underwater temples in this diving site. The tourists can reach this place by renting boat and diving into 30-40 meters underwater. Snorkeling is usually done not far from the coast, which is offering amazing coral reef.

The success of *Pemuteran Village* as marine tourism destination cannot be separated from the active involvement of the local people in developing *Pemuteran* as a tourism destination. Through Karang Lestari Foundation, the people are united to cultivate coral reef and transform the wasted-*Pemuteran Village* to be a place worth to be visited.

Tourism accommodations such as hotel and restaurant are easy to find there. The beach is close

to those hotels are tourists are usually walking to the beach. The business owner still employs local people in hotels and restaurants, as well as the diving guides, are mostly local people. For tourists who want to feel the village atmosphere directly can rent home stay of the local people as the living place there.

The success of *Pemuteran Village* as the tourism destination has a positive contribution to the local economy. The outstanding role of local customs makes the space and location of the tourism destination comfortable and well-ordered. All problems are solved based on the approach of local customs. The display of *Pemuteran Village* can be seen in the following Figure 3 [80].



Figure 3: Pemuteran Village

#### 4.2 Calculation of Determining the Highest Potential Tourism Object to be Sports Tourism in Buleleng Regency

Based on this study result, it was found that there were three high potential tourism objects in Buleleng Regency to be sports tourism, but from these three tourism objects, it should be determined which tourism object was the most dominant to be sports tourism through accurate and valid calculation by using *SAW* method. Some criteria used as the basis to calculate *SAW* method in determining the most dominant tourism object were criteria used in *goal-oriented* evaluation model to evaluate appropriate tourism object to be sports tourism, such as 1) sports potency, 2) people participation in sports tourism development, 3) local people empowerment, 4) contribution of sports tourism activity upon local people and 5) potency level of sports tourism.

Based on the result of this study, it was found data of tourism objects which were potential to be sports tourism based on five criteria of *goal-oriented* evaluation on purpose to evaluate proper tourism object to be sports tourism in Buleleng Regency. The data of tourism object can be seen in the following Table 2.

Table 2: Data of Potential Tourism Objects in Buleleng Regency to be Sports Tourism based on Five Criteria of Goal-Oriented Evaluation

Tourism Object	Criteria				
	Sport Potency (C <sub>1</sub> )	People Participation in Developing Sport Tourism (C <sub>2</sub> )	Local People Empowerment (C <sub>3</sub> )	Contribution of Sport Tourism Activity upon Local People (C <sub>4</sub> )	Potency Level of Sport Tourism (C <sub>5</sub> )
<i>Air Sanih</i>	26 (intermediate)	23 (intermediate)	31 (intermediate)	17 (high)	97 (intermediate)
<i>Lovina Beach</i>	37 (high)	30 (high)	36 (high)	20 (high)	123 (high)
<i>Pemuteran Village</i>	34 (high)	25 (intermediate)	42 (high)	21 (high)	122 (high)

Evaluation weight for each criterion given by evaluator as follows: C<sub>1</sub> = 20%; C<sub>2</sub> = 20%; C<sub>3</sub> = 20%; C<sub>4</sub> = 20%; and C<sub>5</sub> = 20%.

Validation of evaluation scores for each criterion shown in Table 2 follows the categorization as follows:

- Sport Potency (C<sub>1</sub>):  
13.00 – 21.67 = low  
21.68 – 30.35 = intermediate  
30.36 – 39.03 = high
- People Participation in Developing Sport Tourism (C<sub>2</sub>):  
11.00 – 18.33 = low  
18.34 – 25.67 = intermediate  
25.68 – 33.01 = high

- Local People Empowerment (C<sub>3</sub>)  
14.00 – 23.33 = low  
23.34 – 32.67 = intermediate  
32.68 – 42.00 = high
- Contribution of Sport Tourism Activity upon Local People (C<sub>4</sub>)  
7.00 – 11.66 = low  
11.67 – 16.33 = intermediate  
16.34 – 21.00 = high
- Potency Level of Sport Tourism (C<sub>5</sub>)  
5.00 – 75.00 = low  
76.00 – 106.00 = intermediate  
107.00 – 137.00 = high

Based on the data shown in Table 2, so the calculation process of determining the most dominant tourism object chosen as sports tourism to



use SAW method can be done by the following steps:

### 3) Normalization Step

Based on the data in Table 2, it can be done normalization process by a consideration that evaluation criteria started from  $C_1$  until  $C_5$  is benefited criteria, so the calculation as follows.

$$r_{11} = \frac{26}{\max\{26;37;34\}} = \frac{26}{37} = 0.703$$

$$r_{21} = \frac{37}{\max\{26;37;34\}} = \frac{37}{37} = 1.000$$

$$r_{31} = \frac{34}{\max\{26;37;34\}} = \frac{34}{37} = 0.919$$

$$r_{12} = \frac{23}{\max\{23;30;25\}} = \frac{23}{30} = 0.767$$

$$r_{22} = \frac{30}{\max\{23;30;25\}} = \frac{30}{30} = 1.000$$

$$r_{32} = \frac{25}{\max\{23;30;25\}} = \frac{25}{30} = 0.833$$

$$r_{13} = \frac{31}{\max\{31;36;42\}} = \frac{31}{42} = 0.738$$

$$r_{23} = \frac{31}{\max\{31;36;42\}} = \frac{36}{42} = 0.857$$

$$r_{33} = \frac{42}{\max\{31;36;42\}} = \frac{42}{42} = 1.000$$

$$r_{14} = \frac{17}{\max\{17;20;21\}} = \frac{17}{21} = 0.809$$

$$r_{24} = \frac{20}{\max\{17;20;21\}} = \frac{20}{21} = 0.952$$

$$r_{34} = \frac{21}{\max\{17;20;21\}} = \frac{21}{21} = 1.000$$

$$r_{15} = \frac{97}{\max\{97;123;122\}} = \frac{97}{123} = 0.789$$

$$r_{25} = \frac{31}{\max\{97;123;122\}} = \frac{123}{123} = 1.000$$

$$r_{35} = \frac{122}{\max\{97;123;122\}} = \frac{122}{123} = 0.992$$

Those normalization results then converted to the following matrix form.

$$R = \begin{bmatrix} 0.703 & 0.767 & 0.738 & 0.809 & 0.789 \\ 1.000 & 1.000 & 0.857 & 0.952 & 1.000 \\ 0.919 & 0.833 & 1.000 & 1.000 & 0.992 \end{bmatrix}$$

### 2) Ranking Process

Based on the result of normalization and weighing given by evaluator on each evaluation criteria which was 20%, so the ranking process can be calculated as follows.

$$V_1 = (0.20)(0.703) + (0.20)(0.767) + (0.20)(0.738) + (0.20)(0.809) + (0.20)(0.789) = 0.761$$

$$V_2 = (0.20)(1.000) + (0.20)(1.000) + (0.20)(0.857) + (0.20)(0.952) + (0.20)(1.000) = 0.962$$

$$V_3 = (0.20)(0.919) + (0.20)(0.833) + (0.20)(1.000) + (0.20)(1.000) + (0.20)(0.992) = 0.949$$

### 3) Making Decision

Based on the ranking process results, it is effectively seen that the highest score was in  $V_2$ , so the most dominant potential tourism object to be sports tourism in Buleleng Regency was *Lovina Beach*.

### 4.3 Mapping Potential Tourism Object to be Sports Tourism in Buleleng Regency

Based on the above ranking process, so it can be determined the mapping of potential tourism object to be sort tourism based on quality level from the highest category until the lowest category which can be seen in the following Table 3.

Table 3: The Result of Mapping Potential Tourism Object to be Sports Tourism in Buleleng Regency

Tourism Object	Mapping Rank	Category
<i>Air Sanih</i>	III	Lowest
<i>Lovina Beach</i>	I	Highest
<i>Pemuteran Village</i>	II	Intermediate

This study is the answer of obstacle found in the previous research conducted in 2013 by Sudiana which could not yet show accurately the calculation process of determining the most potential tourism object to be sports tourism. This present study is a new innovation as the answer of obstacle found in research in 2009 conducted by Danasaputra which could not explain the way how to determine the mapping of tourism object that can be developed as sports tourism.

The difference of this study with the previous research which is the background of this study is this study results are able to present a new innovation in the use of goal-oriented evaluation model based on SAW method, so able to present accurate calculation in determining the mapping of tourism object that can be used as sport tourism, from the highest category to the lowest. But, previous researches conducted by Sudiana and Danasaputra have not been able to show accurate calculations starting from the highest down to the lowest in mapping the tourism activity that can be used as sports tourism.

The constraints or limitations found in this study was the calculation limited only in 5 criteria of goal-oriented evaluation model, because it was assumed that new criteria have been found as a determinant factor in the selection of tourist objects that can be used as sports tourism.

## 5. CONCLUSIONS

Generally, this research has provided an overview of tourism object in Buleleng Regency

which has the opportunity to become sports tourism such as Air Sanih, Lovina Beach, and Pemuteran Village. Based on the evaluation using goal-oriented evaluation model based on SAW method, it has been obtained accurate calculation results in determining the most dominant or high-potential tourist activity to be sports tourism, namely Lovina Beach. Also, through the calculation of SAW method also obtained mapping results of existing tourist activity in Buleleng Regency ranging from the highest category to the lowest category to be sports tourism starting from Lovina Beach, Pemuteran Village, until down to Air Sanih.

The new innovation that can be done to solve the constraints or limitations of this study is to conduct research in the future based on more intensive data collection techniques through interviews and observations in more depth to the parties or related institution and understand about tourism in the area of Buleleng Regency to obtain an overview about other new criteria which can influence the determining of potential tourism object to be sports tourism.

#### ACKNOWLEDGMENTS

The researchers send their gratitude to all parties who helped to conduct this study so that it can be finished on time.

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