

## Tourism Potential Evaluation and Strategy Formulation for Pine Forest of Gelagahlinggah: Experience from A Community Engagement

Anom Hery Suasapha\*, I Wayan Mertha, Ida Bagus Gede Agung Widana, Luh Yusni Wiarti, Ni Putu Oka Agustini, Lukia Zuraida, Diah Cynthia Putri

Bali Tourism Polytechnic

\*Corresponding Author: anom\_hs@ppb.ac.id

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### Abstract

This article is written based on a research conducted as part of a series of community engagement done by Lecturers of Tourism Destination Program of Bali Tourism Polytechnic for the community of Gelagahlinggah Customary Village. The village is located at Kintamani of Bangli Regency, and is part of buffer zone for Batur UNESCO Global Geopark. The aim of the research was to evaluate the tourism potential of the pines forest of Gelagahlinggah, and to produce strategies to develop those potentials. The research implemented quantitative and qualitative approach, utilizing survey as the method for collecting primary data. To increase the validity of the data, the sample was determined purposively. Therefore, the respondents should understand the existing condition of the pines forest of Gelagahlinggah Village, and able to evaluate its tourism potentials. The questionnaire was developed on Google form to allows for practicality. A sample of 100 respondents were collected, based on which a dataset was then prepared for analysis. The analysis using Exploratory Factor Analysis (EFA) to extract factors in the form of strengths, weaknesses, opportunities and threats indicating the tourism potentials of the pine forest of Gelagahlinggah. The tourism potentials were then processed in a SWOT Matrix to develop strategies for those tourism potentials. The research result reveals some tourism potentials of the pine forest of Gelagahlinggah, and strategies suitable to develop those potentials.

**Keywords:** tourism potentials; evaluative; pine forest; strategy.

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## INTRODUCTION

### Background

Gelagahlinggah is a customary village, located at Kintamani of Bangli Regency in Bali. Gelagahlinggah is one of buffer villages of the Batur UNESCO Global Geopark. Located on the

mountains, in the middle of a pine forest, Gelagahlinggah possess a cool weather and a calm ambience resulted from the pine forest itself. The pine forest of Gelagahlinggah are state own property under management of *Kesatuan Pengelolaan Hutan (KPH) Bali Timur* (Forest Management Unit of Eastern Bali) who has handed over

51 Hectare of the forest to be managed by a group of forest farmer (*Kelompok Tani Hutan*) from Gelagahlinggah Customary Village. The group has been trying to develop some tourist activities on the 51 Hectare land, requiring assistance from government, tourism academia and other stakeholders on the process.

Gelagahlinggah has been a place for lecturers of Tourism Destination study program of Bali Tourism Institute to conduct one of its three obligations, the community engagement. Since 2018, not less than 5 community engagement programs had been conducted in the village, based on mutual understanding between the village and the lecturer themselves. The first engagement was done on June 2018, to increase awareness of the villagers on *Sapta Pesona* (The Seven Charms) and the *Sadar Wisata* (awareness as a host or as a local community of a tourist destination). The second engagement was done on October 2019. The aim of the second community engagement was to increase the capacity of the community of Gelagahlinggah Village in designing tourism product as well as to market the product on the internet through collaboration with OTA. The third engagement was done on June 2020. This engagement was special since it was done in the pandemic Covid-19 situation. Given that the aim of the third engagement was to prepare a legal aspect in the form of letter of cooperation agreement between stakeholder of Gelagahlinggah Pine Forest, the engagement was done in the form of discussions in order for the agreement can be made and written. Due to the pandemic, those discussion was done online on Zoom platform. The result was a letter of cooperation agreement between Gelagahlinggah Customary Village and The Gelagahlinggah Lestari Forest Farmer Group, known by the *KPH Bali Timur* (Forest Management Unit of Eastern Bali) as the government body responsible for the management of the pine forest of Gelagahlinggah.

<http://ojs.unud.ac.id/index.php/eot>

To follow-up with the result of the third community engagement, the fourth engagement was done on November 2020. With the legal aspect for the development of tourism activity in the forest have been secured, it was understood that tourism potentials evaluation needed to be conducted to prepare the basis for the planning of tourism development in the pine forest of Gelagahlinggah. Moreover, in order for the development of tourism in the area to be acknowledged and supported by the local government who is responsible in developing the tourism potentials in its region (article 23, paragraph 1, letter c of Law number 10 of 2009 concerning Tourism), those tourism potentials need to be evaluated first. Therefore, in order to evaluate the tourism potential of the pine forest, the fourth community engagement of lecturers of Tourism Destination Study Program was done in the form of applied research, which is another obligation of university besides the teaching (Etzkowitz & Leydesdorff, 2000) and the community engagement itself (Goddard & Kempton, 2016; Calzada & Cowie, 2017). Through this research, it was hoped that 2 out of the three obligations of the university can be fulfilled. Evaluation of tourism potentials is an important step in the decision to invest in tourism (Mamun & Mitra, 2012; Hoang et al, 2018; Puška, Stojanović, & Maksimović, 2019; Sestras, et al., 2020; Puška, et al., 2021), as well as in the planning of tourism (Yan, Gao, & Zhang, 2017). The process will also provide a hindsight on the prospect of tourism development in an area (Hoang et al, 2018). Other than the objectives mentioned earlier, research for the community engagement conducted for the community of Gelagahlinggah Customary Village was also intended to provide a basis for strategy formulation based on the result of the tourism potentials evaluation process. Therefore, the research was combining tourism potentials evaluation with strategy formulation.

Result of the fourth engagement was then served as the basis for the fifth community engagement conducted by lecturer of Tourism Destination of Bali Tourism Polytechnic for the community of Gelagahlinggah Customary Village. The fifth engagement was done on June 2021. The aim of the fifth engagement was to advocate the bottom-up initiative of the community for their potential tourist attraction to be legalized as one of tourist attraction under the government of Bangli Regency.

This article is written to share some of the experience that was gained from doing those 5 community engagements, especially the applied research of which result has been the basis for legalization of the status of Gelagahlinggah Pine Forest as one of tourist attraction in Bangli Regency. With the background of the research had been presented, the later part of this article will discuss the methodology, the result and the discussion as well as suggestion that can be made based on the research. By doing so, this article also provide alternative methodology that can be use to evaluate tourism potential.

## RESEARCH METHODS

Once the research design has been fixed, instrument for collecting data was developed. Since the aim of the research was to evaluate the tourism potentials of pine forest at Gelagahlinggah Village, it was agreed that the variable from which the statements of the questionnaire will be derived, should incorporate variables that enable the identification of the tourism potential, from the point of their strengths and weaknesses (internal variable), as well as opportunities and threats (external variable). Therefore, the variables for this research consisted of the components of tourism destination, such as attraction, access, amenities and tourism organization (Burkart, 1976; Cooper, 2016; Fletcher et al, 2018). The variables also taken into

account results of preliminary survey and discussion notes collected from previous community engagements, such as the physical characteristics of the forest, the stakeholders of the forest, and the potential tourism activity that can be perform in the forest, as well as the conservation role of the forest.

Those variables served as the basis for the statements that made up the questionnaire. Since the questionnaire aimed to collect data in the form of perception of the respondents toward tourism potentials of the pines forest of Gelagahlinggah Village, the statements are constructed to specifically measured the strengths and weaknesses, as well as the opportunities and threats of those variables mentioned above. Therefore, the questionnaire consisted of two groups of statement. The first group is the internal statements, consist of items intended to measure strengths and weaknesses of the variables. The second is the external statements, consist of items constructed to measure the opportunities and the threats of development of tourism in the pines forest of Gelagahlinggah. There were 30 internal items and 28 external items. The questionnaire using 5 point Likert Scale based on Rensis Likert (Likert, 1932), with the scale ranging from strongly disagree (1) to strongly agree (5), with a middle point (3) corresponds to neutral position (undecided) to allow for the respondent to respond the questionnaire correctly should for some reason they can't respond the statement on the questionnaire. Before being used, the questionnaire was item analyzed to test its validity and reliability (Lester, Inman, & Bishop, 2014; Hair, Black, Babin, & Anderson, 2014; Field, 2017).

The sample for the research derived from population of students of Bali Tourism Polytechnic, majoring tourism destination and tourism management. Since the respondents were asked to provide their perception toward tourism potentials of

pine forest of Gelagahlinggah Village, they should be those who already known the pine forest of Gelagahlinggah. Thus, only students who had been visited the pines forest that were chosen as the respondent. The decision to select the population from the students of tourism destination and tourism management itself based on a consideration that the students from those study programs has the knowledge and capacity to evaluate tourism potentials since they had been studying it for a while and practicing it during their practicum. A sample of 100 respondents were collected for further analysis based on Hair, Black, Babin, & Anderson (2014).

The analysis combining quantitative and qualitative approach performed in a sequence consisted of 2 phases. The first phase was to extract the strengths, weaknesses, opportunities and threats (SWOT) through Exploratory Factor Analysis (EFA) to the data collected from the sample of 100 respondents. The second phase was strategy formulation based on matching process of strategy formulation suggested by David (2011). The material for the strategy formulated through SWOT Matrix was the strengths, weaknesses, opportunities and threats resulted from the first phase of analysis. All of the quantitative procedure from validity and reliability test to the EFA was done on SPSS version 26.

## RESULT AND DISCUSSION

### EFA for internal variable

EFA for the research was done for both internal and external variable. For the internal variable, THE EFA was used to extract factors from 30 statement/item. The expected result was factors that indicates tourism potentials of the pine forest of Gelagahlinggah in the form of their strengths as well as the weakness. Kaizer, Mayer Olkin (KMO) Measure of Sampling

Adequacy (MSA) for the internal variable are as shown in the Table 1 and Table 2 below.

**Table 1.** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	of	<b>.873</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	2202.909
	df	406
	Sig.	.000

**Table 2.** Anti-Image Correlation Matrice

Item	MSA	Item	MSA	Item	MSA
I1	<b>.916<sup>a</sup></b>	I12	<b>.886<sup>a</sup></b>	I22	<b>.863<sup>a</sup></b>
I2	<b>.699<sup>a</sup></b>	I13	<b>.921<sup>a</sup></b>	I23	<b>.922<sup>a</sup></b>
I4	<b>.896<sup>a</sup></b>	I14	<b>.880<sup>a</sup></b>	I24	<b>.701<sup>a</sup></b>
I5	<b>.908<sup>a</sup></b>	I15	<b>.885<sup>a</sup></b>	I25	<b>.690<sup>a</sup></b>
I6	<b>.921<sup>a</sup></b>	I16	<b>.739<sup>a</sup></b>	I26	<b>.888<sup>a</sup></b>
I7	<b>.765<sup>a</sup></b>	I17	<b>.868<sup>a</sup></b>	I27	<b>.872<sup>a</sup></b>
I8	<b>.749<sup>a</sup></b>	I18	<b>.651<sup>a</sup></b>	I28	<b>.902<sup>a</sup></b>
I9	<b>.915<sup>a</sup></b>	I19	<b>.874<sup>a</sup></b>	I29	<b>.891<sup>a</sup></b>
I10	<b>.907<sup>a</sup></b>	I20	<b>.882<sup>a</sup></b>	I30	<b>.538<sup>a</sup></b>
I11	<b>.938<sup>a</sup></b>	I21	<b>.859<sup>a</sup></b>		

Both the SPSS output of MSA above are the result of the second EFA procedure run for the internal variable. It was due to existence of an item (I3) with individual MSA below 0,50 as the minimum value that the EFA needed to be re-run. After removing the item that was not suitable for further analysis, the MSA shows that both overall and individually the sample has been adequate to proceed with the analysis. Overall MSA shows a value of 0,873, called "meritorious" showing a good indication of sampling adequacy (Hair, Black, Babin, & Anderson, 2014). The individual MSA as shown on table 2 (the bold typed numbers) are also showing sign of good sampling adequacy, since none of them are below 0,50 as the minimum value to be deemed adequate to be proceed with the analysis.

Since the sample has been adequate, the next step is to interpret the factor

extracted from the items. Table 3 shows that there are 6 factors can be extracted from 29 items that were being analyzed. The rotations sums of squared loading

show that the 6 extracted factors represent 71,154 % from the total variation in the data.

**Table 3.** Total Variance Explained

Comp.	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.809	40.720	40.720	11.809	40.720	40.720	6.032	20.799	20.799
2	2.659	9.170	49.890	2.659	9.170	49.890	4.399	15.168	35.967
3	2.171	7.488	57.378	2.171	7.488	57.378	4.053	13.975	49.942
4	1.555	5.364	62.742	1.555	5.364	62.742	2.467	8.506	58.448
5	1.262	4.351	67.093	1.262	4.351	67.093	2.360	8.138	66.586
6	1.178	4.062	71.154	1.178	4.062	71.154	1.325	4.569	<b>71.154</b>
7 to 28	0.077	0.266	99.791						<b>54</b>
29	0.061	0.209	100.000						

Extraction Method: Principal Component Analysis.

Using varimax method, 29 items that constructed the 6 factors were then

rotated. Tabel 4 shows the result of the rotation, from which the exact item that constructed each factor can be observe.

**Table 4.** Rotated Component Matrix

Item	Component					
	1	2	3	4	5	6
I10	<b>0.836</b>	0.127	0.198	-0.062	0.044	0.027
I9	<b>0.829</b>	0.077	0.204	-0.009	0.170	-0.072
I13	<b>0.809</b>	0.288	0.248	-0.136	0.070	0.048
I11	<b>0.679</b>	0.335	0.303	-0.181	0.070	0.000
I12	<b>0.675</b>	0.169	0.369	-0.089	-0.012	0.088
I5	<b>0.645</b>	0.444	0.112	-0.083	0.067	0.267
I6	<b>0.639</b>	0.393	0.227	0.111	0.065	-0.059
I4	<b>0.628</b>	0.452	0.147	-0.194	-0.019	0.255
I1	0.529	0.503	0.088	-0.203	0.314	0.177
I29	0.131	<b>0.758</b>	0.075	-0.082	0.046	0.066
I28	0.222	<b>0.712</b>	0.201	-0.070	0.135	-0.188
I17	0.228	<b>0.705</b>	0.236	0.048	0.064	-0.003

I14	0.495	<b>0.601</b>	0.181	0.135	-0.080	0.014
I15	0.525	<b>0.594</b>	0.153	0.140	-0.107	-0.037
I27	0.258	<b>0.592</b>	0.295	-0.124	0.157	0.277
I26	0.294	0.505	0.368	-0.236	0.240	0.035
I20	0.384	0.173	<b>0.816</b>	-0.117	0.071	-0.045
I21	0.186	0.303	<b>0.808</b>	-0.070	0.219	0.043
I22	0.272	0.271	<b>0.776</b>	-0.050	0.175	0.121
I19	0.404	0.172	<b>0.756</b>	-0.079	0.096	-0.018
I23	0.466	0.340	<b>0.545</b>	-0.046	0.209	0.051
I7	-0.213	-0.029	-0.184	<b>0.797</b>	-0.064	0.032
I8	-0.224	-0.181	-0.177	<b>0.779</b>	-0.121	0.163
I16	0.127	-0.086	0.236	<b>0.665</b>	0.137	-0.028
I30	-0.003	0.185	-0.227	<b>0.567</b>	0.325	-0.061
I25	0.045	0.087	0.219	0.047	<b>0.916</b>	-0.004
I24	0.127	0.084	0.182	0.073	<b>0.908</b>	-0.025
I2	0.133	0.085	0.181	0.231	0.065	<b>0.796</b>
I18	0.026	0.089	0.367	0.294	0.374	<b>-0.574</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 7 iterations.

Based on Hair Jr et al (2014), for a sample size of 100, only item with loading factor more than 0,55 that are considered as a constructor of a factor. Therefore, table 4 shows that there are 8 items that constructed the first factor. Those items are I10, I9, I13, I11, I12, I5, I6, I4. The second factor are constructed by 6 items (I29, I28, I17, I14, I15, I27). The third factor constructed by 5 items (I20, I21, I22, I19, I23). The fourth factor constructed by 4 items (I7, I8, I16, I30), while the fifth and the sixth factor are each constructed by 2 items, I25, I24 and I2, I18 respectively. The table also shows that there are 2 items (I1 and I26) that is not corresponded to any extracted factors.

With all items that constructed each factor has been known, a name can be prepared for each factor. Based on the theme of each item, the name for each factor extracted from the EFA on 29 items of 100 samples are as follow:

1. Tracking is the most suitable activity that will maximize the experience of

visitor in enjoying landscape, panorama and cool weather of the pine forest of Gelagahlinggah.

2. Outbond, glamping and camping are also suitable to develop at Pine Forest of Gelagahlinggah due to its vegetation, cool weather, panorama and landscape.
3. The landscape and temperature of the pine forest of Gelagahlinggah suitable for wellness activity such as yoga and meditation.
4. The flora, fauna and the slope of pine forest of Gelagahlinggah are its obstacles in developing tourism activities.
5. The slope of Pine Forest of Gelagahlinggah is its obstacle to develop yoga and meditation.
6. The flora and fauna of Pine Forest of Gelagahlinggah are its uniqueness.

Content of the factors shows that the first, second, third and sixth factor are the strengths of the pine forest of

Gelagahlinggah, while the fourth and the fifth are its weaknesses.

Result of analysis shows that trekking is considered the strongest strength of pine forest of Gelagahlinggah. It is also the most suitable activity that can be developed at the forest since for many, trekking is a great leisure activity that can be taken by visitor (Leister, 2019), that will allow them to appreciate the geodiversity, the landscape as well as the weather condition of the place they are enjoying (Rozycki & Dryglas, 2014). Trekking can be done on different locations such as mountain, desert, tropical area, glacial, polar, river, swamps and volcano (Rozycki & Dryglas, 2014). Trekking on the pine forest of Gelagahlinggah offers a great opportunity for the visitor to enjoy the cool weather, the fresh air, beautiful mountain landscape and panorama of the place while also presenting themselves with opportunity to learn about the place through the help of trekking guide (Poudel & Nyaupane, 2016), should the trekking emphasize education in it. Given the greenness of the pine forest and given that trekking is a form of physical exercise, their combination will result in good mental and physical health of those who are engaged in the activity (Pretty, 2004).

The same goes with camping, glamping and outbond. Even though the physical aspect of camping and glamping are less than outbond, the greenery surrounding location of the activity will benefit mental health of visitor engaged in those activities, since the green surrounding will benefit mental and physical health (Pretty, 2004; Budiasa, Suparta, & Nurjaya, 2019). Camping, glamping and outbond at Gelagahlinggah Pine Forest can be combined with trekking to optimize its positive benefit, as well as to lengthen the stay of visitor. Yoga and meditation carried out on the forest are also have great benefit on physical health (Mathias et al, 2020) because of relaxation effect resulted from both activities

(Ohe et al, 2017). Unlike other tourism activities that more associated with short term of joy and happiness, yoga and meditation can lead to a longer joy and happiness (Dillette, Douglas, & Andrzejewski, 2018), and also to transform the practitioner's mind, body and soul into a realized, harmonized and perfected being (Sharma, 2020). Unfortunately, this is quite difficult to be offered at Gelagahlinggah pine forest due to its location on the mountain making it difficult to have a plain area where visitor can seat and relax in a mindfulness activity or doing certain yoga pose or stretching. Should this weakness to be overcome, there are modifications need to be done on the landscape to provide the suitable ground for both activities. Should the conservation role of the pine forest preventing for modification on the forest land, still the landscape, the clean and fresh air, the weather, and the pine tree offer great potential for "forest bath" that has received more attention since the pandemic Covid-19 spread all over the world (Farkic, Isailovic, & Taylor, 2021). With trekking being the strongest strength possessed by the pine forest of Gelagahlinggah, it can be differentiated or even modified as a forest walk activity or forest bath that will also benefit mental and physical health of the visitors (Joung, et al., 2020).

#### **EFA for external variable**

EFA for external variable conducted to extract factor that represent the opportunity and threat of tourism development of pine forest of Gelagahlinggah. The process was similar with the one conducted for internal variable. The sample are 100 respondent and the number of items is 28.

Unlike the EFA conducted for the internal variable that needed to be repeated, the EFA for external variable did not need to be repeated. The KMO-MSA and all individual MSA are above minimum requirement, with the first shows a "meritorious" value (KMO-MSA = 0,839),

while the latter are all above 0,50, as shown on table 5 and Table 6. Therefore, the sample for external variable are adequate to proceed with further analysis with EFA.

**Table 5.** KMO and Bartlett’ Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		<b>.839</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	1974.742
	df	378
	Sig.	.000

**Table 6.** Anti-Image Correlation – Measure of Sampling Adequacy (MSA)

Item	MSA	Item	MSA	Item	MSA
E1	<b>.871<sup>a</sup></b>	E11	<b>.576<sup>a</sup></b>	E20	<b>.871<sup>a</sup></b>
E2	<b>.887<sup>a</sup></b>	E12	<b>.528<sup>a</sup></b>	E21	<b>.859<sup>a</sup></b>

**Table 7.** Total Variance Explained

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	<b>9.908</b>	35.386	35.386	9.908	35.386	35.386	7.042	25.148	25.148
2	<b>2.821</b>	10.076	45.462	2.821	10.076	45.462	2.682	9.580	34.728
3	<b>2.343</b>	8.367	53.829	2.343	8.367	53.829	2.565	9.162	43.890
4	<b>1.769</b>	6.319	60.148	1.769	6.319	60.148	2.326	8.309	52.198
5	<b>1.505</b>	5.377	65.524	1.505	5.377	65.524	2.299	8.210	60.408
6	<b>1.288</b>	4.599	70.124	1.288	4.599	70.124	2.029	7.247	67.655
7	<b>1.092</b>	3.901	74.025	1.092	3.901	74.025	1.783	6.370	<b>74.025</b>
27	0.079	0.282	99.783						
28	0.061	0.217	100.000						

Extraction Method: Principal Component Analysis.

Using varimax rotation method, the items were rotated to see the composition of items that constructed each of the 7

E3	<b>.585<sup>a</sup></b>	E13	<b>.751<sup>a</sup></b>	E22	<b>.842<sup>a</sup></b>
E4	<b>.554<sup>a</sup></b>	E14	<b>.877<sup>a</sup></b>	E23	<b>.913<sup>a</sup></b>
E5	<b>.912<sup>a</sup></b>	E15	<b>.887<sup>a</sup></b>	E24	<b>.838<sup>a</sup></b>
E6	<b>.878<sup>a</sup></b>	E16	<b>.890<sup>a</sup></b>	E25	<b>.806<sup>a</sup></b>
E7	<b>.844<sup>a</sup></b>	E17	<b>.939<sup>a</sup></b>	E26	<b>.790<sup>a</sup></b>
E8	<b>.603<sup>a</sup></b>	E18	<b>.901<sup>a</sup></b>	E27	<b>.783<sup>a</sup></b>
E9	<b>.874<sup>a</sup></b>	E19	<b>.885<sup>a</sup></b>	E28	<b>.673<sup>a</sup></b>
E10	<b>.748<sup>a</sup></b>				

a. Measures of Sampling Adequacy (MSA)

Rotation on 28 items with PCA, with eigenvalue set to the value of 1 or greater as shown on Table 7 indicates that the items were grouped into 7 factors that represent 74% of the total variance that can be explained by those 7 factors. This can be further explained by the output of Rotated component matrix.

factors shown on table 7. The result are as follows:

**Table 8.** Rotated Component Matrix

Item	Component						
	1	2	3	4	5	6	7
E16	<b>0.894</b>	0.025	0.034	0.253	0.015	-0.058	0.081
E15	<b>0.858</b>	0.103	0.077	0.168	0.075	-0.009	0.068
E19	<b>0.851</b>	0.070	0.071	0.142	0.067	0.156	0.095
E20	<b>0.835</b>	0.039	0.062	0.228	0.021	0.082	0.162
E14	<b>0.779</b>	0.113	0.057	0.155	0.197	-0.067	0.063
E18	<b>0.757</b>	0.000	0.270	0.267	-0.166	0.042	-0.071
E17	<b>0.704</b>	0.077	0.364	0.084	-0.155	0.112	-0.074
E23	<b>0.691</b>	0.188	0.248	0.035	0.054	0.209	0.238
E5	<b>0.548</b>	0.364	-0.075	0.205	-0.068	0.257	0.120
E26	0.254	<b>0.870</b>	0.055	-0.011	0.071	0.033	0.108
E27	0.182	<b>0.841</b>	0.185	0.025	0.053	0.166	0.014
E28	-0.176	<b>0.736</b>	0.228	0.279	-0.065	0.028	-0.109
E10	-0.214	0.153	<b>0.678</b>	0.303	0.150	0.144	0.027
E22	0.394	0.086	<b>0.633</b>	0.112	-0.078	0.402	0.218
E24	0.369	0.331	<b>0.611</b>	0.077	0.209	-0.215	0.026
E21	0.445	0.027	<b>0.611</b>	0.085	-0.074	0.140	0.225
E25	0.318	0.363	<b>0.593</b>	0.174	0.182	-0.189	-0.096
E9	0.374	0.057	0.127	<b>0.785</b>	0.073	-0.044	0.161
E2	0.400	0.080	0.133	<b>0.684</b>	-0.124	0.052	0.009
E1	0.332	0.152	0.289	<b>0.641</b>	-0.103	0.076	0.150
E12	0.022	0.015	0.030	-0.020	<b>0.914</b>	0.031	-0.091
E11	-0.073	0.041	0.101	-0.027	<b>0.905</b>	0.115	-0.141
E13	0.483	0.028	0.057	-0.085	<b>0.550</b>	0.046	0.333
E3	0.030	0.101	0.139	0.053	0.035	<b>0.884</b>	0.113
E4	0.180	0.074	-0.035	0.008	0.157	<b>0.802</b>	-0.254
E8	-0.008	0.179	0.007	0.001	0.194	0.238	<b>-0.735</b>
E6	0.297	0.249	0.237	0.322	-0.052	0.149	<b>0.606</b>
E7	0.308	0.229	0.122	0.425	0.113	0.151	<b>0.589</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.<sup>a</sup>

a. Rotation converged in 7 iterations.

Table 8 shows items that constructed each of the 7 factors extracted from the external variable of tourism development in the pine forest of Gelagahlinggah. There are 8 items that constructed the first factor, 5 items that constructed the third factor, and 2 items that constructed the sixth

factor, while the rest are constructed each by 3 items. Items that constructed the first items are E16, E15, E19, E20, E14, E18, E17, E23 and E5. The second factor constructed by E26, E27 and E28. The third factor constructed by E10, E22, E24, E21 and E25. The fourth factor constructed by

E9, E2 and E1. Item E12, E11 and E13 constructed the fifth factor. Item E3 and E4 constructed by E3 and E4, while items E8, E6 and E7 constructed the seventh factor.

With the composition of item constructed each factor has been known, a name for those factors can then be prepared. The name of those factor are as follows:

1. There are stakeholders who are available to help in conserving and developing tourism potentials of pine forest of Gelagahlinggah.
2. Electricity and internet are available inside the pine forest.
3. Fresh-water supply are available and can be piped into the pine forest.
4. The attraction available at the pine forest will attract domestic and foreign visitor.
5. Conservation role of the forest will hold back the development of tourism in the forest
6. There are similar attractions available near the pine forest of Gelagahlinggah.
7. The road to get to the pine forest of Gelagahlinggah is quite dangerous.

The 7 factors that has been named above are the opportunities and the threats of tourism development of Gelagahlinggah pine forest. There are 4 opportunity out of the 7 factors, while the rest are considered the threats. The opportunities are the first to the fourth factors, while the fifth to the seventh factor are the threats.

Stakeholders are very important for development of tourism as their opinion can influence the vision of the development as well as the strategy to achieve that vision (Duglio, et al., 2019). It is very important to always consult the stakeholder since it will ensure the goal of tourism development to be achieved (Hardya & Pearson, 2017; Manaf et al, 2018) There are different concepts of stakeholder, ranging from the triple-helix, the quadruple-helix

and the penta-helix. The government, the industry and the academia are those made up the triple-helix (Etzkowitz & Leydesdorff, 2000). To those three party, civil participant was added, and the four of them were then called the quadruple-helix (Goddard & Kempton, 2016). Four (4) out of 5 of the penta-helix are the same with those which made up the quadruple-helix, with the addition of social entrepreneur/activist/bricoleurs/assemblers as its fifth party (Calzada & Cowie, 2017; Calzada, 2020).

Experience from previous community engagement shows that stakeholder of tourism development at Gelagahlinggah Pine Forest consist of the local community, the government, *KPH Bali Timur* (Forest Management Unit of Eastern Bali) and the academia. As tourism academia who conducted the community engagement, we have been trying to place all of those stakeholders at the same position. Even so, the difference in power between those stakeholder (Saito & Ruhanen, 2017) are always visible. The community with their bottom-up initiative to develop their tourism potentials will always have to secure agreement from *KPH Bali Timur* for every plan they have for the pine forest. The community will always try to seek guidance from the academia on how to best develop the tourism potentials. Those condition shows the difference in power of the stakeholder, making collaboration between those stakeholders as the very fundamental for the successful of the tourism development at Gelagahlinggah Pine Forest.

As the facilitator, government has provided road, electricity, water supply and the internet to be available at the village and also in the forest of Gelagahlinggah. This is important since availability of those infrastructure are important to accelerate tourism facility development (Wijaya & Damanik, 2020; Vindiana, Novani, Mayangsari, & Alamanda, 2020). The very supportive *KPH Bali Timur* was also

playing a very important role in making sure that the bottom-up initiative from the local community of Gelagahlinggah Customary Village will always be supported as long as it does not violate the conservation role of the forest.

Series of community engagement, research and involving students in both processes conducted by academia presenting opportunity for the development of tourism at Gelagahlinggah Pine Forest. On the other hand, those activities will provide opportunity for academia to play its role in sharing knowledge (Arraiza, et al., 2018) and co-creation (Rinaldi, Cavicchi, & Robinson, 2020) of tourism destination on a long-term collaboration, showing an evolution of stakeholder collaboration (Rinaldi, Cavicchi, & Robinson, 2020), while providing themselves with source of material for teaching, case study and also future research.

Support from all those stakeholder are very important to overcome threats possesses by the forest in developing tourism. By expanding the collaboration with another stakeholder such as the private sector, there is a good chance that the collaboration will come up with an idea on how to develop a competitive advantage to make Gelagahlinggah Pine Forest stand out among the similar attractions.

**Strategy Formulation**

Having extracted the strength, weakness, opportunity and strength (SWOT) indicating the tourism potentials of tourism development for pine forest of Gelagahlinggah, the first phase of analysis has been finished. The next phase is matching those strengths, weaknesses, opportunities and threats in the SWOT Matrix to produce strategies suitable to develop those tourism potentials. The SWOT Matrix are as follows:

**Table 9.** SWOT Matrix of Strengths, Weakness, Opportunities and Threats from The Result of The First Phase of Analysis

<p style="text-align: center;">INTERNAL</p> <p style="text-align: center;">EXTERNAL</p>	<p>Strength:</p> <ol style="list-style-type: none"> <li>1. Tracking is the most suitable activity that will maximize the experience of visitor in enjoying landscape, panorama and cool weather of the Pine Forest of Gelagahlinggah.</li> <li>2. Outbond, glamping and camping are also suitable to develop at Pine Forest of Gelagahlinggah due to its vegetation, cool weather, panorama and landscape.</li> <li>3. The landscape and temperature of the Pine Forest of Gelagahlinggah suitable for wellness activity such as yoga and meditation.</li> <li>4. The flora and fauna of Pine Forest of Gelagahlinggah are its uniqueness.</li> </ol>	<p>Weakness:</p> <ol style="list-style-type: none"> <li>1. The flora, fauna and the slope of Pine Forest of Gelagahlinggah are its obstacles in developing tourism activities.</li> <li>2. The slope of Pine Forest of Gelagahlinggah is its obstacle to develop yoga and meditation.</li> </ol>
<p>Opportunity:</p> <ol style="list-style-type: none"> <li>1. There are stakeholders who are available to help in conserving and developing tourism potentials of Pine Forest of Gelagahlinggah.</li> </ol>	<p>S-O Strategy</p> <ol style="list-style-type: none"> <li>1. Prepare tracking treks that integrate conservation and education on the pine tree and the forest. (S1, O1)</li> <li>2. Determine location and prepare area for outbond, camping and glamping with supervision from the <i>KPH Bali Timur</i>. (S2, O1, O2, O3).</li> </ol>	<p>W-O Strategy</p> <ol style="list-style-type: none"> <li>1. Select the best possible location to minimize danger brought by the flora and fauna with supervision from <i>KPH Bali Timur</i> (W1, O1).</li> </ol>

<p>2. Electricity and internet are available inside the pine forest.</p> <p>3. Fresh-water supply are available and can be piped into the pine forest.</p> <p>4. The attraction available at the pine forest will attract domestic and foreign visitor.</p>	<p>3. Prepare products on camping and glamping with supervision from stakeholders. (S2, O1, O2, O3).</p> <p>4. Prepare area for Yoga and Meditation with supervision from <i>KPH Bali Timur</i> (S3, O1, O2, O3)</p> <p>5. Prepare interpretation on the role and benefit of pine tree with supervision from academia. (S4, O1)</p>	<p>2. Select the best possible location, suitable for yoga and meditation practice, with supervision from the stakeholders. (W2, O1, O2, O3).</p>
<p>Threat:</p> <p>1. Conservation role of the forest will hold back the development of tourism in the forest</p> <p>2. There are similar attractions available near the pine forest.</p> <p>3. The road to get to the Pine Forest of Gelagahlinggah is quite dangerous</p>	<p>S-T Strategy</p> <p>1. Focusing the product on responsible tourism activity that combining tourism with education and conservation as its core (S1, S2, S3, T1).</p> <p>2. Developing Pine Forest of Gelagahlinggah as solely a sustainable tourist attraction which will focus more on quality (S1, S2, S3, T2, T3)</p>	<p>W-T Strategy</p> <p>1. Prepare only products that in line with the conservation role of the pine forest on the location permitted by the <i>KPH Bali Timur</i>. (W1, W2, T1)</p>

Based on the SWOT Matrix above, the research was able to produce 4 sets of strategies to develop tourism at Gelagahlinggah Pine Forest. Those strategies have been presented before the community of Gelagahlinggah Customary Village and *KPH Bali Timur* on a presentation session held on November 2<sup>nd</sup>, 2020. The aim of the session was to gain other perspective on the strategies that have been produced based on the strengths, weaknesses, opportunities and threats. The session was productive where suggestions and additional informations was yielded to added to the research result. The session was also confirmed that the community of Gelagahlinggah Customary Village will focus on the S-O Strategy, especially the first strategy that require them on focusing to prepare a better tracking treks with emphasize on education of importance of pine forest conservation as well as the ecological, health and economical role of the pine tree, under supervision from the *KPH Bali Timur*. Willingness of the authority, especially *KPH*

*Bali Timur* in allowing the community of Gelagahlinggah Customary Village to develop trekking tourism in the forest is showing a paradigm shift from top-down to bottom-up approach (Islam, Ruhanen, & Ritchie, 2017). This shift will lead to empowerment and better life satisfaction of local people (Pujiastuti, 2019; Abdillah, Leewellyn, & Yadisaputra, 2020) of Gelagahlinggah Customary Village. This is important because empowering local community and ensuring their wellbeing can be the difference in achieving sustainability through community-based tourism (Piartrini, 2018), as well as in achieving a better destination governance and better conservation of the forest.

## CONCLUSION

The research result shows that there are 4 strengths and 2 weaknesses of tourism development at Gelagahlinggah Pine Forest. The result also shows that there are 4 opportunities and 3 threats indicating the tourism potentials of Gelagahlinggah Pine

Forest. SWOT Matrix of those strengths, weaknesses, opportunities and threats was able to produce 4 sets of strategies.

S-O strategies are the set of strategy that had been chosen to be implemented for the development of tourism in the area. The selection of the S-O strategies was based on assumption that these strategies are those that will maximize the possibility of success, since it relied on the strengths, to take the opportunities available for developing tourism at the pine forest of Gelagahlinggah. The stakeholder had chosen S-O strategy number 1 (Prepare tracking treks that integrate conservation and education on the pine tree and the forest) as the strategy that will be implemented first, due to its implementation that will not require a strong financial capacity, something that is still lacking for developing tourism at Gelagahlinggah Pine Forest.

The choosing of the first strategy of the S-O strategy was something of a mutual agreement between stakeholders. Even though this was done with careful consideration, still this is the limitation of the research. To better select the strategy, it is better to conduct another research to prioritize those S-O strategies based on its performance on selected strategy criteria. Therefore, this article recommended to conduct the next research in prioritizing the strategy for developing tourism in Gelagahlinggah Pine Forest.

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