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Tourism Development Priorities in Lombok Eastern with Analytical Hierarchy Process

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ABSTRACT

East Lombok is a regency that has tourism potential to be developed. In accelerating the pace of tourism development in East Lombok Regency, a decision support system is needed to make it easier to determine development priorities in the tourist sector. Analytical Hierarcy Process is a decision-making method that can solve the problem of multi-criteria in the aspect of tourism in East Lombok. The data used are 50 data by prioritizing the opinions of experts and policy makers, namely the East Lombok Tourism Office, Head of tourism awareness groups and people involved in the tourism sector. The results showed that the value of index consistency was below 10% for each indicator and sub-indicator with infrastructure indicators as the highest priority with a value of 29.4545% and the highest sub-indicator was accessibility with a value of 17.8381%. The result of the calculation are expected to help policy makers in determining the strategy in the development of the tourism sector in East Lombok district and in the future it can be developed by considering other factors.

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A. INTRODUCTION

One of the country's economic growth is influenced by the development of tourism (Asonitou & Kottara, 2019; Sulistyo, 2021). Tourism is considered as an alternative in the economic sector to accelerate poverty reduction in Indonesia and is believed to not only be able to become a mainstay sector in an effort to increase the country's foreign exchange, but also able to alleviate poverty (Yoeti, 2008). This is in line with those listed in the Indonesian Law No.10 of 2009 concerning Tourism which states that tourism is aimed at increasing national income in order to improve the welfare and prosperity of the people, expand and equalize opportunities for business and employment, encourage regional development, introduce and utilize tourist attractions and attractions in Indonesia and foster a sense of love for the homeland and strengthen friendship between nations (Yodhoyono, 2009).

The emergence of various tourism supporting industries is the impact of increasing tourist visits (Connelly, 2018). This signal is one of the reasons for the need for serious attention in tourism development. Several studies explain that tourism has become part of people's

lifestyles (Leith, 2020) and is able to reduce negative emotions in a person (Saini & Arasanmi, 2020). If the tourism sector in Indonesia is developed properly, it will be a catalyst in development in Indonesia (Yoeti, 2008). The Covid-19 outbreak in the last 3 years has certainly hit the tourism industry in Indonesia. But by ignoring that matter, it was noted that the growth in the number of foreign tourist visits to Indonesia every year always increased in the period from 2007 to 2016. In the 2017 and 2018 periods, the number of foreign tourist visits to Indonesia reached 14,039,799 in 2017 and increased to 14,273,074 in 2018 (Badan Pusat Statistik, 2019a).

Tourist areas must have attractions that can be offered to tourists, such as natural beauty, culture, cuisine and other attractions (Priatmoko et al., 2021; Purnomo et al., 2021). Marketing activities do not only focus on tourist attraction and visitors, but also various matters related to tourist interests, tourist safety, and tourist comfort (Al-Msallam, 2020). Creating tourists who are loyal and have a positive perception is a challenge that must be faced by tourism managers. Tourists are unique individuals, because no marketer is able to ensure that the products offered to tourists will be liked (Wang et al., 2021). The needs and expectations of tourists should not be ignored, because tourists are parties that must be considered. New breakthroughs and innovations need to be made by managers, in generating positive perceptions of the attractions offered (Dearing & Singhal, 2020; Rogers, 1983). However, tourism cannot stand alone, therefore attention and cooperation from all parties are needed in creating sustainable tourism (Mainolfi & Marino, 2020). The attention given by the Government does not necessarily make tourism object managers sit idly by and leave it entirely to the Government. Tourist attraction managers must play an active role in providing the best service for tourists (Zhan et al., 2021).

West Nusa Tenggara (called NTB) is a province consisting of two large islands, namely, Lombok Island and Sumbawa Island and surrounded by small islands (called Gili) making NTB has the charm of natural beauty. The potential of NTB is not only it natural beauty, but also a variety of cultures, culinary, arts and others, making NTB a tourist destination in Indonesia. Increasing tourism in NTB has a very big role in improving the regional economy. In 2017 economic growth in NTB reached 7.1% surpassing national economic growth of 5.6% (Badan Pusat Statistik, 2019b). East Lombok Regency is one of the areas that has various potentials in the field of tourism, according to the East Lombok Regency Tourism Office there are 106 tourist attractions spread across various sub-districts, such as natural areas located at the foot of Mount Rinjani, namely, Otak Kokoq Waterfall, Jeruk Manis Waterfall, Agro Sembalun. There are also beach tours in Gili, namely, Pink Beach, Paradise beach, Gili Sulut, Gili Lampu, and others, this number is certainly a great opportunity in attracting domestic and foreign tourists to visit. With all the potential that exists in East Lombok, it should be able to have a significant impact on the economic growth of the community but in fact tourism in East Lombok has not been able to realize good tourism conditions and has not been able to contribute to economic growth due to various problems.

East Lombok Regency Tourism Office as an agency that has the duty and authority to organize local government affairs in the tourism sector. The Tourism Office is certainly responsible for the development of tourism in East Lombok Regency, for that a strategic plan is needed as a step to develop tourism potential in East Lombok. The development of existing

tourism potential must be carried out jointly between the Regional Government and all parties (Putra et al., 2021; Wiweka et al., 2021). Managers must pay attention to preparing supporting facilities and facilities as an effort to meet tourist needs, increase financial benefits and be able to create repeat visits (Al-Msallam, 2020). The policies taken will affect all sectors in society, including security and economic stability (Purnomo et al., 2021; Roziqin et al., 2021). Synergy is needed in designing and obtaining an effective tourism marketing policy formula (Roziqin et al., 2021). One of them is by developing effective policy-making strategies by determining development priorities in important sectors to develop tourism. The policy-making strategy carried out by the Tourism Office is expected to attract domestic and foreign tourists to visit NTB, especially East Lombok Regency as a tourist destination.

Motivated by some of the conditions that have been described above, an alternative strategy for developing the right tourism in order to make decisions on the policy and management of the tourism sector in East Lombok Regency is needed. In this research process, the Analytical Hierarchy Process method is used. Analytical Hierarchy Processes can simplify complex problems by forming a hierarchy to determine problem priorities (Saaty, 1993). The Analytic Hierarchy Process (AHP) has been widely used for economic, political, social and corporate decision making (Saaty, 1980; Saaty et al., 2013; Saaty, 2001; Kohara et al., 2016). Among the multi-criteria decision-making methods, the Analytic Hierarchy Process (AHP) method is considered effective for considering quantitative and qualitative conditions and variables simultaneously (Ho & & Ma, 2017; Saaty, 2008). Compared to other decision-making methods, the Analytical Hierarchy Process can simplify broad and unstructured (complex) tourism problems into a flexible and easy-to-understand model. The results of the analysis obtained with the Analytical Hierarchy Process can also produce more consistent results compared to other methods and can be the basis for determining strategies for tourism development in East Lombok Regency.

B. METHODS

The Analytical Hierarcy Process (AHP) method is a technique for supporting decision-making processes that aims to determine the best choice of several alternatives that can be taken. AHP was developed by Thomas L. Saaty in the 1970s, and has undergone many improvements and developments to date. The advantage of AHP is that it can provide a comprehensive and rational framework in structuring decision-making problems. AHP is one of the methods to solve the problem of Multi Criteria Decision Making (MCDM). The Multi-criteria Decision Analysis (MCDA) methods have been widely used because they are scientific and subjective, and are able to aggregate all the characteristics that are considered important, including non-quantitative ones, with the enabling transparency purpose and process systematization related to decision-making problems (Pinto Junior & Soares de Mello, 2013; Santos et al., 2021). The basic concept of the AHP method is to decompose complex multi-factor or multi-criterion problems into a hierarchy. Hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is the goal, followed by the level of factors, criteria, sub-criteria, and so on down to the last level of the alternative. With hierarchy, a complex problem can be decomposed into groups of groups which are then arranged into a form of hierarchy so that the problem will appear more structured and

systematic. In this study, we will show you how to apply AHP manually and with the system we designed. There are three main principles in problem solving in AHP, namely: Decompositiot, Comparative Judgement, and Logical Concistency. Broadly speaking, AHP procedures include the following stages:

1. Decomposition of problems;
2. Weighting to compare the elements of the electorate;
3. Matrix preparation and consistence test;
4. Prioritization of each hierarchy;
5. Cystesis of priority; and
6. Decision making/making.

In (Saaty, 1990) the pairwise comparison assessment procedure in the AHP refers to the scoring that has been developed as shown in Table 1.

Table 1. Paired Comparison Assessment Procedures in AHP

Intensity Interests	Information
1	Both elements are equally important.
3	A little more important.
5	Quite important.
7	Much more important.
9	Absolutely more Important.
2,4,6,8	The middle value between the two values of the decision is close together.

In data retrieval, for example by using questionnaires, multiple comparison procedures can be done using questionnaires in the form of matrices or differential semantics shown in Table 2.

Table 2. Matrix Questionnaire Example

Criteria/Alternative	1	2	3	n
1		.../...	.../...	.../...
2			.../...	.../...
3				.../...
n				

The number of sell that must be filled is $n(n-1)/2$ because the reciprocal matrix of diagonal elements is worth = 1, so it doesn't need to be filled. In Example above $4\ (4-1)/2 = 6$, so only the white part is filled. Here is an example of a differential semantic questionnaire shown in Table 3.

Table 3. Semiatic of Differentials Questionnaire Examples

Criteria/ Alternative	Paired interest level weight																	Criteria/ Alternative
1	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	2
1	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	3
1	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	n
2	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	3
2	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	n
3	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	n
N	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	n_i

In this type of questionnaire, the priority of tourism development is circled / cross based on its weight, if the left side is more important than the right side then the number circled is 9-1 on the left segment and vice versa. To get priority results, there are several stages in the process of finding the priority value of each indicator in the completion of ahp, in this case the proses of the search for priority value of tourism development in east Lombok regency is shown in Figure 1.

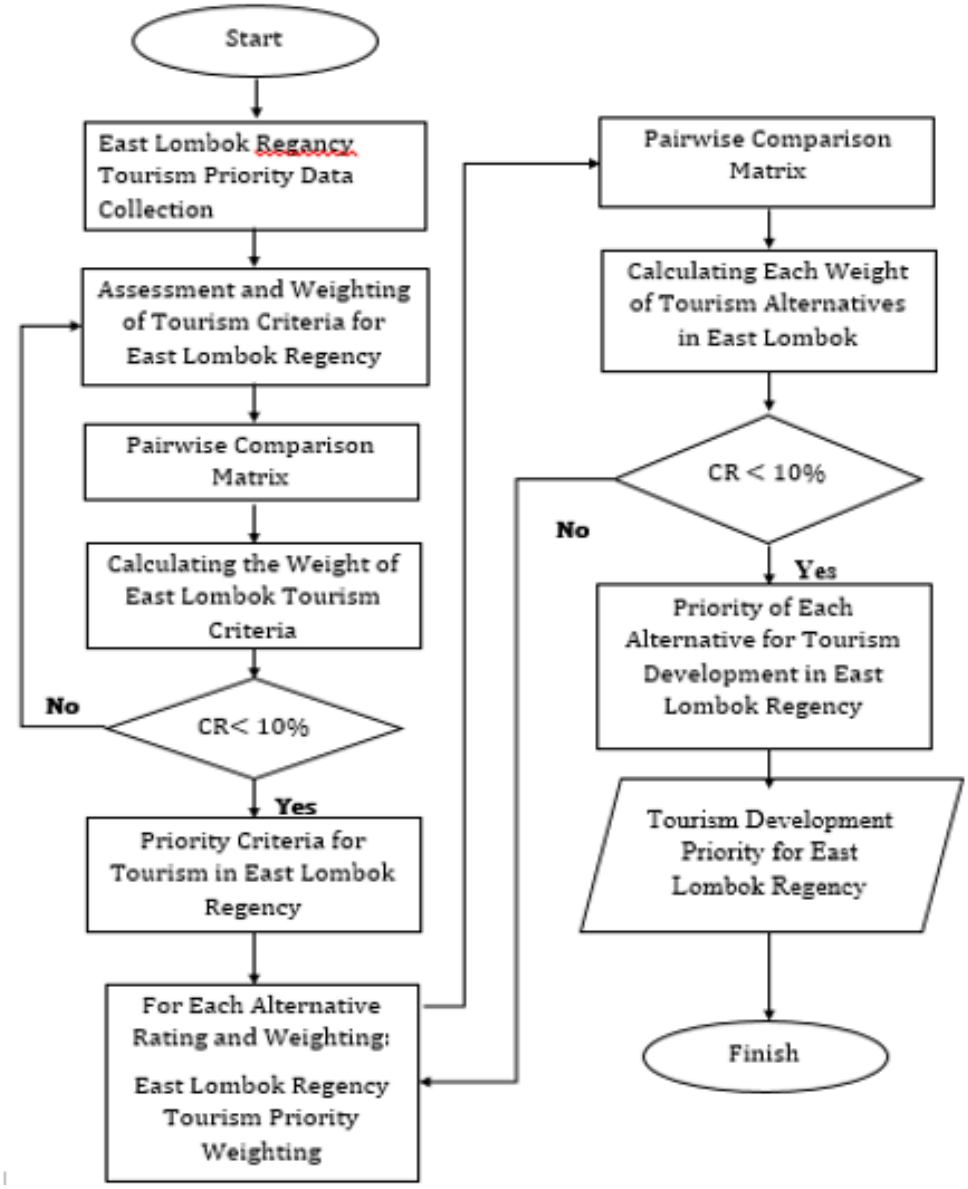

Figure 1. AHP process flow

As for the Preparation of Matrix and AHP Consistency Tests, they are as follows:

The first step: is to unite the opinions of several questionnaires, if the questionnaire is filled by experts, then we will unite the opinions of experts using geometric average equations. Relative comparisons require a ratio scale. With a ratio scale, geometric means rather than arithmetic means are preferred for averaging to obtain results that have mean the same thing for each opinion. This is shown in Equation 1. The n^{th} root of the n multiples provides a means of combining the n opinions while maintaining the relationship of a_{ij} always equals $1/\ a_{ij}$ (Repetski et al., 2022). Critical relationships between cells are lost if this is not observed:

$$\text{GM} = \sqrt[n]{(X_1)(X_2)(X_3)(X_n)} \quad (1)$$

Where GM is Geometric Mean, X_1 is 1st data, X_2 is 2nd data, X_3 is 3rd data and X_n is n^{th} data.

Step two: compile a comparison matrix, shown in Table 4.

Table 4. Comparison Matrix

Criteria/Alternative	1	2	3	n
1	1	GM_{12}	GM_{13}	GM_{1n}
2	GM_{21}	1	GM_{23}	GM_{2n}
3	GM_{31}	GM_{32}	1	GM_{3n}
n	GM_{n1}	GM_{n2}	GM_{n3}	1

Before going further to the iteration for prioritization on alternative options or determination of the level of importance of criteria, then previously conducted a consistency test. Consistency tests are performed on each questionnaire/expert who assesses or provides weighting. Questionnaires or experts who do not qualify consistently can be disallowed or shortened for improvement. The basic principle of this consistency test is that if **A** is more important than **B**, then **B** is more important than **C**, then it is impossible for **C** to be more important than **A**. The benchmark used is CI (Consistency Index) versus Random Consistency Index (RCI) or CR (Consistency Ratio). The Random Consistency Index (RCI) (Saaty, 1980) commonly used for each order matrix shown in Table 5.

Table 5. Random Consistency Index (RCI)

Matrix sequence	1	2	3	4	5	6	7	8	9	10
RCI	0,00	0,00	0,58	0,90	1,12	1,24	1,32	1,41	1,45	1,49

Step three: the consistency test is first done by compiling the level of relative importance on each criterion or alternative expressed as normalized relative weight. This normalized relative weight is a relative value weight for each element in each column that is compared to the sum of each element shown in Table 6.

Table 6. Relative Value Weight

Criteria/Alternative	1	2	3	n
1	1	GM_{12}	GM_{13}	GM_{1n}
2	GM_{21}	1	GM_{23}	GM_{2n}
3	GM_{31}	GM_{32}	1	GM_{3n}
n	GM_{n1}	GM_{n2}	GM_{n3}	1
Σ	$\Sigma GM_{11\text{-}n1}$	$\Sigma GM_{12\text{-}n2}$	$\Sigma GM_{13\text{-}n3}$	$\Sigma GM_{n1\text{-}ni}$

Then the relatively normalized weights as shown in Table 7.

Table 7. Normalized Relative Weight

Criteria/ Alternative	1	2	3	n
1	$1/\Sigma GM_{11\text{-}n1}$	$GM_{12}/\Sigma GM_{12\text{-}n2}$	$GM_{13}/\Sigma GM_{13\text{-}n3}$	$GM_{1n}/\Sigma GM_{1n\text{-}ni}$
2	$GM_{21}/\Sigma GM_{11\text{-}n1}$	$1/GM_{12\text{-}n2}$	$GM_{23}/\Sigma GM_{13\text{-}n3}$	$GM_{2n}/\Sigma GM_{1n\text{-}ni}$
3	$GM_{31}/\Sigma GM_{11\text{-}n1}$	$GM_{32}/\Sigma GM_{12\text{-}n2}$	$1/\Sigma GM_{13\text{-}n3}$	$GM_{3n}/\Sigma GM_{1n\text{-}ni}$
n	$GM_{n1}/\Sigma GM_{11\text{-}n1}$	$GM_{n2}/\Sigma GM_{12\text{-}n2}$	$GM_{n3}/\Sigma GM_{13\text{-}n3}$	$1/\Sigma GM_{1n\text{-}ni}$

Furthermore, Eigen can calculate the normalization result factor by averaging the sum of each row in the matrix shown in Table 8.

Table 8. Eigenvectors (Priority Weight)

Criteria/ Alternative	1	2	3	N	Eigen vectors Priority Weight
1	$1/\Sigma GM_{11\text{-}n1}$	$GM_{12}/\Sigma GM_{12\text{-}n2}$	$GM_{13}/\Sigma GM_{13\text{-}n3}$	$GM_{1n}/\Sigma GM_{1n\text{-}ni}$	Rerate row1/n $(\widehat{X_1})$
2	$GM_{21}/\Sigma GM_{11\text{-}n1}$	$1/\Sigma GM_{12\text{-}n2}$	$GM_{23}/\Sigma GM_{13\text{-}n3}$	$GM_{2n}/\Sigma GM_{1n\text{-}ni}$	Rerate row2/n $(\widehat{X_2})$
3	$GM_{31}/\Sigma GM_{11\text{-}n1}$	$GM_{32}/\Sigma GM_{12\text{-}n2}$	$1/\Sigma GM_{13\text{-}n3}$	$GM_{3n}/\Sigma GM_{1n\text{-}ni}$	Rerate row3/n $(\widehat{X_3})$
n	$GM_{n1}/\Sigma GM_{11\text{-}n1}$	$GM_{n2}/\Sigma GM_{12\text{-}n2}$	$GM_{n3}/\Sigma GM_{13\text{-}n3}$	$1/\Sigma GM_{1n\text{-}ni}$	Rerate row4/n $(\widehat{X_n})$

Once the eigenvectors are obtained, they are subjected to consistency checking. This is an important step to evaluate the degree of reasonability of expert's judgments (Saaty, 2008). Therefore, a Consistency Index (CI) (Equation 2) is used, where n is the dimension of the pairwise comparison matrix.

$$\mathrm{CI} = \frac{\lambda\, max - n}{n-1} \tag{2}$$

Where CI is the consistency index and maximum $\boldsymbol{\lambda}$ is the largest Eigen value of the *n*-dotted matrix. The largest Eigen value is the number of results multiplied by the number of columns by the eigenvectors (Priority Weight). So that it can be obtained with the equation:

$$\lambda\, max = (\widehat{X_1})\, \Sigma \mathrm{GM}_{11-\mathrm{n}1} + (\widehat{X_n})\, \Sigma GM_{12-n2} + \ldots + (\widehat{X_n}) \Sigma GM_{1n-ni} \tag{3}$$

After obtaining the $\boldsymbol{\lambda}$ maximum value can then be determined ci value. If the CI value is zero (0) it means the matrix is consistent. If the CI value obtained is greater than 0 (CI>0) then tested the inconsistent limit applied by Saaty. Testing is measured using Consistency Ratio (CR), i.e. index value, or comparison between CI and RCI:

$$CR = \frac{CI}{RCI} \tag{4}$$

The RCI value used corresponds to the order *n* matrix. If the CR matrix is smaller than 10% (0.1) it means that the inconsistency of each opinion is considered acceptable. If the CR value is higher than 10%, the evaluation must be updated because a degree of inconsistency that is too high which will lead to an error (Saaty, 2008; Jihadi et al., 2021).

C. RESULT AND DISCUSSION

1. Data and Data Set

This research was conducted by distributing the Semiatic of Differentials Questionnaire to policy makers and affected respondents in various regions, especially areas that are active in tourism activities in East Lombok Regency the AHP method has a dependency on its main input.

The main input in question is in the form of the perception or interpretation of an expert so that in this case it involves the subjectivity of the expert consisting of 50 people with various professions and organizations in the tourism sector as shown in Table 9.

Table 9. Respondent Profile

No	Respondent Profession	Total	Information
1	Head of Tourism Office	1	Expert respondents
2	Staff of the Head of Tourism Office	4	Expert respondents
3	Part of local government	4	Expert respondents
4	Tourism Activist Group	17	Expert respondents
5	Academics	8	Expert respondents
6	Tourism Affected Communities	16	Other

Based on research discussions with several related parties, especially the East Lombok Tourism Office as a decision maker by considering all aspects in internal tourism in East Lombok regency. Obtained criteria and alternatives shown in Figure 2.

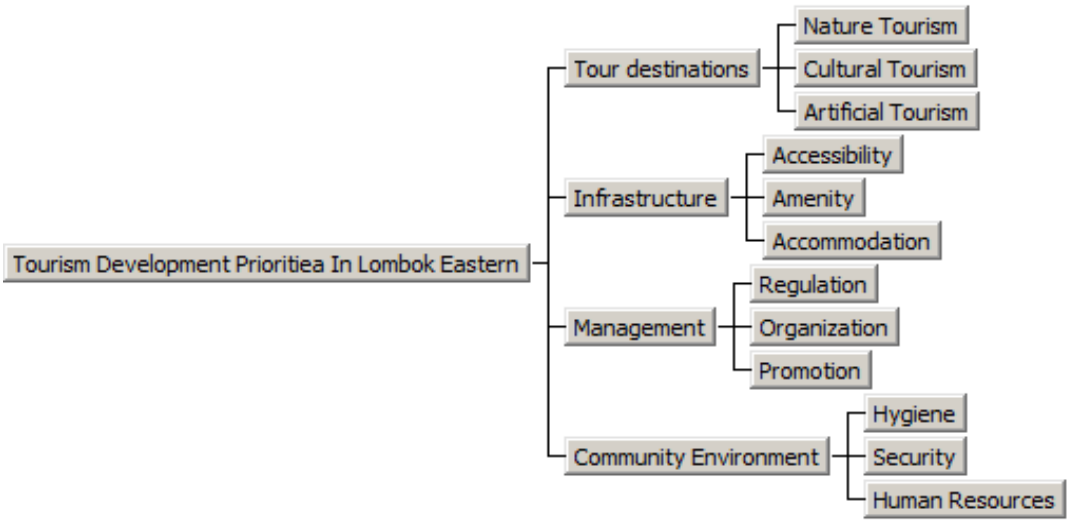

Figure 2. Hierarchical Structure of Tourism Development of East Lombok Regency

Paired comparison matrix obtained based on geometric mean of the respondent's statement is shown in Table 10 which is calculated by equation 1.

Table 10. Normalization of Paired Comparison Matrix Criterion Data

Criterion	Tour Destinations	Infrastructure	Management	Community Environment
Tour destinations	0,163791	0,169137	0,156311	0,165096
Infrastructure	0,285889	0,295220	0,303286	0,293783
Management	0,259405	0,240976	0,247560	0,247889
Community Environment	0,290915	0,294667	0,292843	0,293232

Here is the Normalization of Paired Comparison Matrix Data Per Indicator shown in Table 11.

Table 11. Normalization of Paired Comparison Matrix Data Per Indicator

Indicator (Tour Destinations)	**Nature Tourism**	**Cultural Tourism**	**Artificial Tourism**
Nature Tourism	0,419158	0,441128	0,379100
Cultural Tourism	0,360920	0,379837	0,421994
Artificial Tourism	0,219923	0,179035	0,198905
Indicator (Infrastructure)	Accessibility	Amenity	Amenity
Accessibility	0,606000	0,642153	0,568698
Amenity	0,181720	0,192561	0,232089
Accommodation	0,212280	0,165285	0,199214
Indicator (Management)	Regulation	Organization	Promotion
Regulation	0,345627	0,366338	0,328999
Organization	0,282187	0,299097	0,316721
Promotion	0,372186	0,334565	0,354280
Indicator (Community Environment)	Hygiene	Security	Human Resources
Hygiene	0,300515	0,286583	0,312529
Security	0,330338	0,315024	0,303567
Human Resources	0,369146	0,398393	0,383904

2. Apply AHP Manually And Count With System

To Complete AHP in this case used calculations by designing the system, in Microsoft Excel. The results of the designed system can be tested using the Expert Choice application. After obtaining the normalization value from Table 10 and Table 11, the eigenvectors (Priority Weight) will be obtained by finding the average of each row of the matrix that has been normalized so that with the value of eigenvectors (Priority Weight) will be obtained the following priority value shown in Table 12.

Table 12. Priority Value

Tour Destinations (0,163584)		**Infrastructure (0,294545)**	
Nature Tourism	0,067581	Accessibility	0,178381
Cultural Tourism	0,063402	Amenity	0,059534
Artificial Tourism	0,032600	Accommodation	0,056629
Management (0,248957)		Community Environment (0,292914)	
Regulation	0,086385	Hygiene	0,087838
Organization	0,074522	Security	0,092652
Promotion	0,088051	Human Resources	0,112425

After getting a priority value at each level of the Hierarchy, it must be tested for consistency ratio. Before calculating CI, it is necessary to find the maximum eigenvalue (λmax) by summing the multiplication of the number of columns with the Eigen vector. The maximum eigenvalues that can be obtained from the calculation of the criteria level using equation 3 are as follows:

$$\lambda\, max = (6{,}105353 \times 0{,}163548) + (3{,}387299 \times 0{,}294545) + 4{,}039429 \times 0{,}248957) \times 3{,}410266 \times 0{,}292914) = 4{,}001008$$

Here is the λmax value of each indicator shown in Table 13.

Table 13. λmax of Indicator

Indicator	$\lambda\, max$
Tour destinations	3.007932
Infrastructure	3.014119
Management	3.003033
Community Environment	3.001721

For the level of criteria to have variables (n) = 4 then the index consistency value (CI) obtained is:

$$\text{CI} = \frac{4{,}001008 - 4}{4 - 1} = 0{,}000336$$

Here is the CI value of each indicator as shown in Table 14.

Table 14. CI of Indicator

Indicator	CI
Tour destinations	0.003966
Infrastructure	0.007059
Management	0.001516
Community Environment	0.000861

Based on the results of the calculation of the CI value in Table 14, it can be calculated the CR value for each criterion/indicator. For the criteria level with n = 4, RCI = 0.9 then:

$$\text{CI} = \frac{0{,}000366}{0{,}9} = 0{,}00373$$

Here is the CR value of each indicator shown in Table 15.

Table 15. CR of Indicator

Indicator	CR
Tour destinations	0,006838
Infrastructure	0.012171
Management	0.002614
Community Environment	0.001484

Because the CR of each indicator is less than 0.1, the calculation of priority value at the criteria and indicator levels can be said to be consistent. The following are the result of calculation using Microsoft Excel compared to the Expert Choice application as shown in Table 16.

Table 16. Normalization of Paired Comparison Matrix Data Per Indicator

Criterion/Indicator	Priority Value on Microsoft.	CR Microsoft results	Priority Value on Expert Choice	CR Expert Choice results
Tour Destinations	0,163584	0,00373	0,164	0,00037
Nature Tourism	0,067581	0,006838	0,068	0,00698
Cultural Tourism	0,063402		0,063	
Artificial Tourism	0,032600		0,033	

Criterion/Indicator	Priority Value on Microsoft.	CR Microsoft results	Priority Value on Expert Choice	CR Expert Choice results
Infrastructure	0,294545	0,00373	0,295	0,00037
Accessibility	0,178381	0.012171	0,179	0,01
Amenity	0,059534		0,059	
Accommodation	0,056629		0,056	
Management	0,248957	0,00373	0,249	0,00037
Regulation	0,086385	0.002614	0,086	0,00287
Organization	0,074522		0,075	
Promotion	0,088051		0,088	
Community Environment	0,292914	0,00373	0,293	0,00037
Hygiene	0,087838	0.001484	0,088	0,00163
Security	0,092652		0,093	
Human Resources	0,112425		0,112	

D. CONCLUSION AND SUGGESTIONS

Based on the above description, in Table 16, it can be concluded that Infrastructure (29.4545%) especially in accessibility indicators (17.8381%) is the most important part of the tourism development process in East Lombok Regency. Infrastructure is the connecting sector between every important indicator in the development of a region. In addition to being a link for each sector, good infrastructure is also very vital in supporting the comfort of tourists in visiting. There are several things that need to be considered because the tourism sector in East Lombok has only received attention from the Regional Government and the community, so the making of this priority analysis is still fairly simple with only a few variables and indicators at the Hierarchy level so that it is far from perfect and further research needs to be done considering that at any time there can be changes in policies and situations and conditions that occur in the community. In addition, the Analytical Hierarchy Process method can also be modified and developed in different cases according to research needs so that it can solve more complicated and complex cases.

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