

AHP Application to Determine Priority of Sustainable Tourism Supply Chain Management

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Abstract. This study aims to find out which aspects are prioritized in the Supply Chains Management of Sustainability Tourism in Tanjung Karang Beach of Donggala District. The method used is the descriptive method. The type of data collected is quantitative and qualitative data. Source of data obtained from primary data and secondary data. Data collection techniques through observation, interviews, questionnaires, and documentation. Data analysis uses the Analytic Hierarchy Process (AHP) to determine the weight of each criterion and sub-criteria. The consistency test used has a level of consistency index (CI) = 0 and a consistency ratio (CR) = <10%. The results showed that the Economic Aspect is the most important element with a weight of 0.55, then the Environmental Aspect is the second priority with a weight of 0.24, and the last is the Socio-Cultural Aspect is the third priority with a weight of 0.21.

Keywords: *AHP, sustainable tourism supply chain management*

INTRODUCTION

Along with the development of increasingly developing times, since the last few years, many countries consider tourism to be a superior sector. Some experts conclude that tourism indirectly contributes to the economic development of a country or region in the form of increased income, employment opportunities, and equitable distribution of a region's facilities. The supply chain includes all activities related to the flow and transformation of goods and services from the raw material stage to the end-user (customer), as well as related information flows. The supply chain also integrates process groups to search, manufacture, and ship products [1].

Sustainable tourism according to the concept is managed tourism refers to qualitative growth, the intention is to improve welfare, economy, and

public health, improving the quality of life can be achieved by minimizing the negative impact of non-renewable natural resources. Five things that must be considered in sustainable tourism according to the concept Muller [2], namely 1) healthy economic growth, 2) welfare of local communities, 3) does not change the structure of nature, and protect natural resources, 4) the culture of a healthy growing community, 5) maximizing tourist satisfaction by providing good services because tourists, in general, have a high concern for the environment.

The supply chain is the physical network, namely companies involved in supplying raw materials, producing goods, or sending them to end-users, supply chain management is a method, tool, or approach its management [3]. One of the most important things in supply chain management is the sharing of information, therefore in the material flow, cash flow, and information flow [4]. Elements in the supply chain that need to be integrated [5].

Sustainable tourism is defined as all forms of tourism activity, management, and development that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources. Guidelines for sustainable tourism development and management practices apply to all forms of tourism in all types of destinations. The main objective of creating a sustainable tourism strategy for a particular region is defined as an increase in the number of tourists with the principles of sustainable development [6]. This goal can be achieved with several specific objectives, such as coordination of all parties involved in the development of tourism in the region, Inventory of regional tourism products, consideration of the interests of local communities and the environment in shaping tourism products and marketing activities, Marketing assessments and product perceptions by potential buyers, develop a vision, mission, and framework for marketing plan activities throughout the strategy, developing the same regional brand; developing tools to evaluate progress in implementing the strategy. Sustainability is considered in 3 contexts: economic, environmental, and socio-cultural, it is

necessary to divide the objectives of sustainable tourism also in these 3 aspects namely economic, social, and environment. Economic benefits Ensure the viability and competitiveness of regions and businesses to achieve long-term survival. Local prosperity Maximize the economic benefits of tourism for the local community, including the expenditure of tourists in the area. Job quality Increase the quantity and quality of work related to tourism in the local community, including wages, work environment, and employment opportunities without discrimination. social equality ensuring equitable and equitable distribution of social and economic benefits derived from tourism.

Sustainable tourism depends on the revenue which the portion derived from tourism activities. Investment Good utilization of space and investment that can create an environment that is sustainable, of good quality and adds to the economic stretch and vitality of people's lives. Business opportunities enhance the opportunities that exist in tourism such as opening hotels or inns, restaurants or restaurants, and so forth [7]. Community welfare builds community welfare including social infrastructure, access to resources, environmental quality and avoidance of social corruption and resource exploitation; Cultural property maintaining and developing cultural heritage, local culture, customs, and extraordinary nature of the host community. Meeting visitor expectations Providing a safe and enjoyable tour experience that will meet the needs of tourists and will be available to all. Local control Authority for planning and decision making in tourism management by local communities.

Cultural change plays an important role in attracting tourists to a destination, tourism offers economic incentives and social support for the maintenance and revitalization of various cultural activities. However, the production of traditional art for tourists often results in changes in cultural products. Community Involvement An important factor in the success and / or failure of the development process. Communities must be encouraged to be involved in the development process, where socio-economic benefits can be maximized. Community Conflict in the sphere of tourism there will be conflicts both between the community and the government or vice versa, society and the private sector or otherwise, as well as the private sector and the government or the like. Physical integrity Maintaining and developing landscape quality, both in urban and rural areas and preventing the formation of ecological and visual pollution. Biodiversity Promote and protect the environment, natural habitats, and wildlife, and minimize the impact of tourism on the environment. Effective waste management minimizes the use of scarce and non-renewable resources in tourism development. Clean environment Minimizes pollution of water, air, land, and reduction of waste generated by tourists and tour operators.

METHOD

This research uses a descriptive method which is a research method to explain or describe an object, condition, and events in this period and the future. Respondents consisted of 5 (five) people involving local government agencies, private parties, local communities, and visitors. This research was conducted in the tourist attraction of TanjungKarang Beach, Donggala Regency, Central Sulawesi Province. TanjungKarang Beach is one of the tourist destinations in Central Sulawesi. The advantage of the TanjungKarang Beach is that it has a white sandy beach where several other inns have already been established which are famous for their beautiful underwater ecosystems that visitors can enjoy while diving. Besides, TanjungKarang also has stunning natural scenery ranging from mountain views that can be seen in the shoreline, blue seawater, and sunrise that can be enjoyed in the morning.

Data analysis uses the Analytical Hierarchy Process (AHP) to see which aspects are preferred in Sustainable Tourism. In the Analytical Hierarchy Process (AHP), decision making is obtained by comparing in pairs the alternatives to be selected using a questionnaire. AHP handles various perspectives (criteria) and actions (sub-criteria) with a degree of different interests and translates the overall result into an integrated matrix. The results obtained are enabling managers to know various perspectives from performance appraisal and understand the possibility of failure [8]. AHP requires several steps to be taken as follows:

1. Arrange the hierarchy of a problem at hand. The problem to be solved must be broken down into its elements, namely criteria and alternatives which are then arranged into a hierarchical structure.
2. Assessing criteria and alternatives. Criteria and alternatives are assessed through pairwise comparisons for various problems. The scale used is scale 1-9 and is the best scale in expressing opinions.
3. Determine Priorities. The relative comparison values are then processed to rank alternative alternatives for all alternatives.
4. Logical Consistency. The important thing in making decisions is knowing how good consistency is so that you don't make decisions based on considerations with low consistency.

RESULT & DISCUSSION

Deciding AHP need to identify the main criteria and sub-criteria as well as alternative as the critical elements [1]. This research identifies several criteria, namely economic aspect (EA), social and cultural aspect (SCA), and environmental aspect (EA). Economic aspects are the main priority with a

weight value of 0.55. Next, the second priority is the environmental aspect with a weight of 0.24. The last priority is the socio-cultural aspect with a weight of 0.21.

Table 1. Pairwise Comparison Matrices the Main Criteria of Sustainable Tourism Supply Chain Priorities

Criteria	EA	SCA	EA	Priority vector	Results	Priority Vector
EA	1,00	3,00	2,00	0,55	1,662121	3,030387
SCA	0,33	1,00	1,00	0,21	0,634343	3,011990
EA	0,50	1,00	1,00	0,24	0,725758	3,012579

Sub Criteria

Economic Aspect (EA)

The economic aspect has six criteria in this research, namely, business opportunity (BU), investment (I), revenue (R), local prosperity (LP), social equality (SE), economic profit (EP).

Table 2. Weight and Rank of Economic Aspect

Criteria	BU	I	R	LP	SE	EP
Weight	0,23	0,24	0,17	0,15	0,14	0,08
Rank	II	I	III	IV	V	VI

The priority of interests in the economic aspect sub-criteria above shows that investment is the main priority with a weight of 0.24. Then, the second priority is a business opportunity with a weight of 0.23. Following that, the third priority is revenue with a weight of 0.17. The fourth priority continues to be local prosperity with a weight of 0.15. Then the fifth priority is social equality with a weight of 0.14. The last priority is economic profit with a weight of 0.08.

Socio-Cultural Aspect (SCA)

Table 2. Weight and Rank of Socio-Cultural Aspect

Criteria	CP	CI	CCof	CCh	PI	ME
Weight	0,32	0,21	0,05	0,13	0,14	0,16
Rank	I	II	VI	V	IV	III

The priority of interests in the sub-criteria of Socio-Cultural Aspects above shows that cultural property (CP) is a top priority with a weight of 0.32. Then the second priority is community involvement (CI) with a weight of 0.21. Next, the third priority is meeting the expectations of visitors (ME) with a weight of 0.16. The fourth priority is the protection of inheritance (PI) with a weight of 0.14. Then the fifth priority is cultural change with a weight of 0.13. The last priority is community conflict (CC) with a weight of 0.05.

Table 2. Weight and Rank of Environmental Aspect

Criteria	MB	BC	PI
Weight	0,47	0,43	0,10
Rank	I	II	III

Environmental Aspect (EA)

The priority of interest in the Environmental Aspect sub-criteria above shows that marine biota (MB) is the main priority with a weight of 0.47. Whereas, beach cleanliness (BC) is the second priority with a weight of 0.43. The last priority is physical integrity (PI) with a weight of 0.10.

CONCLUSION

Along Based on the research that has been done, it can be concluded that: The value given by respondents to the four aspects after the highest average of 3 (slightly more important) shows that aspects of tourism are equally important but there are more important things prioritized for sustainability tourism. Assessment criteria using a questionnaire with AHP calculations, then the results obtained from the calculation of the three criteria for the sustainable tourism supply chain in TanjungKarang Beach. The results obtained are the Economic Aspect is the priority with a weight of 0.55, then the Environmental Aspect is the second priority with a weight of 0.24, and the last socio-cultural Aspect is the last priority with a weight of 0.21.

In the sub-criteria of Economic Aspects, the highest priority is an investment with a weight of 0.24 that can support income in the region and the community while the last priority is economic benefits with a weight of 0.08 which is just as important as other sub-criteria, only the economic benefits themselves only ensure continuity live long term. For sub-criteria on Social Culture aspects, the highest priority is the cultural Wealth with a weight of 0.32 with the existing culture and continues to be preserved in TanjungKarang tourism object while the last sub-criterion is Community conflict with a weight of 0.05 which community conflict is not it can also be ignored, except that there has never been a conflict between stakeholders. Social engagement is very influential on the sustainability of tourism businesses in an area [9]. Another thing that can affect business sustainability is customer satisfaction when visiting a tourist destination and is willing to pay more for the operator's ability to maintain the authenticity of that destination [10].

The ability to communicate operators in conveying the advantages that will be obtained by tourists when visiting will be able to help the sustainability of tourism businesses [11]. Cruises to lean at ports close to tourist destinations can contribute greatly to the economy in the region

because tourists will go shopping and enjoy the situation in tourist destinations and surroundings [12]. To improve the business performance of tourism operators, they must have knowledge and skills in expanding the network. The network will provide access to network members to provide input and exchange information so that network members get the same added value [13].

In addition to the community around the tourist destination location will also get added value, businesses related to tourism can also increase their competitive advantage with other tourist destinations [14]. Part of procurement and supply chain activities in the tourism business sector is the most essential thing in increasing competitive advantage to increase visitor satisfaction [15]. If this can be done it will be able to contribute to the economic aspects of a region. There are three main issues in terms of the sustainability of tourism businesses, namely increased use of fossil fuels, climate change, and increased energy and water costs [16].

The last sub environmental criterion which is the highest priority is marine biota with a weight of 0.47 which is a high selling value because it is on a marine tour with natural beauty in the tourist object while the last priority is physical integrity with a weight of 0.10 between the other two sub-criteria of integrity physical importance is just the same but the sub-criteria of marine life and cleanliness is more important than physical integrity. From the results discussed, the researchers suggest that in sustainable tourism which includes the four aspects that are equally important and interrelated but prioritized, the priority is the economic aspect by inviting investors to invest capital in TanjungKarang tourism so that people and regions get income from investment returns. The second priority is environmental aspects while maintaining marine life and cleanliness in the Tanjung Karang environment. While the third priority is the socio-cultural aspect by preserving the existing culture and the culture in Donggala Regency as a selling point for tourists who will visit TanjungKarang.

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