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THE KEY SUCCESS FACTOR FOR SUSTAINABLE RURAL TOURISM DEVELOPMENT IN MADURA USING INTEGRATION OF THE IPA-KANO MODEL

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Article Info	Abstract
	The momentum for the rise of global tourism after the COVID-19 pandemic has become an opportunity for developing local tourism and Indonesia's creative economy. One of the promising tourism regions in Indonesia is Madura. The tourism potentials on the island of Madura are historical, religious, natural, and cultural. Unfortunately, Madura's tourism potential has not been fully utilized, and as a result, the benefits have not emerged to strengthen the Madurese community's economy. In addition, tourism development directions are also partial without looking at environmental sustainability, community welfare, and other social aspects. Therefore, this research was conducted to determine the key success factors of sustainable tourism by integrating the Important-Performance Analysis method with the Kano model. This study was conducted in Sampang, Madura, specifically in a tourist village called Bira Tengah. The result of the study is that the tourist village should adopt key success factors such as leading to maintaining the destination environment, improving the contribution of tourists and local communities in area conservation, increasing the competitiveness of tourist destinations, conducting more intensive tourism promotions, creating fun tourism activities, increasing participation of the community and stakeholders of tourist villages, using local and environmentally friendly materials, improving the cleanliness of destinations, disseminating local cultural information and increasing employment opportunities. The cultural factors are a highlight in improving sustainable tourism performance. In addition, to enhance tourism performance, it needs to benchmark with developed and autonomous tourist villages that have demonstrated success in sustainable tourism.

How to cite:

INTRODUCTION

Tourism is an alternative sector favored to boost the Indonesian economy amidst the sluggish industrial and trade sectors. Tourism is expected to increase its contribution to the Gross Domestic Product (GDP). During COVID-19, there has been a significant decrease in tourist visits by 87.8% (year on year) (Kemenparekraf, 2022). However, the Indonesian tourism sector is experiencing a gradual resurgence after the COVID-19 outbreak. The increase in tourist visits began at the beginning of 2022, with the number of foreign tourist trips to Indonesia increasing by 152% compared to January 2021 (Hutauruk, 2023). Meanwhile, the number of local tourist trips represents a 19.82% increase compared to the preceding year. Therefore, the Ministry of Tourism and Creative Economy of Indonesia is optimistic that the national tourism development programs are expected to attract 8.5 million foreign tourists, increase the movement of domestic tourists to reach 1.2–1.4 billion trips, and increase tourism foreign exchange by USD 10 Billion by 2023 (Kemenparekraf, 2022).

One of the promising tourism regions in Indonesia is Madura. Administratively, Madura is known as a region in the East Java province. It is separated from Java Island by the narrow Madura Strait. The government constructed the 5,438-kilometer Suramadu Bridge in 2009 as an accessibility gateway connecting the islands of Java (in Surabaya) and Madura (in Bangkalan). The tourism potentials of the isle of Madura are historical, religious, natural, and cultural, spread across the four regencies of Bangkalan, Sampang, Pamekasan, and Sumenep (Hanifah & Fitriyah, 2021). In addition, some famous tourist destinations are Karapan Sapi, Sape Sono, traditional dances, religious tourism, beach, and limestone hill views (Utomo, 2019). Madura is also famous for its culinary tourism, specifically satay and fried duck dishes.

Unfortunately, Madura's tourism potential has not been fully utilized, and as a result, the benefits have not emerged to strengthen the Madurese community's economy (Diskominfo East Java Province, 2015). Among the regencies in East Java province, the four regencies in Madura reveal high poverty rates. Notably, the regency of Sampang stands out, with the most significant proportion of impoverished people reaching 25.06%. The prevalence of poverty can be attributed to several factors, including low per capita income, limited access to education, a poor Human Development Index (HDI), and a lack of work opportunities (N. K. Sari et al., 2020).

Moreover, I. P. Sari et al. (2019) stated that the East Java province shows an average annual economic growth rate of 5.58%. In contrast, the regency of Sampang reports a modest economic growth rate of 3.26%. The HDI measurement indicates that Madura's overall development level is medium. However, it should be highlighted that the HDI for Sampang Regency is in the "low" category (58.54) (N. K. Sari et al., 2020). The HDI serves as a metric for assessing the influence of regional development performance, particularly economic growth. Therefore, it is essential for stakeholders, particularly the government, academics, and society, to engage in collaborative efforts aimed at developing the tourism sector for the welfare of the Madurese.

Unknowingly, all activities in the tourism industry can impact the environment and ecosystem (Pan et al., 2018). For instance, (1) CO2 emissions from global tourist travel reached around 1,302 million tons (Mt) of CO2, (2) the tourism industry has resulted in deforestation and endangered species, (3) minimal wastewater treatment, and (4) a lack of

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orientation towards the welfare of past and future communities (Astawa et al., 2018). As a result, sustainable tourism needs to be implemented to fulfill the needs of tourists and local communities while protecting their opportunities in the future through the development of the tourism sector.

According to the United Nations World Tourism Organization (UNWTO, 2016), sustainable tourism comprehensively considers the present and future economic, social, and environmental consequences. While also addressing stakeholders' requirements, such as tourists, the tourism industry, the natural surroundings, and the local community. Much literature has addressed sustainability issues extensively, typically about the growth of ecotourism, geo-tourism, sustainable tourism, and rural tourism (Shekhar, 2023). However, there needs to be more scholarly literature about sustainable tourist development in recent years, particularly concerning Indonesia (Kawuryan et al., 2022). In this way, tourism sustainability research in Indonesia still has excellent opportunities due to its strategic implications for the country.

Due to its considerable potential, developing Indonesia's sustainable tourism industry is essential. According to UNWTO guidelines, sustainable tourism development uses the Community-Based Tourism (CBT) pattern, local wisdom tourism development, tourist village development, and the partnership approach (Musaddad et al., 2019). The CBT approach has been widely promoted as a fundamental component of sustainable tourism development. CBT can be employed to evaluate the community's involvement and propose further actions (Zielinski et al., 2020).

The Bira Tengah tourist village in Sokobanah District is one of Sampang's most popular tourist destinations. The main attractiveness of the tourism industry in Indonesia lies in the pleasing appearance of its natural environment, including Lon Malang Beach. Lon Malang Beach is well-known for its clean white sand and shady pine trees along the coastline. In addition, the presence of tourist attractions such as cultural, culinary, and educational tourism enriches Bira Tengah as a tourist village. A tourist village traditionally integrates tourist attractions, supporting facilities, and accommodation (Hanifah & Fitriyah, 2021). Tourist villages are distinct rural areas with specific attributes that make them suitable for attracting tourists. Rural tourism is promising because of the ease with which visitors can access rural areas. There exist endeavors focused on enhancing rural development while concurrently prioritizing the principles of nature conservation. Strategies to sustain the rural economy are fostering investment, creating employment opportunities, and facilitating the establishment of new enterprises in rural areas. Finally, rural tourism possesses distinct characteristics and unique selling points, necessitating a heightened focus on preserving the rural area. Therefore, incorporating sustainable components into rural tourism is a significant movement to develop tourism (Polukhina et al., 2021).

Even though the Bira Tengah tourist village has become one of the most popular destinations, it has not been developed with sustainability in mind, as evidenced by the absence of integrated waste processing, inadequate sanitation, an issue in the quality of human resources in the tourism services sector, and limited community involvement in the planning and development of tourism sector. Additionally, increasing waste production, escalating water and energy consumption, and tourist behavior frequently adversely affect the physical environment and local culture (Sulistyadi et al., 2017). Nevertheless, rural tourism remains among the few economically feasible alternatives for rural areas.

The consideration of Key Success Factors (KSFs) is crucial in implementing sustainable tourism, as these elements facilitate effective and efficient policy development and implementation by tourism industries, specifically in the context of Bira Tengah village. KSFs refer to the specific attributes, circumstances, or variables that, when effectively upheld, preserved, or controlled, can substantially influence the achievement of a company engaged in competition within a specific industry (Leidecker & Bruno, 1984). Understanding tourist consumer behavior and travel characteristics is key to successful marketing (Juvan et al., 2017). This understanding enables a tourist destination to effectively and efficiently present tourism products and promotions by providing comprehensive information on consumer behavior. In addition, a study by Lun et al. (2016) stated that product and service characteristics, participatory approach, networking, visionary thinking, communication, and organization are key success factors identified in the development of rural mountain tourism.

In this research, we propose that the IPA-Kano model addresses the shortcomings of the Kano model by acknowledging the significance of attribute performance (IPA) and effectively mitigating its weaknesses. The Kano model has successfully integrated with other methodologies in several domains (Lizarelli et al., 2021). Therefore, this study integrates the Kano model into an IPA methodology to prioritize attributes. The attributes are called KSFs in a tourist village. Moreover, Wu et al. (2010) argued that integrating IPA and KANO successfully identified KSF in an enterprise to formulate appropriate strategies.

This paper is organized as follows: Section 2 presents a comprehensive research method employed in the study, including the design of the research instrument. Section 3 presents the findings and subsequent discussion, while Section 4 delves into the conclusions drawn from the study and their implications for managerial practices.

METHODOLOGY

This study employs a comprehensive methodology integrating Importance-Performance Analysis (IPA) and Kano's model to assess, define, and categorize the primary strengths and weaknesses of the vital success variables of the Bira Tengah tourist village. According to Martilla and James (1977), IPA is characterized by its easily understood, inexpensive, and ability to assist management in comprehending data and utilizing it for strategic decision-making. IPA produces the most crucial attribute of responsiveness. IPA enables the identification of attributes' strengths and weaknesses from the customers' perspective. IPA is achieved through the simultaneous evaluation of importance and performance. In addition, the Kano model was initially employed to enhance the quality of product development in the manufacturing sector, but it has subsequently found extensive application across diverse service industries (Lippitt et al., 2023). The KANO model is designed to enhance comprehension of consumer preferences, assess and comprehend quality characteristics, and prioritize traits that customers see as more significant to improve them (Kermanshachi et al., 2022).

The questionnaire was used to collect data from 100 tourists visiting the destination. The customer perspective is used to understand sustainable rural tourism because customer loyalty is essential for sustainability (An & Alarcón, 2020). The questionnaire comprehensively addressed all the sustainable tourism indicators and topic areas, consisting of 44 questions. Then, the data is processed through validity and reliability

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tests to ensure the instrument is accurate and consistent. Taherdoost (2016) suggested correlation analysis and Cronbach's correlation techniques to accomplish the instrument's validity and reliability tests. The data was subjected to statistical analysis to derive measures of frequency, percentage, mean, and standard deviation. The findings were displayed and accompanied by detailed explanations elucidating the content of the figures and tables.

According to Azzopardi and Nash (2013), the IPA possesses the capability to distinguish the key attributes that hold the greatest significance for customers, hence exerting the most substantial influence on their satisfaction. Additionally, IPA can effectively identify the characteristics that exhibit unsatisfactory performance and necessitate quick improvement. The IPA analysis uses a two-dimensional matrix, representing importance on the X-axis and performance on the Y-axis. This arrangement results in the formation of four quadrants.

The steps of Importance-Performance Analysis are as follows (Martilla & James, 1977):

1. Identifying the attributes to be measured. Attributes were determined based on the literature review, consisting of four variables with nineteen items shown in Table 1.
2. Distinguishing between the importance measure and the performance measure. Performance measurement on each item is conducted using a Likert-type scale of five numbers.
3. Placing the vertical and horizontal axes on the grid.
4. Calculating the median value, which serves as a measure of central tendency, is required.
5. Examining the important-performance grid:
    a. Quadrant 1 (maintain performance) is an area that shows high levels of expectations and performance.
    b. Quadrant 2 (exaggeration) is an area that shows a low level of expectations but a high level of performance.
    c. Quadrant 3 (low priority) is an area that shows low levels of expectations and performance.
    d. Quadrant 4 (top priority) is an area that shows a high level of expectations from indicators but a low level of performance.
6. The disparities observed in customer ratings have significant consequences for strategic decision-making.

Based on a literature review, Table 1 shows some variables and indicators contributing to sustainable tourism development.

Table 1. Variable and Indicators of Sustainable Tourism Development

Variable	Indicators
Environment (Pan et al., 2018)	Maintaining the destination environment (Astawa et al., 2018)
	Safe and healthy environment (Choi & Sirakaya, 2006)
	Availability of clean water sources (Hasanah, 2022)
	Waste management (Choi & Sirakaya, 2006)
	Tourist attractions are made from local and environmentally friendly materials (Van Magdalena, 2022)

Variable	Indicators
	Destination cleanliness (Hasanah, 2022)
	Contribution of tourists and local communities in area conservation (Sulistyadi et al., 2017)
Culture (Pan et al., 2018)	Local cultural information (Choi & Sirakaya, 2006)
	Access traditional culture (Choi & Sirakaya, 2006)
	Protection of cultural heritage (Nižić & Drpić, 2013)
Economic (Pan et al., 2018)	A competitive destination (Khan et al., 2021)
	Tourism contribution to the local economy (Choi & Sirakaya, 2006)
	Employment opportunities (Astawa et al., 2018)
	Tourism promotion (Nižić & Drpić, 2013)
Social (Pan et al., 2018)	Tourist activities (Khan et al., 2021)
	Local community activities (Astawa et al., 2018)
	Society participation (Astawa et al., 2018)
	Stakeholder role (Khan et al., 2021)
	Tourist village (Sulistyadi et al., 2017)

Source: author's analysis, 2023

The Kano model refers to an evaluation tool on tourists' responses for each indicator, utilizing both functional and dysfunctional questions (Lippitt et al., 2023). The classification of indicators into six distinct categories: Must-be (M), One-dimensional (O), Attractive (A), Indifferent (I), Reverse (R), or Questionable (Q) is illustrated in Table 2.

Table 2. Evaluation of KANO

Customer Requirement		Dysfunctional				
		Like (5)	Must-be (4)	Neutral (3)	Like with (2)	Dislike (1)
Functional	Like (5)	Questionable	Attractive	Attractive	Attractive	One-Dimensional
	Must be (4)	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	Neutral (3)	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	Like with (2)	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	Dislike (1)	Reverse	Reverse	Reverse	Reverse	Questionable

Source: Lippitt et al., 2023

The integration model provides a prioritized strategy by combining the results of the IPA matrix and the KANO model classification. The results can ascertain indicators that need to be maintained and improved.

FINDINGS AND DISCUSSION

Bira Tengah tourist village is one of the developing villages in the Sokobanah sub-district of Sampang, located on the north coast of Madura Island. The relevant village borders the Java Sea to the north. It shares a boundary with Pangerreman village in the west and Bira Timur village in the south and east (Jadesta Kemenparekraf, n.d.). Figure 1 illustrates a map of Madura Island and the specific locations of tourist villages.
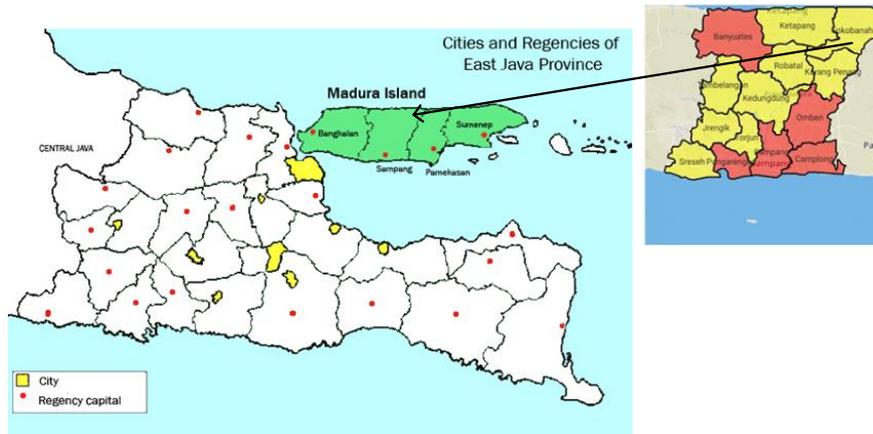
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Figure 1. Map of Madura Island and the East Java Province
Source: modified from Arifhidayat, 2007

The survey was carried out in 2023 at Lon Malang Beach. A total of one hundred valid questionnaires were collected, resulting in a valid return rate of 96.15%. The measurement instrument's reliability is assessed using Cronbach's α, which considers four aspects: performance, importance, functional, and dysfunctional. It has been proposed that α exhibits a threshold or cut-off whereby a level of ≥ 0.7 is considered acceptable, sufficient, or satisfactory (Cortina, 1993). A correlation analysis was used to evaluate the construct validity of each item. The r-coefficient value of each indicator is compared to a cut value of 0.349.

Table 3 presents the demographic information collected in the survey, including age, gender, marital status, family size, educational background, and occupation. Tourists visiting Lon Malang Beach are predominantly women, single, aged 17-24, and high school students.

Table 3. Respondents Demographic Profile

Profile	Criteria	Sum
Age	17-24 years	55
	25-44 years	41
	45-54 years	4
Gender	Male	38
	Female	62
Marital Status	Married	41
	Single	59
Family size	2	11
	3	33
	4	43
	≥5	13
Education Background	High school	80
	Diploma	6
	Undergraduate	14
Occupation	Student	45
	Civil servant	4
	Private employee	5
	Entrepreneur	16
	Other	30

Source: primary data analysis, 2023

Based on Figure 2, among these attributes, indicator number 6 has the highest importance (4.78), while indicator number 4 has the lowest perceived performance (4.43). The mean value for all indicators of importance is 4.58, while the mean perceived performance of all indicators is 4.54, indicating that it falls within the range of being satisfied and very satisfied. This finding suggests that tourist village management must improve their performance in tourism sustainability to get higher tourist satisfaction. At the same time, the gap between the level of importance and performance is not substantial.
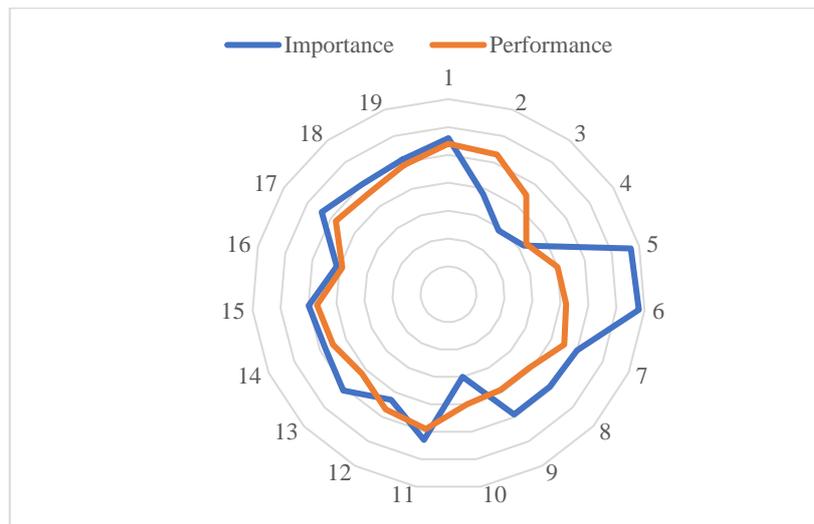

Figure 2. Diagram of the Average Level of Importance and Performance of Each Sustainable Tourism Development Indicator
Source: Primary data analysis, 2023

Figure 3 illustrates the primary strengths and weaknesses of the Bira Tengah tourist village in terms of key success factors. Sustainable tourism performance can be evaluated by stakeholders and destination managers (Agustina et al., 2024). The strengths of the eight important success factors are located in quadrant 1 (maintain performance), precisely indicators 1, 7, 11, 14, 15, 17, 18, and 19. These eight key successes are the main strength of the Bira Tengah tourism village. These include maintaining the destination environment, contributing to tourists and local communities in area conservation, creating a competitive destination, promoting tourism, promoting tourist activities, participating in society, having stakeholder roles, and creating a tourist village. On the other hand, it is observed that items 2, 3, and 12 are positioned inside quadrant 4 (top priority), indicating a low performance of the Bira Tengah tourist village from the perspective of tourists. These items include a safe and healthy environment, availability of clean water sources, and tourism contribution to the local economy sector. The Bira Tengah tourist village should prioritize addressing three identified weak indicators.
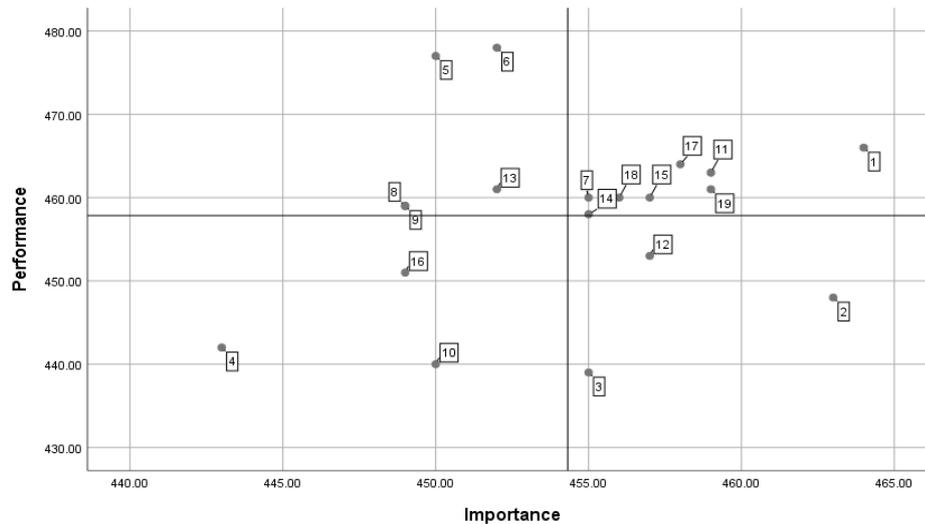
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Figure 3. IPA Diagram Based on Sustainable Tourism Development Indicators in Four Quadrants
Source: Primary data analysis, 2023

Survey data is tabulated based on the categories attractive, must be, one dimensional, indifferent, questionable, and reserved. Afterward, a recapitulation was carried out to determine the Kano category for each indicator, as shown in Table 4. To categorize indicators, it is necessary to employ a formula that involves comparing the sum of the categories M, O, and A with the sum of the categories I, R, and Q. If (O + A + M) > (I + R + Q) then the grade is obtained from the maximum of (O, A, M). Conversely, if (O + A + M) < (I + R + Q), then the grade is obtained from the maximum of (I, R, Q) (Violante & Vezzetti, 2017). The result indicates that most of the indicators (12 indicators) fall into the category One Dimensional, then Attractive (5 indicators), and Indifferent (2 indicators), respectively.

Table 4. Sustainable Tourism Development Indicator Categories Based on the KANO Model

No	Indicator	A	M	O	I	R	Q	O+A+M	I+R+Q	Total	Category
1	Maintaining the destination environment	11	9	62	18	-	-	82	18	100	O
2	Safe and healthy environment	30	5	59	6	-	-	94	6	100	O
3	Availability of clean water sources	31	8	47	14	-	-	86	14	100	O
4	Waste management	36	6	39	19	-	-	81	19	100	O
5	Tourist attractions are made from local and environmentally friendly materials	19	13	34	34	-	-	66	34	100	O
6	Destination cleanliness	30	19	41	10	-	-	90	10	100	O

No	Indicator	A	M	O	I	R	Q	O+A+M	I+R+Q	Total	Category
7	Contribution of tourists and local communities in area conservation	17	6	29	48	-	-	52	48	100	O
14	Tourism promotion	27	8	45	20	-	-	80	20	100	O
15	Tourist activities	14	6	63	17	-	-	83	17	100	O
16	Local community activities	22	14	47	17	-	-	83	17	100	O
17	Society participation	15	23	45	17	-	-	83	17	100	O
18	Stakeholder role	26	19	29	26	-	-	74	26	100	O
8	Local cultural information	34	6	15	45	-	-	55	45	100	A
11	A competitive destination	37	15	14	34	-	-	66	34	100	A
12	Tourism contribution to local economy	20	15	19	46	-	-	54	46	100	A
13	Employment opportunities	45	23	20	12	-	-	88	12	100	A
19	Tourist village	36	7	34	23	-	-	77	23	100	A
9	Access traditional culture	21	12	10	57	-	-	43	57	100	I
10	Protection of cultural heritage	15	10	11	64	-	-	36	64	100	I

Source: Primary data analysis, 2023

Table 5 categorizes each indicator of sustainable tourism development according to the frameworks of IPA, Kano, and integrated IPA-Kano models. Based on the integrated IPA-Kano model, it can be observed that six indicators are in the significant weapon category (1, 7, 14, 15, 17, and 18). Indicators 11 and 19 are placed in the precious treasure category, indicators 5 and 6 are placed in the supportive weapon category, indicators 8 and 13 are placed in the beginning jewelry category, indicators 4 and 16 are placed in the defenseless zone category, indicators 2 and 3 are placed in the defenseless strategy point category, and indicators 12 is placed in the dusty diamond category. Kuo et al. (2012) explained that the categories and strategies resulting from the integration of IPA and KANO are as follows:

1. Major weapon: The primary instrument the tourist village employs to deter competitors. Management must consistently exert efforts to uphold superior performance that challenges rivals. This particular category represents an indicator that necessitates continuous maintenance of its performance.

2. Precious treasure: The indicators in this category are attractive to tourists and thus become a valuable asset for the tourist village.

3. Supportive weapon: Indicators in this category have characteristics similar to "major weapons" but are still below them and less influential. Therefore, the indicators in this category can be called supporting weapons in terms of competing with competitors.

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4. Beginning jewelry: Indicators in this category are characterized by relatively low attractiveness and high performance and can be seen as the beginning of gems. This category has strategic priorities to maintain.

5. Defenseless zone: This category includes indicators that are not very important but remain a weak point. As a result, improvements are still needed.

6. Defenseless strategy point: Indicators in this category become weak points if attacked; it can have fatal consequences in tourist dissatisfaction. Indicators in this category must be subject to improvement. The more indicators in this category can be improved, the more tourist dissatisfaction can be eliminated.

7. Dusty diamond: The indicators of this category are like closed diamonds and need to be opened (fixed) to be able to see them. Indicators in this category are very important and improve performance effectively and can attract tourists.

Table 5. Integrated of the IPA-KANO in Sustainable Tourism Development

No	Indicator	IPA Quadrant	KANO Category	IPA-KANO	Decision
1	Maintaining the destination environment	1	O	Major weapon	Maintained
7	Contribution of tourists and local communities in area conservation	1	O	Major weapon	Maintained
11	A competitive destination	1	A	Precious treasure	Maintained
14	Tourism promotion	1	O	Major weapon	Maintained
15	Tourist activities	1	O	Major weapon	Maintained
17	Society participation	1	O	Major weapon	Maintained
18	Stakeholder role	1	O	Major weapon	Maintained
19	Tourist village	1	A	Precious treasure	Maintained
5	Tourist attractions are made from local and environmentally friendly materials	2	O	Supportive weapon	Maintained
6	Destination cleanliness	2	O	Supportive weapon	Maintained
8	Local cultural information	2	A	Beginning jewelry	Maintained
9	Access traditional culture	2	I	-	-
13	Employment opportunities	2	A	Beginning jewelry	Maintained
4	Waste management	3	O	Defenseless zone	Repaired
10	Protection of cultural heritage	3	I	-	-
16	Local community activities	3	O	Defenseless zone	Repaired
2	Safe and healthy environment	4	O	Defenseless strategy point	Repaired
3	Availability of clean water sources	4	O	Defenseless strategy point	Repaired
12	Tourism contribution to local economy	4	A	Dusty diamond	Repaired

Source: primary data analysis, 2023

According to Purnomo et al. (2020), effective leadership, innovation, collaboration, and good governance are all necessary to achieve sustainable tourism in tourist villages. Sustainable tourism development entails more than preserving natural resources; it also increases tourist consumption. It also has significant consequences for fulfilling economic, environmental, and social aspects (Nižić & Drpić, 2013). Wilson et al. (2001) argued that the factors that contribute to successful rural tourism development include (1) the provision of a complete tourism package, (2) effective community leadership, (3) the endorsement and involvement of local government, (4) adequate financial resources for tourism development, (5) the implementation of strategic planning, (6) coordination and collaboration between business individuals and local leaders, (7) cooperation among rural tourism entrepreneurs, (8) access to information and technical support for tourism development and promotion, (9) the presence of well-functioning convention and visitors bureaus, and (10) widespread community support for tourism initiatives.

Complementing the results of previous research findings, the following are the key success factors for sustainable tourism development in developing tourist villages as follows: (1) Maintaining the destination environment (environment), (2) Contribution of tourists and local communities in area conservation (environment), (3) A competitive destination (economic), (4) Tourism promotion (economic), (5) Tourist activities (social), (6) Society participation (social), (7) Stakeholder role (social), (8) Tourist village (social), (9) Tourist attractions are made from local and environmentally friendly materials (environment), (10) Destination cleanliness (environment), (11) Local cultural information (culture), and (12) Employment opportunities (economic).

The KSFs have managerial implications for the sustainable management of tourist villages, encompassing environmental, social, economic, and cultural variables. The findings indicate that twelve indicators demonstrate strengths that should be maintained, while seven necessitate improvement. The Bira Tengah tourist village has been acknowledged at the national level for its institutional management and principles of CHSE (Cleanliness, Health, Safety, and Environment Sustainability) by the Indonesian Ministry of Tourism and Creative Industry. The management of tourist villages must continuously improve their sustainability performance, especially regarding cultural variables. For sustainable tourism activities, the local community's perspectives and active participation in the decision-making and execution of programs are crucial (Akinci & Öksüz, 2022). He et al. (2018) stated that the government's role in increasing the sustainability of rural tourism is to provide environmentally friendly incentives. Therefore, this achievement can be extrapolated to a broader context, encompassing many categories and types of tourist destinations beyond the scope of Bira Tengah village. This guidance can be utilized by any village embarking on developing tourist villages, such as start-up, growing, developed, and self-sufficient (Akbar & Safira, 2023).

However, future research is needed to assess the impact of resource allocation so that it can provide information to tourism village managers about the current status of optimizing resource allocation to the right areas. In addition, considering that human perception is fuzzy, an approach is needed to reduce uncertainty and eliminate bias from managers.

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CONCLUSION

The importance of sustainable development in solving the problems of developing rural tourism systems is increasing globally. Integrating the IPA-KANO model has led to the establishment of a set of key success indicators that can be outlined as a managerial tool for sustainable tourism development. Four factors are involved in sustainable rural tourism: social, cultural, economic, and environmental. The result shows that although 12 indicators show strengths that should be retained, seven must be improved. The study of sustainable tourist village development in Indonesia demonstrated how to find out what is being focused on with maintaining the destination environment, how tourists and locals help protect the area, making the destination more attractive to tourists, promoting tourism, tourist activities, community involvement, stakeholder roles, tourist village, tourist attractions from the local region and environmentally friendly materials, destination cleanliness, local cultural information, and employment opportunities.

The cultural factors are a highlight in improving sustainable tourism performance. Access to traditional culture and protection of cultural heritage are two indicators that must be prioritized for improvement. Using information technology extensively to access traditional culture significantly impacts how the younger generation views the significance of local culture as the nation's identity. This effort also protects cultural heritage against the wave of globalization through cultural experience and knowledge.

Moreover, to enhance tourism performance, it needs to benchmark with developed and autonomous tourist villages that have demonstrated success in sustainable tourism. The best practice insights will enable developing tourist villages to identify and adopt the most effective strategies for improving their tourism performance. However, future research is needed to assess the impact of resource allocation on tourist villages. Efficient resource allocation is crucial due to their limited availability while implementing tourism improvement programs. Furthermore, given that human perception is fuzzy, a strategy is required to lessen uncertainty and bias among managers of tourist villages while assessing the impacts.

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