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Stakeholder Engagement: Sustainable Tourism Development Strategy in Pati Regency

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Abstract

Tourism is a leading sector that makes a significant contribution to the national economy. Therefore, tourism management is directed towards sustainability with stakeholder synergy. The main problem in the tourism sector is the lack of synergistic, comprehensive, integrated, and sustainable integration or collaboration between stakeholders. Structural egos between parties are still high, and overlapping duties and functions often become obstacles faced, especially in the development of Indonesian tourism. The urgency of this research is the realization of a sustainable tourism development strategy model by collaborating with all stakeholders. The purpose of this research is to conduct a study and compile stakeholder engagement: a sustainable tourism development strategy in Pati Regency that is dynamic, humanistic, comprehensive, integrated, sustainable, and continuous. The research methodology uses a mixed methods approach, namely qualitative and quantitative through mapping and analysis of stakeholder roles/interactions using MACTOR (Matric of Alliance, Conflicts, Tactics, Objectives, Recommendations). The results show that the role of actors The Office of Youth, Sports and Tourism of Pati Regency with Tourism of Pati Regency has the highest level of convergence. The main focus of the objective is Environmentally Based Sustainable Tourism (Sustainable).

***Keywords**: cooperation; economic development; stakeholder engagement; sustainable tourism; tourism destinations*

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INTRODUCTION

Indonesia is known as a country rich in natural resources. Its natural diversity is a unique attraction for the public, giving rise to various tourist destinations. This is a positive development, considering the tourism sector plays a crucial role in driving economic growth in a country (Lesmana et al., 2022). According to Alcalá-Ordóñez & Segarra (2025), focusing on tourism development can provide solutions to a country's economic problems by increasing job opportunities and encouraging entrepreneurial activity. However, the tourism sector must also continue to integrate economic, social, and environmental aspects to create sustainable tourism, in line with the sustainable development goals agenda. The concept of sustainability is a response to the negative impacts of tourism, which often neglects the sustainability of resources and the well-being of surrounding communities. Therefore, sustainable tourism development requires not only the utilization of tourism potential but also the coordination of stakeholders whose interests, roles, and levels of influence may differ.

One district striving for sustainable tourism development is Pati Regency. Pati Regency is one of the integrated tourism development areas in the Pakudjembara region (Pati, Kudus, Demak, Jepara, Rembang, and Blora). However, according to Pamungkas et al. (2022), efforts to develop tourism potential in Pati have not been optimally managed. According to Fajri et al. (2022), one of the main causes of suboptimal tourism sector management is a lack of commitment and suboptimal institutional arrangements from stakeholders. This statement is supported by research by Ferdian et al. (2024), which confirms that human resource (HR) involvement is a key aspect in the success of tourism development in a region.

Research by Cahyono et al. (2025) found significant gaps in sustainable tourism management, particularly in weak policy coordination, conflicts between stakeholders, and limited available resources. Furthermore, local community participation was deemed suboptimal, even though the success of sustainable tourism depends heavily on the active involvement of communities as key actors at the local level. Verawati and Atmaja (2025) emphasized that a major challenge in Indonesia is how to effectively manage human resources to support sustainable tourism sector initiatives.

The lack of synergy between stakeholders results in suboptimal tourism sector management. According to Salman et al. (2024), in tourism development, it is crucial to understand the stakeholders involved, their respective interests, and their influence. This understanding is necessary for effective collaboration. However, in practice, stakeholder engagement in developing tourism potential remains problematic because stakeholders tend to carry out their roles separately without synergy across stakeholders (Wondirad et al., 2020). Although previous studies have emphasized the importance of stakeholder involvement, coordination, and participation in sustainable tourism development, understanding the relationships among stakeholders remains important because actors do not necessarily have the same level of influence, dependence, interests, or support for tourism development objectives.

Identifying stakeholders alone is therefore insufficient to explain how collaboration can be strengthened. A more systematic understanding of stakeholder relationships is needed to identify influential actors, dependent actors, dependent actors, potential areas of convergence and the objectives that receive the strongest support among stakeholders. In this context, stakeholder engagement can be examined not only through the identification of actors and their respective roles but also through the relationships and strategic positions among them. The Matrix of Alliances, Conflicts, Tactics, Objectives, and Recommendations (MACTOR) provides an approach for mapping threse relationships by examining actor influence, dependence, positions toward objectives, and convergences among actors.

Thus, integrating stakeholder engagement with MACTOR analysis, this study seeks to provide a more systematic basis for formulating a sustainable tourism development strategy in Pati Regency. Stakeholder engagement in sustainable tourism development involves more than the presence of multiple actors, it also concerns how actors interact, exercise influence, depend on one another, and position themselves toward shared development objectives (Ferdian et al., 2024).

Differences in these stakeholder characteristics may shape the extent to which tourism development initiatives can be coordinated and implemented. Therefore, understanding stakeholder engagement requires an analytical approach that can capture not only stakeholder identification but also the relationships and strategic positions among actors. In this study, MACTOR (Matrix of Alliances, Conflicts, Tactics, Objectives, and Recommendations) is used to operationalize the analysis of stakeholder dynamics by examining actor influence and dependence, actor positions toward tourism development objectives, and convergence among actors.

The analysis connects stakeholder engagement with sustainable tourism development by identifying which actors have greater strategic influence, which objectives receive stronger support, and where alignment or potential differences exist among stakeholders. In this way, MACTOR provides a systematic basis for interpreting stakeholder relationships and their implications for sustainable tourism development in Pati Regency. Accordingly, the analytical framework of this study positions stakeholder engagement as the basis for examining stakeholder dynamics, MACTOR as the analytical mechanism for mapping those dynamics, and sustainable tourism development as the broader strategic outcome. This framework enables the study to move beyond simply describing stakeholder roles toward explaining how stakeholder relationships and alignment of interests can support the formulation of sustainable tourism development strategies.

METHOD

This research method is a mixed method, consisting of qualitative and quantitative approaches. The qualitative component was used to identify and understand the stakeholders involved in sustainable tourism development in Pati Regency, including their roles and interactions, while the quantitative component used MACTOR to systematically analyze stakeholder influence, dependence, positions, and relationships toward tourism development objectives. Qualitative methodology produces descriptive data in the form of written or spoken words from the people being observed (Moleong & Surjaman, 2014; Sugiyono, 2017).

Researchers attempt to clearly and comprehensively describe the research situation or picture based on data deemed accurate and factual. This approach aimed to provide a precise description of the individuals, situations, and phenomena relevant to sustainable tourism development in Pati Regency. The qualitative findings provided the empirical basis for identifying the relevan actors and tourism development objectives subsequently examined through MACTOR. In the qualitative stage, data were collected through interviews, in-depth interviews, field observations, surveys, documentation, and Focus Group Discussion (FGD). Key informant were selected based on their direct or indirect involvement in sustainable tourism development in Pati Regency and their relevance to the stakeholder roles examined in the study.

Data analysis followed the Miles and Huberman model, consisting of data reduction, data presentation, and conclusion drawing and verification. The analysis was conducted iteratively to identify relevant information concerning stakeholder roles, interactions, interests, and involvement in sustainable tourism development. The findings from the qualitative stage were subsequently translated into the actor and objectives components required for the MACTOR analysis. The identified stakeholders were treatedas actors, while the sustainable tourism development priorities identified from the research context were formulated as objectives. This procedure established the methodological link between the qualitative findings and the subsequent quantitative analysis rather than treating the two stages as independent analyses.

The quantitative analysis examined relationships among actors and their positions toward the identified objectives using the Matrix of Alliances, Conflicts, Tactics, Objectives, and Recommendations (MACTOR). MACTOR provides a systematic approach to examining actor influence and dependence, power relationships, potential alliances and conflicts, and actor positions toward relevant objectives (Prasetiyo et al., 2026). In this study, the analysis was used to examine the relative influence and dependence of stakeholders, their level of support for sustainable tourism

objectives, and the convergence of their positions. The MACTOR technique uses three primary matrix inputs: the Matrix of Direct Influence (MID), the first Matrix Actor-Objective (1MAO), and the second Matrix Actor-Objective (2MAO). The MID matrix represents direct influence relationships among actors, whereas the 1MAO and 2MAO matrices represent actor positions and the strength of their relationships with the identified objectives.

These matrices were entered into the MACTOR software, which subsequently calculated the direct and indirect effects among actors and generated measures of actor influence, dependence, competitiveness, and convergence. The resulting MACTOR outputs were then interpreted in relation to the qualitative findings to explain the strategic position of stakeholders and the degree of alignment among actors toward sustainable tourism development. This integration enabled the study to move from stakeholder identification and description toward an analysis of stakeholder dynamics and their implications for sustainable tourism development strategy in Pati Regency.

RESULTS AND DISCUSSION

Tourism development has a significant impact on the national economy, both directly and indirectly (Cárdenas-García et al., 2024). Therefore, anticipating tourism opportunities and regional potential is important for supporting appropriate decision-making and sustainable tourism strategies. The government and various stakeholders involved must pay attention to decision-making and the development of sustainable tourism strategies. The positive impacts of tourism development include increased community and regional income, the creation of employment opportunities, and increased awareness of environmentally-based tourism management, while promoting culture (Bakalo et al., 2025). In general, the impacts of tourism development are divided into three categories: economic, social, cultural, and environmental (Herlianti & Sanjaya, 2022; Nirmala et al., 2024).

Tourism development's economic impacts include increasing regional tax revenues (Bakalo et al., 2025). This can be achieved if decision-making and strategy development are well-targeted. However, inappropriate tourism development decisions may also create negative economic impacts such as unequal income distribution and product inflation. In addition to its economic impact, tourism development also has a significant socio-cultural impact (Zainal et al., 2024). Positive impacts include socio-cultural diplomacy, the promotion of customs to tourists, and the creation of interactive intercultural communication (Demir & Demir, 2025). However, negative impacts include changes in behavior, customs, language, and other aspects. Tourism development, in addition to its economic and socio-cultural impacts, also has a significant impact on the environment (Paulus et al., 2023). Optimizing targeted tourism development will create an integrative and harmonious tourism ecosystem (Rantung et al., 2026). However, tourism development without careful planning and governance may increase the risk of environmental damage and degradation of the surrounding ecosystem.

Sustainable tourism is a specific method and approach for the long term. In detail, sustainable tourism is essentially about ensuring the harmony of natural, social, and cultural resources so that they can be enjoyed for the long term, from generation to generation. Sustainable tourism can also be defined as efforts to improve the quality of human life by managing the harmony, development, and maintenance of resources in a sustainable manner. Sustainable tourism development can be implemented through the collaborative and synergistic elaboration of various aspects. These principles include participation, stakeholder involvement, local ownership, sustainable resource use, accommodating community goals, attention to carrying capacity, monitoring and evaluation, accountability, training, and promotion. Participation refers to the involvement and contribution of all parties, including the community, in tourism management and decision-making. Synergy between stakeholders will also be fostered with various parties, including government, academics, business actors, community groups, and others. The carrying capacity of tourism must also be considered, starting from environmental conditions, public infrastructure, food outlets, and so on. Monitoring, evaluation, and increased tourism promotion are also continuously carried out to ensure long-term

sustainability. One example of sustainable tourism development is Pati Regency, an area in Central Java Province with diverse regional potential, spanning economic, environmental, socio-cultural, and tourism sectors. Pati Regency comprises 21 sub-districts and covers an area of 1,503.68 kilometers. The largest sub-district is Sukolilo District, with an area of 158.74 kilometers.

Table 1. Number of Visitors to Tourist Attractions According to Tourist Attractions of Pati Regency (2020-2022)

Tourist Attraction Name	Number of Visitors to Tourist Attractions According to Tourist Attractions		
	2020	2021	2022
Gunungrowo Reservoir	17010	15800	50000
Pancur Cave	4600	1500	6260
Wareh Cave	15705	7949	22980
Pancasila Jrahi Tourism Village	27841	18326	16746
Jollong Gardens Agrotourism	126486	83838	71819
Banyutowo Beach	9681	-	-
Edu Agroeduforestry Resort (EAR) Regaloh	1149	370	4406
Kayen View Hill	14360	3351	3388
Lorodan Semar	4058	1359	2730
Idola Beach	9681	7200	-
Talun Tourism Village	22672	4783	17995
Arga Pesona Beketel	-	693	-
Dam Tepus	-	763	4468
Bageng Tourism Village	-	3016	4131
Tunggulsari Tourism Village	-	83778	216920
Pesona Gunungsari	-	941	-
Seloromo Reservoir	-	18055	58995
Kertomulyo Beach	-	52441	43131

Source: Central Bureau of Statistics of Pati Regency, 2024

Tourism development efforts, particularly in Pati Regency, inevitably involve various sectors, from academics and government officials to business actors, community groups, and even the media. This collaboration is called stakeholder engagement. Stakeholder engagement is the active process of involving stakeholders within an organization. The primary goal is to ensure that organizational decisions and actions align with stakeholder expectations and needs, and to build strong and sustainable relationships.

The initial steps in stakeholder engagement are to identify the actors. This involves identifying, understanding, and understanding their respective characteristics ad roles, and examining the approaches used in tourism development. Afterward, they are grouped based on their level of importance and influence on an activity. The initial mapping process involves selecting stakeholders who play a direct or indirect role in sustainable tourism development in Pati Regency. Several selected actors/stakeholders are assigned short codes to facilitate research. The Agency of Development Planning, Research and Regional Innovation of Pati Regency (Bapperida); The Office of Youth, Sports and Tourism of Pati Regency; The Office of Cooperatives and SMEs of Pati Regency (DinkopUMKM); SMEs Actors at Tourist Destinations of Pati Regency (SMEs Actor); Management of Seloromo Reservoir of Pati Regency (Seloromo); Management of KH Mutamakkin Grave of Pati Regency (Grave KH). Besides that, there are also other actors/stakeholders, namely Management of

Talun Tourism Village of Pati Regency (Talun Vlge); Management of Pancasila Jrahi Tourism Village of Pati Regency (Jrahi Vlge); Management of Majapahit Gate of Pati Regency (Maja Gate); Tourism of Pati Regency; Academics from University (Academics); Media, Publication and Communication (Media).

In addition to mapping the actors/stakeholders involved, sustainable tourism development in Pati Regency also requires mapping objectives. This is necessary to identify the primary and supporting objectives for tourism development. These objectives are assigned specific codes to facilitate research activities. Optimizing Cleanliness, Health, Safety, and Environmental Sustainability (CHSE); Environmentally Based Sustainable Tourism (Sustainabl); Integrated and Systematic Tourism Destination Management (Management); Digitalization of Business Actors and Tourism Actors (Digitally); Improving the Competence and Skills of Tourism Management (CompSkills); Harmonization of Tourism and Sociocultural Aspects (Sociocultr); Synergy for Tourism Development of Pati Regency (Synergy).

The identification of these actors and objectives provides the basis for the subsequent MACTOR analysis. After identifying the actors/stakeholders involved, the next step is to analyze their roles in MACTOR data processing. This identification is done by scoring the Matrix of Direct Influence (MDI) table. The MDI table illustrates the influence between actors on other actors, indicated by a score of 0-4. A score of 0 indicates no influence, 1 indicates the actor influences operational procedures, 2 means it influences the work, 3 indicates it influences the actor's mission, and finally, a score of 4 indicates the existence of an influential actor.

Table 2. Value Matrix of Direct Influence (MDI)

MDI	Bapperida	Dinporapar	DinkopUMKM	SMEs Actor	Seloromo	Grave KH	Talun Vlge	Jrahi Vlge	Maja Gate	Tourism	Academics	Media
Bapperida	0	2	3	1	2	2	2	2	2	1	2	2
Dinporapar	3	0	4	3	3	3	3	3	3	2	3	2
DinkopUMKM	1	1	0	3	1	1	1	1	1	1	2	2
SMEs Actor	3	3	3	0	3	2	3	3	1	2	3	3
Seloromo	3	3	4	2	0	0	0	0	0	2	2	2
Grave KH	3	3	4	3	0	0	0	0	0	2	2	2
Talun Vlge	3	2	3	2	0	0	0	0	0	2	2	2
Jrahi Vlge	3	2	3	3	0	0	0	0	0	2	2	2
Maja Gate	3	2	4	3	0	0	0	0	0	2	2	2
Tourism	3	3	4	4	4	4	4	4	4	0	3	3
Academics	3	3	2	1	3	3	3	3	3	3	0	4
Media	3	2	3	3	3	3	3	3	3	3	3	0

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Source: Processes Primary Data, 2025

After completing the MDI, the next step is to score the actors/stakeholders against the established objectives. This is done in the Matrix of Actor Objectives (MAO) table. A score of 0 indicates that the objective has an uncertain outcome, a score of 1 means the objective disrupts the actor's operational procedures, and a score of 2 means the objective disrupts the actor's success in their work. Meanwhile, a score of 3 means the objective disrupts the actor's mission achievement/cannot be ignored, and a score of 4 means the objective disrupts the actor's existence/cannot be ignored as an actor's existential effort.

Table 3. Value Matrix of Actor Objectives (MAO)

2MAO	CHSE	Sustainabl	Management	Digitally	CompSkills	Sociocultr	Synergy
Bapperida	1	3	1	1	2	3	3
Dinporapar	4	4	3	3	3	3	3
DinkopUMKM	0	1	2	3	2	2	3
SMEs Actor	3	3	2	2	2	1	2
Seloromo	4	4	4	4	4	3	3
Grave KH	4	4	3	2	2	4	2
Talun Vlge	4	4	4	3	4	2	3
Jrahi Vlge	4	4	4	3	4	4	3
Maja Gate	4	4	3	1	2	4	2
Tourism	4	4	3	2	2	4	3
Academics	0	3	3	2	3	2	3
Media	0	2	1	2	2	1	2

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Source: Processes Primary Data, 2025

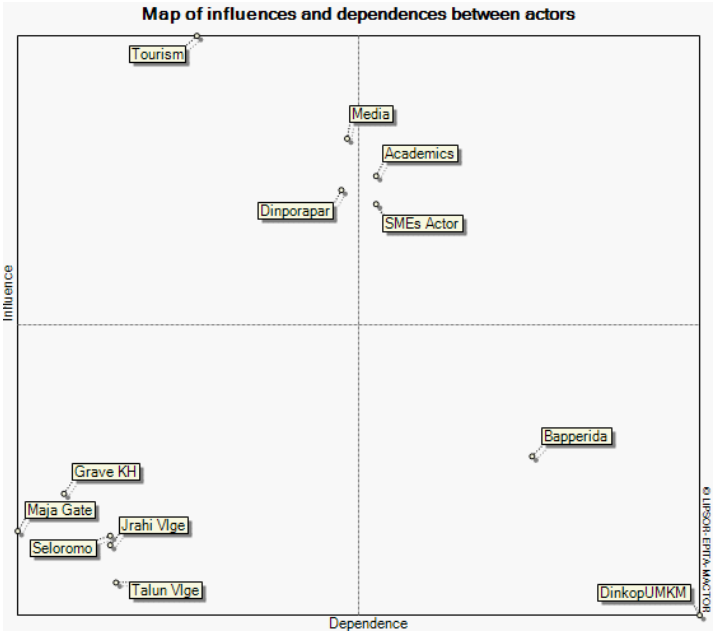
After understanding the MDI and 2MAO, to understand the level of influence and interdependence between actors, the Matrix of Direct and Indirect Influences (MDII) can be used. The MDII matrix determines the second-order direct or indirect influence between actors. This matrix's usefulness lies in providing a comprehensive view of the interactions between actors, including indirect influence through intermediary actors. The MDII has two important indicators: Li (indicating direct and indirect influence) and Di (indicating the level of dependency). The values represent the direct and indirect influence between actors. The higher the value, the greater the influence of the actor on others.

Table 3. Value Matrix of Direct and Indirect Influences (MDII)

MDII	Bapperida	Dinporapar	DinkopUMKM	SMEs Actor	Seloromo	Grave KH	Talun Vlge	Jrahi Vlge	Maja Gate	Tourism	Academics	Media	li
Bapperida	19	19	21	20	11	11	11	11	11	19	20	20	174
Dinporapar	29	25	31	25	16	15	16	16	14	21	24	24	231
DinkopUMKM	15	15	15	14	11	10	11	11	9	14	15	15	140
SMEs Actor	27	23	28	23	17	16	17	17	15	21	24	23	228
Seloromo	15	14	18	14	14	14	14	14	13	12	15	14	157
Grave KH	16	15	19	15	15	14	15	15	13	12	16	15	166
Talun Vlge	14	13	16	13	13	13	13	13	12	12	14	14	147
Jrahi Vlge	15	14	17	14	14	13	14	14	12	12	15	15	155
Maja Gate	15	14	18	14	14	13	14	14	12	12	15	15	158
Tourism	31	26	36	28	19	18	19	19	17	22	26	25	264
Academics	29	24	30	26	16	16	16	16	16	21	24	24	234
Media	30	26	31	26	17	16	17	17	15	22	25	25	242
Di	236	203	265	209	163	155	164	163	147	178	209	204	2296

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In the MDII table, tourism has the highest Li score (direct and indirect influence), with a score of 264. This means that tourism plays a significant role, influence, and dependency in creating sustainable tourism in Pati Regency. This indicates that Tourism has a strong strategic position in stakeholder interactions related to sustainable tourism development in Pati Regency. Meanwhile, the Office of Cooperatives and SMEs of Pati Regency (DinkopUMKM) has the lowest Li score. This indicates that DinkopUMKM has a relatively limited influence within the stakeholder network examined in this study.



Source: Processes Primary Data, 2025

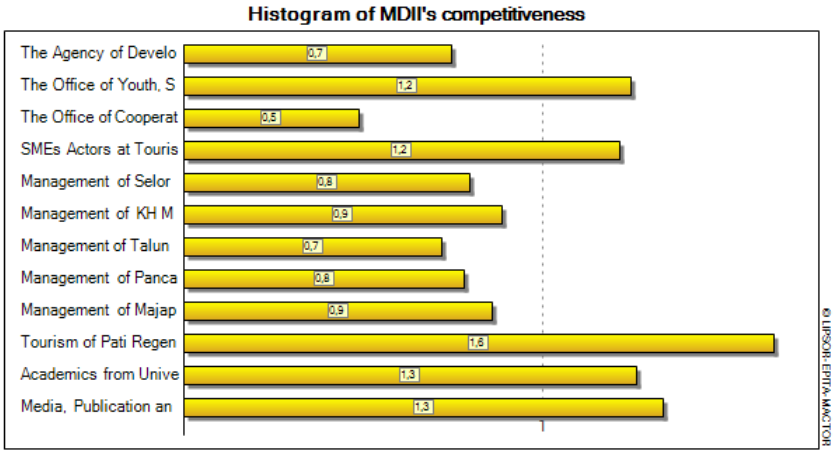
Figure 1. Map of Influence and Dependence between Actors

The map is a graphical depiction of the actors' positions regarding their influence and interdependence, both directly and indirectly. The map is divided into four quadrants, each with varying meanings. Quadrant 1 (top left) includes tourism, media, and the Department of Youth and Sports. Stakeholders in Quadrant 1 have significant influence and low dependency. This position indicates that these actors have an important role in shaping stakeholder interactions. Meanwhile, Quadrant 2 (top right) includes academics and SMEs. This means these actors are key elements. Their position indicates that they have both substantial influence and dependency within the stakeholder network. The relevance of SMEs to tourism development is related to their role in supporting local economic activities and providing products and services at tourist destinations.

Not only does the availability of MSMEs in tourist destinations benefit business actors, but they also play a role in creating unique attractions, providing various products and services needed by consumers, and significantly impacting the development of the local economy. Furthermore, the role of academics is crucial. Sustainable tourism is currently focused on the implementation of the hexahelix collaboration model. This cross-sectoral collaboration model comprises academic (A), business (B), community (C), government (G), and media (M). Academics act as conceptualizers, researchers, and facilitators in tourism development, providing scientific foundations, innovation, and capacity building. Academics can conduct research and analyze tourism-related data, including tourist data, market trends, and the economic impact of tourism. The results of these scientific studies can be used in decision-making regarding tourism sector development. Quadrant 3 (bottom right) represents the Agency for Development Planning, Research, and Regional Innovation of Pati Regency (Bapperida) and the Office of Cooperatives and SMEs of Pati Regency (DinkopUMKM). Quadrant 3 represents a high level of dependency with minimal influence. This dependence implies that these actors have sufficient influence in controlling and implementing relevant policies within their respective fields to serve as a basis, although implementation lies within their respective tourism management departments.

Quadrant 4 (bottom left) represents the respective tourism destination managers, including the Management of Seloromo Reservoir of Pati Regency (Seloromo); the Management of KH

Mutamakkin Grave of Pati Regency (Grave KH). Additionally, other stakeholders include the Management of Talun Tourism Village of Pati Regency (Talun Vlge); the Management of Pancasila Jrahi Tourism Village of Pati Regency (Jrahi Vlge); and the Management of Majapahit Gate of Pati Regency (Maja Gate). All tourism destination managers have their own authority, rights, and strategies that can be implemented in their respective tourism development. Tourism management is carried out independently, with various characteristics. Some destinations are natural, religious, socio-cultural, and others.



Source: Processes Primary Data, 2025

Figure 2. Actor Competitiveness Diagram

The actor competitiveness diagram is guided by the level of direct and indirect influence an actor has on other actors. The benchmark is based on the number 1. If an actor is ranked above 1, it plays a significant role, and vice versa, indicating the degree of importance of each actor. The highest score on the actor competitiveness diagram is tourism, with a score of 1.6. This indicates that within a tourist destination, tourists play a crucial role in maintaining the sustainability of the tourism sector. If tourists are satisfied and interested, and long-term visits experience a rapid, consistent, and comprehensive increase, then tourism destination management can be considered optimally successful. The next highest positions on the competitiveness diagram are media and academics, with scores of 1.3 each. These actors are highly relevant to sustainable tourism development. Stakeholder engagement must be both internal and external. Internal engagement involves scientific studies and the collection of relevant data for long-term tourism innovation. External engagement focuses on introducing, promoting, and branding a tourist destination to increase its recognition and enjoyment among tourists. The Office of Youth, Sports, and Tourism of Pati Regency and SMEs Actors (SMEs) also achieved high scores, reaching 1.2. Dinporapar plays a significant role in developing various tourism policies, providing various training programs, mentoring, and promotions. Meanwhile, SMEs serve as a complementary and competitive partner in a tourist destination.

Table 4. 3MAO Matrix Position of Each Actor in Relation to Goals

3MAO	CHSE	Sustainabl	Management	Digitally	CompSkills	Sociocultr	Synergy	Mobilisation
Bapperida	0,7	2,2	0,7	0,7	1,5	2,2	2,2	10,5
Dinporapar	5,0	5,0	3,7	3,7	3,7	3,7	3,7	28,7
DinkopUMKM	0,0	0,5	1,0	1,5	1,0	1,0	1,5	6,4
SMEs Actor	3,6	3,6	2,4	2,4	2,4	1,2	2,4	18,2
Seloromo	3,2	3,2	3,2	3,2	3,2	2,4	2,4	20,7
Grave KH	3,6	3,6	2,7	1,8	1,8	3,6	1,8	18,8
Talun Vlge	2,9	2,9	2,9	2,2	2,9	1,4	2,2	17,3
Jrahi Vlge	3,1	3,1	3,1	2,3	3,1	3,1	2,3	20,3
Maja Gate	3,4	3,4	2,6	0,9	1,7	3,4	1,7	17,2
Tourism	6,6	6,6	4,9	3,3	3,3	6,6	4,9	36,2
Academics	0,0	3,8	3,8	2,5	3,8	2,5	3,8	20,2
Media	0,0	2,7	1,3	2,7	2,7	1,3	2,7	13,4
Number of agreements	32,2	40,6	32,4	27,2	31,1	32,6	31,7	
Number of disagreements	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Degree of mobilisation	32,2	40,6	32,4	27,2	31,1	32,6	31,7	

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Source: Processes Primary Data, 2025

The 3MAO matrix table visualizes each actor's position on each objective or strategy within the stakeholder engagement effort: the sustainable tourism development strategy in Pati Regency. The scores in this matrix take into account the level of competence among actors, the hierarchy of objectives, and the degree of each actor's opinion on the objective. Positive values indicate actor support for the objective. Higher values indicate greater support for the objective. Conversely, negative values indicate actor opposition to the objective. Higher values indicate greater opposition to the objective. In the 3MAO matrix, the objective with the highest number of agreements is Environmentally Based Sustainable Tourism (Sustainable), with a score of 40.6. This indicates that tourism development, particularly in Pati Regency, is focused on sustainability. Sustainability is beneficial in the long term, synergistically integrating various stakeholders.

Meanwhile, another objective, the Harmonization of Tourism and Sociocultural Aspects (Sociocultur), has the second-highest number of agreements, with a score of 32.6. Several tourist destinations in Pati Regency focus on sociocultural aspects, including the KH Mutamakkin Grave, Nyai Ageng Ngerang Grave, Ronggo Kusumo Grave, Sunan Prawoto Grave, and others. As of 2024, religious and sociocultural tourism ranked highest among tourist destinations. This indicates the unique interests, perceptions, and spiritual motivations of these tourists. The next highest 3MAO score was Integrated and Systematic Tourism Destination Management (Management), with a score of 32.4. This indicates that improving integrated and systematic tourism destination governance is essential for sustainable tourism. Several tourist destinations still have manual management systems, particularly ticketing. Ticketing is done by counting tourists conventionally without an integrated system/mechanism. The problem is that monitoring tourist numbers cannot be systematically calculated. A graph of tourist visits is crucial because it provides a clear picture of a region's tourism performance, aids in strategic planning, and identifies opportunities and challenges in tourism sector development. Based on visitation trends, relevant parties can take appropriate steps to improve tourist appeal, promote destinations, and ultimately contribute to regional economic growth.

In addition to the number of agreements, the 3MAO matrix also provides visual data on actor mobilization. Tourism had the highest actor mobility (36.2). The second highest was the Office of Youth, Sports, and Tourism of Pati Regency with a score of 28.7. These results align with the sustainability theory that the primary focus of tourism is tourists. A consistently high number of tourists indicates optimal performance for a tourist destination. This is complemented by the 4A concept of tourist attractions, attractions, and other aspects: Attraction, Accessibility, Amenities, and Ancillary. Meanwhile, Dinporapar's high mobility is due to the policies, strategies, and duties of

related actors in tourism development. The Office of Youth, Sports, and Tourism of Pati Regency plays a crucial role in regional tourism, from technical planning and coordination to development and facilitation of regional tourism activities. Dinporapar also plays a role in developing master plans for tourist attractions and strategic tourism areas, including within Pati Regency. The next matrix is the convergence between actors, which is assigned a weighted value, or Convergences Actors-Actors (3CAA). The matrix identifies actors who share a common opinion in the research, whether pro or con. The 3CAA is a symmetrical matrix.

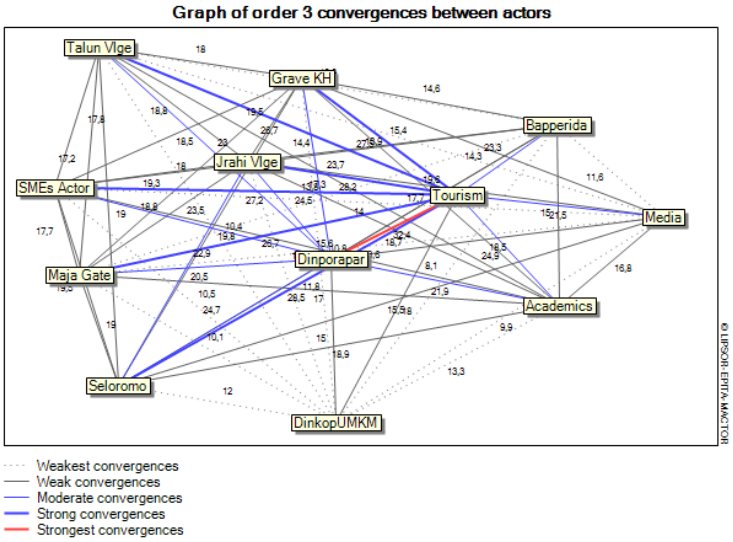
Table 5. Matrix Convergences Actors-Actors (3CAA)

3CAA	Bapperida	Dinporapar	DinkopUMKM	SMEs Actor	Seloromo	Grave KH	Talun Vlge	Jrahi Vlge	Maja Gate	Tourism	Academics	Media
Bapperida	0,0	19,6	8,1	14,4	15,6	14,6	13,9	15,4	13,8	23,3	15,0	11,6
Dinporapar	19,6	0,0	15,0	23,5	24,7	23,7	23,0	24,5	22,9	32,4	21,9	18,5
DinkopUMKM	8,1	15,0	0,0	10,5	12,0	10,8	10,4	11,8	10,1	18,0	13,3	9,9
SMEs Actor	14,4	23,5	10,5	0,0	19,5	18,5	17,8	19,3	17,7	27,2	17,4	14,0
Seloromo	15,6	24,7	12,0	19,5	0,0	19,8	19,0	20,5	19,0	28,5	18,9	15,5
Grave KH	14,6	23,7	10,8	18,5	19,8	0,0	18,0	19,5	18,0	27,5	17,7	14,3
Talun Vlge	13,9	23,0	10,4	17,8	19,0	18,0	0,0	18,8	17,2	26,7	17,3	13,9
Jrahi Vlge	15,4	24,5	11,8	19,3	20,5	19,5	18,8	0,0	18,8	28,2	18,7	15,3
Maja Gate	13,8	22,9	10,1	17,7	19,0	18,0	17,2	18,8	0,0	26,7	17,0	13,6
Tourism	23,3	32,4	18,0	27,2	28,5	27,5	26,7	28,2	26,7	0,0	24,9	21,5
Academics	15,0	21,9	13,3	17,4	18,9	17,7	17,3	18,7	17,0	24,9	0,0	16,8
Media	11,6	18,5	9,9	14,0	15,5	14,3	13,9	15,3	13,6	21,5	16,8	0,0
Number of convergences	165,2	249,8	129,8	199,7	212,8	202,4	196,0	210,8	194,8	284,9	198,7	164,8
Degree of convergence (%)	0,0											

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Source: Processes Primary Data, 2025

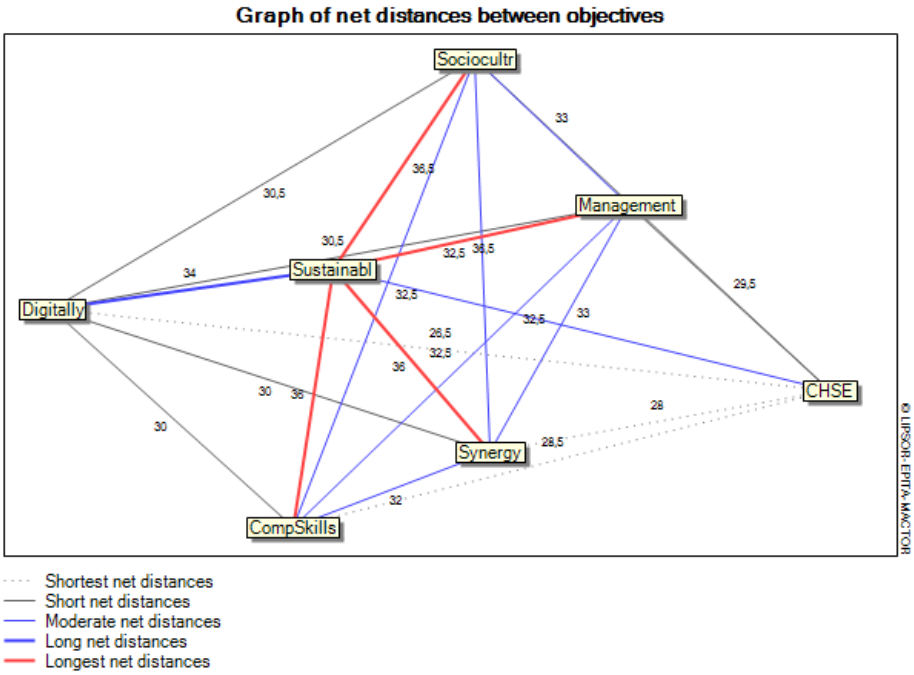
The values in the 3CAA matrix represent the degree of convergence between one actor and another. The higher the value, the greater the similarity of interests or goals of the actors. From this convergence analysis, a number of possible alliances can be identified between actors. In the 3CAA table, the actors with the highest correlation of interests with the highest convergence coefficient are The Office of Youth, Sports and Tourism of Pati Regency and Tourism of Pati Regency at 32.4. This highest stakeholder/actor collaboration relationship creates optimal stakeholder engagement in the development of sustainable tourism in Pati Regency.



Source: Processes Primary Data, 2025

Figure 3. Convergence (3CAA) between Actors

The 3CAA convergence will demonstrate the connectivity between actors in a research relationship, namely stakeholder engagement and sustainable tourism development strategies in Pati Regency. The figure shows that a higher value in the matrix indicates a thicker connection line on the map. This indicates a higher level of convergence among these actors. Red indicates the strongest/highest convergence on the map connecting these actors. The actors with the highest convergence are the Office of Youth, Sports, and Tourism of Pati Regency and Tourism of Pati Regency because they are relevant to tourism development activities, actions, strategies, and formulations. Dinporapar is the policy-making and regulatory body, while Tourism serves as an agent for local economic development, cultural and environmental preservation, and other stakeholders.



Source: Processes Primary Data, 2025

Figure 4. Clear Distance Graph between Targets

The net distance between objectives graph identifies established objectives that have a linear position. A higher value in the matrix indicates a thicker connection line on the map, indicating a higher level of convergence between these objectives. Red indicates the strongest/highest convergence on the map connecting objectives. The central objective is Environmentally Based Sustainable Tourism (Sustainable), which connects to several other related objectives, including Integrated and Systematic Tourism Destination Management (Management); Improving the Competence and Skills of Tourism Management (CompSkills); Harmonization of Tourism and Sociocultural Aspects (Socioculture); and Synergy for Tourism Development of Pati Regency (Synergy).

The findings show that sustainable tourism development in Pati Regency is shaped by differences in stakeholder influence, dependence, interests, and positions toward tourism objectives. This finding supports previous studies showing that tourism sustainability requires collaboration among stakeholders with different roles and levels of influence (Basyar et al., 2025). However, the present study provides further detail by using MACTOR to examine these relationships systematically. Recent research in Indonesia also demonstrates that MACTOR can be used to identify stakeholder influence, dependence, and areas of agreement and disagreement in tourism development (Prasetiyo et al., 2026). Therefore, stakeholder engagement in sustainable tourism should consider not

only stakeholder participation but also the relative position and relationships among actors. The MACTOR results indicate that Tourism had the highest level of competitiveness, while Dinporapar also occupied an important position in the stakeholder structure. These findings suggest that tourism actors and government institutions have complementary roles in tourism development. This pattern is consistent with Prasetiyo et al. (2026), who found that business actors, local communities, academics, and government agencies occupied important positions in shaping sustainable tourism development in Labuan Bajo. Basyar et al. (2025) also showed that differences in stakeholder capabilities influence the implementation of tourism programs and that coordination between government and community actors is important for tourism governance. In Pati Regency, these findings indicate that coordination between actors with strong strategic positions is important for translating tourism objectives into coordinated actions.

The analysis of stakeholder objectives further shows that Environmentally Based Sustainable Tourism received the highest level of agreement among the identified objectives. This finding indicates that sustainability represents a common objective across the stakeholder system. Similar evidence has been reported in tourism studies showing that stakeholder participation and collaboration can support the integration of economic, social, and environmental interests in tourism development (Achmad et al., 2023; Valderrama et al., 2025). The high convergence between Dinporapar and Tourism also indicates a strong alignment of interests between these actors. Their convergence provides a basis for strengthening coordination around sustainable tourism objectives.

The clear distance analysis further shows that sustainable tourism is closely connected with destination management, tourism management competence and skills, sociocultural aspects, and stakeholder synergy. This finding suggests that sustainability in Pati Regency is not limited to environmental considerations. It is also connected with management capacity, social and cultural considerations, and coordination among stakeholders. This interpretation is consistent with research showing that sustainable tourism requires stakeholder collaboration, community involvement, institutional support, and coordination across different dimensions of tourism development (Hendrayani et al., 2025; Spadaro et al., 2023). The interconnectedness of these objectives also indicates that improvements in sustainable tourism require attention to several supporting objectives rather than a single intervention.

The findings also extend the stakeholder engagement perspective by showing that identifying stakeholders alone is not sufficient to understand the governance of sustainable tourism. Stakeholders differ in their influence, dependence, competitiveness, and alignment with tourism objectives. The use of MACTOR provides a systematic approach for identifying these differences and examining potential areas of convergence. This is consistent with Rambey et al. (2026), who demonstrated that MACTOR can identify influential and dependent actors while revealing areas of agreement and trade-offs among objectives. In the context of Pati Regency, this analytical approach provides a basis for prioritizing strategic actors and shared objectives in stakeholder engagement.

CONCLUSION

Sustainable tourism development requires synergy and collaboration across sectors, including academics (A), business (B), community (C), government (G), and media (M). Each sector has its own role, urgency, position, and interests that complement each other. The general role of academics is to conduct scientific studies, obtain data, and provide recommendations that can be used in tourism decision-making. Business (B) also strives to create jobs and increase revenue while optimizing transactions at tourist destinations. Community involvement (C) plays a key role in assisting in the planning, management, supervision, and implementation of sustainable tourism. The crucial role of government (G) is in formulating policies, regulations, strategies, and providing guidance and technical assistance for tourism management. Meanwhile, the media (M) participates in promoting, publicizing, and branding tourist destinations. This study identified 12 actors involved in sustainable tourism development in Pati Regency: the Agency for Development Planning, Research, and

Regional Innovation of Pati Regency (Bapperida); the Office of Youth, Sports, and Tourism of Pati Regency ; the Office of Cooperatives and SMEs of Pati Regency (DinkopUMKM); SMEs Actors at Tourist Destinations of Pati Regency (SMEs Actor); Management of Seloromo Reservoir of Pati Regency (Seloromo); and Management of KH Mutamakkin Grave of Pati Regency (Grave KH). Other relevant actors/stakeholders include the Management of Talun Tourism Village of Pati Regency (Talun Vlge); Management of Pancasila Jrahi Tourism Village of Pati Regency (Jrahi Vlge); Management of Majapahit Gate of Pati Regency (Maja Gate); Tourism of Pati Regency; Academics from Universities (Academics); and Media, Publication, and Communication (Media). In addition to the actors, seven objectives were identified: Optimizing Cleanliness, Health, Safety, and Environmental Sustainability (CHSE); Environmentally Based Sustainable Tourism (Sustainabl); Integrated and Systemati Tourism Destination Management (Management); Digitalization of Business Actors and Tourism Actors (Digitally); Improving the Competence and Skills of Tourism Management (CompSkills); Harmonization of Tourism and Sociocultural Aspects (Sociocultr); and Synergy for Tourism Development of Pati Regency (Synergy). After calculating the data between the actors, the actors with the highest convergence were the Office of Youth, Sports, and Tourism of Pati Regency and Tourism of Pati Regency. This was evident in the Convergence Matrix (3CAA), where these two actors showed the strongest alignment of interests among the actors examined. Of all the objectives, Environmentally Based Sustainable Tourism (Sustainable) was the primary focus of stakeholder engagement, which serves as a tourism development strategy in Pati Regency. These findings indicate that sustainable tourism development in Pati Regency requires coordination among actors with different levels of influences, dependence, and interests. The MACTOR analysis provides a basis for identifying strategic actors and shared objectives that can support more coordinated stakeholder engagement.

DECLARATION OF GENERATIVE AI

The authors declare that no generative AI or AI-assisted technologies were used in the writing process of this manuscript.

CONFLICTING INTEREST STATEMENT

The authors state that there is no conflict of interest in the publication of this article.

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AUTHORSHIP CONTRIBUTION STATEMENT

Dewi Azizatul Kholqiyah, Widiyanto: Conceptualization, Methodology, Investigation, Formal analysis, Writing - Original Draft; Moch Faizal Rachmadi, Fauzul Adzim: Supervision, Validation, Writing - Review & Editing.

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