

The Role of Stakeholders in the Management of Mangrove Sari Ecotourism, Kaliwlingi, Brebes, Central Java

Krisna Nopiyanti^{1*}, Hardjanto², Eva Rachmawati³

¹ Forest Management Study Program, Postgraduate School, IPB University, Bogor, Indonesia.

² Department of Forest Management, Faculty of Forestry and Environment, IPB University, Bogor, Indonesia.

³ Department of Forest Resources Conservations and Ecotourism, Faculty of Forestry and Environment, IPB University, Bogor, Indonesia.

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Corresponding Author:

Krisna Nopiyanti

krisnanopiy@gmail.com

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Abstract: The role of stakeholders is a crucial factor in tourism development. Tourism development cannot be carried out solely by area managers but requires support and contributions from various stakeholders. This study aims to analyze stakeholder involvement in managing Mangrove Sari Ecotourism. This study involved interviews, field observations, and literature reviews, and a qualitative analysis approach was applied. The researchers conducted a stakeholder analysis to identify, classify, and map the roles of each party. The analysis identified eight stakeholders involved in managing Mangrove Sari Ecotourism. The stakeholder in the key player (strong influence and high importance) is Mangrove Sari Tourism Awareness Group. The stakeholders in context setters (strong interest but low influence) are Kaliwlingi Village Government, Mangrove Sari Coastal Forest Conservation Community Group, and Brebes Regency Culture and Tourism Office. The stakeholder in the subject (strong influence but low interest) is the Youth Group Kaliwlingi Village. The stakeholders in Crowds (low interest and low influence) are Forestry Service Branch Region V, Brebes Regency Marine and Fisheries Service, and Kaliwlingi Sea Guardian Community Group. Stakeholder relations remain suboptimal due to role limitations and potential conflicts, which hinder effective coordination and affect the management of Mangrove Sari ecotourism.

Keywords: Ecotourism; Mangrove Forest; Stakeholders; Stakeholder analysis.

Introduction

Indonesia is one of the regions with the largest mangrove area in the world, with around 23% of the total area of the world's mangroves (Darwati, 2022). Based on the update on the National Mangrove Map (PMN), the area of Indonesian mangrove forests in 2023 is 3.44 million hectares. Reserving mangrove forests is vital in maintaining coastal ecosystem sustainability, which benefits local communities. However, the extent of mangrove forests in Indonesia continues to decline annually due to competing land uses (Sambu et al., 2018). Kaliwlingi Village, Brebes Regency, is one of Indonesia's areas with a mangrove ecosystem, with an

area of 505 hectares in 2000. The village was affected by converting mangrove land for aquaculture in 1987-1997 (Albasit et al., 2022). The worst coastal abrasion of the entire Brebes coast occurred in 2000-2008, reaching 186 hectares (Hakim et al., 2018). The abrasion disaster made the community aware of carrying out rehabilitation (Albasit et al., 2022). The area of the Kaliwlingi mangrove forest in 2022 is 299.3 ha (Farahdillah et al., 2025).

The community's success in rehabilitation has given rise to the idea of utilizing the mangrove ecosystem for economic activities by opening ecotourism. Ecotourism is also one of the efforts to preserve the environment and develop a

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sustainable economy (Butarbutar, 2021). The leading purpose of ecotourism is to protect nature and culture locally and benefit the economy and society. The concept balances nature conservation, education, and sustainable economic activities (Angela, 2023). The mangrove area developed by the Brebes government in 2016 for ecotourism is 250 hectares (Eldo & Prabowo, 2020). Mangrove Sari is one of Brebes Regency's leading and most promising tourist attractions. The success of ecotourism initiatives largely depends on effective management, community involvement, and supportive policies (Patil & Pattanshetti, 2024). Stakeholders play a crucial role in the development of Mangrove Sari ecotourism. These stakeholders can be organizations, communities, socio-economic groups, governments, or institutions from various dimensions (Masrurun & Nastiti, 2023).

Mangrove Sari Ecotourism faces several challenges, including declining visitor numbers, reduced income, and inadequate facility maintenance. Frequent tidal floods further damage infrastructure, while limited repairs and underdeveloped facilities have led to fewer tourist attractions, ultimately reducing visitor interest. Although managers, the government, community groups, and NGOs have undertaken various restoration efforts, they have achieved only limited outcomes. Eldo & Prabowo, (2020) notes that coordination among stakeholders in Mangrove Sari Ecotourism is still weak and ineffective. The lack of coordination among stakeholders has hindered the success of efforts in Mangrove Sari Ecotourism.

Ecotourism development cannot be undertaken solely by area managers, it requires active support and contributions from all involved parties (Wondirad et al., 2020). However, in the Mangrove Sari ecotourism, each party tends to act independently based on their interests. To address the aforementioned challenges in Mangrove Sari Ecotourism development, one needs to analyze the stakeholders' role. Therefore, each stakeholder's role can be identified based on their level of interest and influence in developing mangroves and ecotourism. This study analyzes the roles and contributions of each stakeholder to enhance cooperation and promote sustainable management. Stakeholder analysis is an effective method for identifying issues and finding solutions through collaboration and straightforward role assignments. Stakeholder analysis helps identify influential actors and those affected by decision-making (Reed et al., 2009).

Method

Research method

This study employs a qualitative research method. This study qualitatively describes the interests and influences of actors in managing Mangrove Sari Ecotourism.

Data Collection

The data collected consisted of primary and secondary data, with primary data obtained through observation and stakeholder interviews. In contrast, secondary data came from a literature study regarding the general conditions of the stakeholder relationship. The research obtained the sample using the snowball sampling method, which involves moving from one respondent to another to identify key informants until enough data is collected for analysis and drawing research conclusions (Widodo et al., 2018).

Data analysis

Analyzing the roles of actors is done by stakeholder analysis, according to Reed et al. (2009). The analysis is carried out by (1) identifying actors and their interests, (2) classifying the roles of actors in forest governance as key players, context setters, subjects, and crowds, and (3) investigating the relationship between the parties by mapping the relationship between their influence and interests in the implementation of forest governance with the following criteria:

1. Key players are stakeholders with high interests and high influence.
2. Context setters are stakeholders with small interests, and high influence can pose significant risks, so they must be monitored and managed.
3. Subjects are stakeholders with high interests, small influence, and support. They cannot influence but can form alliances to mobilize influence.
4. Crowds are stakeholders with small interests, and small influence do not need to be considered in too much detail or tied/involved.

Table 1. Scores of stakeholder interests and influence

Score	Value	Criteria	Information
Stakeholder Interests Level			
5	21-25	Very high	Has a very strong interest in managing Mangrove Sari
4	16-20	High	Has a high interest in managing Mangrove Sari
3	11-15	High enough	Has a high enough interest in managing Mangrove Sari
2	6-10	Moderate	Has a moderate interest in managing Mangrove Sari
1	0-5	Low	Has a low interest in managing Mangrove Sari
Stakeholder Influence Level			

Score	Value	Criteria	Information
5	21-25	Very high	Very influential in managing Mangrove Sari
4	16-20	High	Influential in managing Mangrove Sari
3	11-15	High enough	Quite influential in managing Mangrove Sari
2	6-10	Not high enough	Less influential in managing Mangrove Sari
1	0-5	Low	It does not affect in managing Mangrove Sari

Researchers measure the interest and influence between actors through scoring. They use a model Nurtjahjawilasa et al. (2015) developed, which applies a five-level data measurement shown in Table 1. They then add the score values from the five questions and map the results into a matrix of interests and influence developed by Reed et al. (2009) in Figure 1.

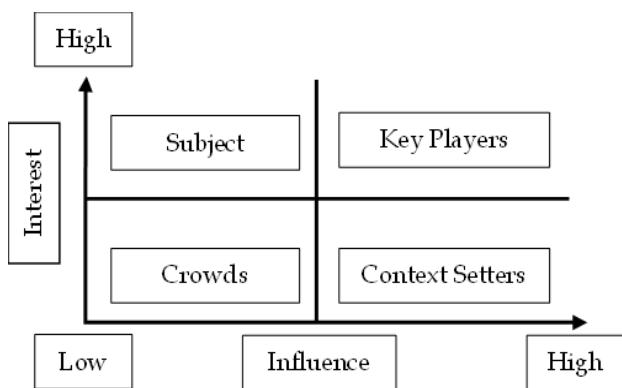


Figure 1. Stakeholder analysis matrix (Reed et al., 2009)

Results and Discussion

The development of Mangrove Sari Ecotourism is currently not the main focus of stakeholders, both at the village and district levels. Although in its implementation several parties have taken roles, their attention and involvement are still minimal. The relationship between parties tends to be limited to communication without in-depth collaboration. Analyzing stakeholders is done to identify problems and find the right solutions through collaboration and provide clear roles to each party involved. Analysis of the roles and relationships of stakeholders in the management of Mangrove Sari Ecotourism will be further described in the following discussion.

Stakeholders Identification

The initial stage in stakeholder analysis is to identify the stakeholders. The known parties identified are those who currently play a direct role in managing Mangrove Sari Ecotourism. Stakeholder identification is fundamental in stakeholder analysis because it

provides an overview of their involvement in the activities (Haryoso et al., 2022). The results of stakeholder interviews in the development of Mangrove Sari Ecotourism obtained eight stakeholders with their respective main tasks showing their current involvement.

1. Brebes Regency Culture and Tourism Office: Acts as supervisor and regulator, provides licensing services, and is involved in the evaluation, oversight, and recognition of tourism activities.
2. Forestry Service Branch Region V: As an information source, supports licensing and regulatory processes and facilitates collaboration in mangrove rehabilitation and conservation.
3. Brebes Regency Marine and Fisheries Service: Provides guidance and information, particularly in community empowerment related to aquaculture and capture fisheries.
4. Kaliwlingi Village Government: Oversees tourism operations, formulates local regulations, and manages administrative matters related to ecotourism.
5. Mangrove Sari Coastal Forest Conservation Community Group: Executes activities to preserve forest areas and coastal integrity in Brebes.
6. Mangrove Sari Tourism Awareness Group: Implements ecotourism initiatives and supports tourism development.
7. Kaliwlingi Sea Guardian Community Group: Monitors and safeguards coastal resources and ensures the sustainability of the Kaliwlingi sea areas.
8. Youth Group Kaliwlingi Village: Assists in conducting and supporting ecotourism activities.

Five questions or main elements and a score form the basis for assessing the level of stakeholder interest in the development of Mangrove Sari Ecotourism. The magnitude of the interest is assessed based on the Stakeholder authority in mangrove ecosystem rehabilitation and conservation activities, the stakeholder authority in ecotourism management and development, the benefits of ecotourism development for stakeholders, the stakeholder priority scale in ecotourism development, and the level of stakeholder dependence on ecotourism development. The discussion uses additional questions gathered during field interviews as material. The scoring compilation results of the stakeholder interest level in tourism development are in Table 2.

Table 3 shows five questions or main elements and a score that forms the basis for assessing the level of stakeholder influence in the development of Mangrove Sari Ecotourism. The magnitude of the interest is assessed based on the stakeholder involvement in

mangrove ecosystem rehabilitation and conservation, the stakeholder involvement in ecotourism management, the stakeholder involvement in empowering communities around the mangrove area, the authority in making ecotourism management policies, the supervision and evaluation of ecotourism management.

Table 2. The level of stakeholder interest in Mangrove Sari Ecotourism

Stakeholders	Value of interest					Total
	K1	K2	K3	K4	K5	
Mangrove Sari Coastal Forest Conservation	5	2	2	1	1	11
Community Group						
Mangrove Sari Tourism Awareness Group	2	5	4	4	5	20
Kaliwlingi Sea Guardian Community Group	3	1	0	0	0	4
Kaliwlingi Village Government	2	3	3	2	2	12
Brebes Regency Culture and Tourism Office	2	3	3	1	2	11
Brebes Regency Marine and Fisheries Service	2	2	0	1	1	6
Forestry Service Branch Region V	5	2	0	1	1	9
Youth Group Kaliwlingi Village	3	2	3	2	4	14

Description: K1: Stakeholder authority in mangrove ecosystem rehabilitation and conservation activities; K2: Stakeholder authority in ecotourism management and development; K3: Benefits of ecotourism development for stakeholders; K4: Stakeholder priority scale in ecotourism development; K5: Level of stakeholder dependence on ecotourism development; K5 - level of stakeholder dependence; Score: 5: Very high; 4: High; 3: Fairly high; 2: Not high enough; 1: Low.

Table 3. Level of stakeholder influence in Mangrove Sari Ecotourism

Stakeholders	Value of influence					Total
	P1	P2	P3	P4	P5	
Mangrove Sari Coastal Forest Conservation	5	3	3	2	1	14
Community Group						
Mangrove Sari Tourism Awareness Group	3	5	4	4	4	20
Kaliwlingi Sea Guardian Community Group	2	0	0	0	3	5
Kaliwlingi Village Government	4	4	3	3	3	17
Brebes Regency Culture and Tourism	4	4	3	4	3	18

Stakeholders	Value of influence					Total
	Office	Brebes Regency Marine and Fisheries Service	Forestry Service Branch Region V	Youth Group Kaliwlingi Village	Kaliwlingi Village Government	
Office	3	1	3	0	0	7
Brebes Regency Marine and Fisheries Service	5	1	3	0	0	9
Forestry Service Branch Region V	3	5	2	0	1	11

Description: P1: Stakeholder involvement in mangrove ecosystem rehabilitation and conservation; P2: Stakeholder involvement in ecotourism management; P3: Stakeholder involvement in empowering communities around the mangrove area; P4: Authority in making ecotourism management policies; P5: Supervision and evaluation of ecotourism management; Score: 5: Very high; 4: High; 3: Fairly high; 2: Not high enough; 1: Low.

The assessment of the level of interest and influence of stakeholders in the management and development of Mangrove Sari Ecotourism is then mapped into a quadrant matrix to determine the position or category of each party. Quadrant I represents the key player category, quadrant II includes the context setter, quadrant III contains the subject group, and quadrant IV consists of the crowd. This classification reflects the current role and level of stakeholder involvement in managing and developing Mangrove Sari Ecotourism. Stakeholders in the top two categories are those who have a great interest in Mangrove Sari Ecotourism, although their level of influence varies. Stakeholders on the right side of the matrix have a greater influence in determining ecotourism strategies with varying levels of involvement in activities. Figure 2 shows the results of this stakeholder classification.

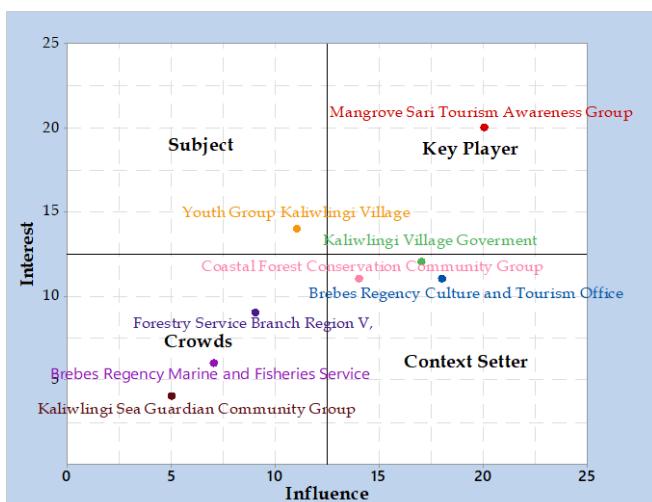


Figure 2. Stakeholder matrix in management and development Sari Mangrove Ecotourism

Key players, high interest and high influence

The most important and influential party in managing and developing Mangrove Sari Ecotourism is the Mangrove Sari Tourism Awareness Group. Their role covers various aspects, such as planning, implementing activities, driving tourism awareness, providing information and promotion, and connecting with external parties. The management and development of ecotourism are entirely under the responsibility of the Mangrove Sari Tourism Awareness Group. According to (Pornprasit & Rurkkhum, 2019), community-based ecotourism actively engages local communities in managing natural resources, aiming to protect economic, cultural, and biological diversity. Utama et al. (2021) stated that community involvement in ecotourism is ideal for ecotourism development, where the community is directly involved in all activities of the crucial decision-making process, namely project planning and budgeting so that the community is involved because they feel they own the project. As mentioned above, community participation is the key to sustainable tourism development and an important component in ensuring the successful implementation of community-based ecotourism. As the key player, the Mangrove Sari Tourism Awareness Group is ideal for Mangrove Sari's development because they feel that they own the ecotourism. However, they face considerable human resource challenges, with predominantly elderly management and the departure of younger, more creative members seeking better opportunities. This shortage hinders promotional and innovative efforts, limiting ecotourism development. Although collaboration with stakeholders exists, it remains limited, highlighting the need for more integrated and comprehensive cooperation. According to (Patil & Pattanshetti, 2024), the success and sustainability of ecotourism initiatives depend on effective management, active community involvement, and supportive policy frameworks from stakeholders' collaboration.

Context setter, high influence but low interest

Stakeholders in the context setter quadrant, namely the Brebes Regency Department of Culture and Tourism, the Kaliwlingi Village Government, and the Mangrove Sari Coastal Forest Conservation Community Group, have a high level of influence. However, their interest in developing Mangrove Sari Ecotourism is still relatively low.

1. The Brebes Regency Department of Culture and Tourism holds substantial authority in tourism management, supported by adequate human resources and regulatory capacity. However, its involvement in Mangrove Sari Ecotourism only

focuses on information dissemination, administrative oversight, licensing, and policy development. As a facilitator for tourism village groups, they also conduct evaluations, provide supervision and recognition, and submit annual reports to the provincial government. Meanwhile, the managerial side entirely takes over the management of ecotourism. Despite its broad influence and responsibilities, its direct interest in Mangrove Sari Ecotourism remains limited. Although their direct involvement is still lacking, they have carried out their roles well according to their portion. What needs to be improved is the collaboration between them and the mangrove sari management so that the mangrove sari management does not run alone but can create the best innovation in ecotourism development.

2. The current classification categorizes the Kaliwlingi Village Government as a context setter. The Village Government has a strategic role, including supervision, opening relations, encouraging regional development, and implementing authority related to the protection and development of facilities and infrastructure. In addition, the Village Government is also involved in the limited management of village tourism administration, such as managing permits, recording, and reporting to related agencies. Although authorized to monitor and supervise, the role of the Kaliwlingi Village Government tends to be limited to direction and support to ensure that ecotourism activities run safely and comfortably. The village government actively participates in activity meetings. It supports the positive activities of the Mangrove Sari Tourism Awareness, but involvement in planning and managing activities is minimal, and input is provided only without in-depth intervention. The limited involvement of the Kaliwlingi Village Government in managing Mangrove Sari Ecotourism stems from the autonomous establishment of the Mangrove Sari Tourism Awareness Group, which operates under its articles association and bylaws and does not directly report to the village. Although Mangrove Sari Ecotourism is part of the village tourism program, Mangrove Sari Tourism Awareness functions independently, limiting government roles to supervision and facilitation (e.g., issuing regulations and infrastructure support).
3. The current classification places the Mangrove Sari Coastal Forest Conservation Community Group as a context setter. Although some members of the Mangrove Sari Coastal Forest Conservation Community Group are also members of the Mangrove Sari Tourism Awareness, the two

institutions have different duties and functions. They handle conservation and rehabilitation by offering capacity building and guidance to coastal communities to sustain natural and human resources, enhance environmental quality, and support regional development through independent welfare activities. The difference in roles between two communities is often confusing because both share the same members. Institutionally, ecotourism management is the Mangrove Sari Tourism Awareness Group's responsibility. At the same time, the main task of the Mangrove Sari Coastal Forest Conservation Community Group is the conservation and rehabilitation of mangrove forests. However, the Mangrove Sari Tourism Awareness Group's organizational structure has a rehabilitation section, which is the Mangrove Sari Coastal Forest Conservation Community Group's primary task.

Subject, high interest but low influence

Karang Taruna of Kaliwlingi Village is categorized as a subject. The role of Karang Taruna focuses on supporting the implementation of ecotourism activities, such as becoming tour guides, creating creative content for promotion, providing advice on the development of tourist attractions, and assisting in mangrove rehabilitation activities through tree planting. Although the influence of Karang Taruna in the management and development of ecotourism as a whole is relatively low, their absence has a significant impact on the sustainability of ecotourism. The minimal involvement of creative youth has caused stagnation in the development of ecotourism.

Crowd, low interest and low influence

Stakeholders included in the crowd category include The Forestry Service Branch of Region V, The Brebes Regency Marine and Fisheries Service, and The Kaliwlingi Sea Guardian. Stakeholders in this category have a relatively low level of interest and influence on the management and development of the Mangrove Sari Ecotourism. However, they still contribute through specific roles, especially in supporting conservation and community empowerment programs.

1. The Forestry Service Branch of Region V supports community empowerment and coastal conservation through programs like mangrove batik and seed procurement. They facilitate partnerships with institutions and CSRs, participate in meetings, provide field support, and monitor conservation efforts. While their direct influence on Mangrove Sari Ecotourism is limited, their environmental contributions are significant.
2. The Brebes Regency Marine and Fisheries Service supports Mangrove Sari Ecotourism through a

Community-Based Tourism (CBT) approach focused on ecology, economy, and education. Their contributions include infrastructure development and participation in mangrove planting. However, their primary focus remains on fisheries, and they lack direct authority over ecotourism supervision, which now falls under provincial jurisdiction. Their involvement in ecotourism is limited and situational.

3. The Kaliwlingi Sea Guardian plays a vital role in monitoring and safeguarding coastal resources to ensure the sustainability of the Brebes Sea and its surrounding areas. Their responsibilities include protecting the mangrove ecosystem, comprising vegetation, marine organisms, and other biodiversity, such as bird species, from illegal activities and poaching. The Sea Guard can apprehend and hand offenders to the relevant authorities for legal processing.

There is overlapping authority between The Brebes Regency Marine and Fisheries Service and The Forestry Service Branch of Region V regarding mangrove forest management. The Brebes Regency Marine and Fisheries Service claims early involvement in mangrove planting, while The Forestry Service Branch of Region V asserts authority once the mangroves mature. Transferring marine area management to the provincial level has created tension due to differing priorities. The Forestry Service Branch of Region V focuses on conservation. In contrast, The Brebes Regency Marine and Fisheries Service emphasizes food security through aquaculture. To address this, The Forestry Service Branch of Region V proposed designating the area as an Essential Ecosystem Area to harmonize policies and enhance institutional cooperation. According to (Canavan, 2016), the ineffective collaboration led to several negative impacts that weakened local tourism management, including the absence of a unified strategic commitment. This situation resulted in overlapping or conflicting strategies, inefficient use of resources, reduced stakeholder motivation, and the emergence of potential conflicts. Consequently, stakeholders developed significant mistrust, particularly between the government and other involved parties.

Referring to (Ackermann & Eden, 2011), based on the roles and conditions explained above, stakeholders in the key player category are parties with interests and a high level of power to support or even hinder the management strategy of Mangrove Sari Ecotourism. Meanwhile, the subject group has interests but is less influential. Management can encourage collaboration to strengthen the positive influence of the subject group so that they can transform into key players. The context

setter group holds significant power over the future of Mangrove Sari Ecotourism, especially in shaping the strategic context where the organization will implement its plans. Management needs to increase their awareness, develop interest, and encourage them to become active players. On the other hand, the crowd group currently does not show significant interest or power to influence the outcome of the strategy. This group can be considered a potential stakeholder, but it has not shown much interest or influence in managing Mangrove Sari Ecotourism.

Conclusion

Eight stakeholders were identified as involved in the management of Mangrove Sari Ecotourism, grouped into one key player, namely Mangrove Sari Tourism Awareness Group, three context setters (Kaliwlingi Village Government, Mangrove Sari Coastal Forest Conservation Community Group, and Brebes Regency Culture and Tourism Office), one subject (Youth Group Kaliwlingi Village), and three Crowds (Forestry Service Branch Region V, Brebes Regency Marine and Fisheries Service, and Kaliwlingi Sea Guardian Community Group). All the stakeholders have carried out their roles well according to their portion. The relationship between stakeholders is still not optimal due to various obstacles, including limitations in the duties and responsibilities of each party. In addition, the potential for conflict can also hinder the effectiveness of coordination between stakeholders, thus impacting the management of Mangrove Sari ecotourism. Therefore, various institutions must actively support ecotourism management to ensure practical cooperation and coordination, as one party alone cannot manage it successfully.

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Conflicts of Interest

The authors declare no conflict of interest.

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