

## ECOSYSTEM MODEL OF TOURISM VILLAGE IN URBAN AREA: CASE STUDY OF DENPASAR CITY, BALI

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Article Info	Abstract
<b>Keywords:</b> Bali, ecosystem of tourism village, Denpasar city, stakeholder role, urban area.	Tourism villages in urban areas are a one-of-a-kind and rare product in the midst of the city's hustle and bustle and high mobility. Denpasar City has six tourism villages: Serangan, Sanur Kauh, Kertalangu, Sanur Kaja, Penatih, and Sanur; however, the development of tourism villages has fallen far short of expectations and failed to serve as a model for other tourism villages. The primary barrier to inclusive and sustainable development is a lack of stakeholder participation and collaboration. Creating a sustainable tourism village ecosystem model is critical for managing resources, empowering communities, and increasing regional appeal and income through collaboration and innovation. The purpose of this study is to create a tourism village ecosystem model and clarify the roles of the actors involved. Based on the existing model, obstacles to tourism village development can be identified, with the goal of designing an ideal model that can be used as a reference for other tourism villages. The tourism village ecosystem model in Denpasar City emphasizes collaboration among various actors to create mutually beneficial synergies, focusing on improving tourist experience quality, preserving culture and the environment, and improving local community welfare. Tourism villages in urban areas provide uniqueness by integrating local cultural elements and city dynamics, allowing them to serve as alternative tourist destinations. These tourism villages have the potential to serve as role models for the development of tourism in other urban areas by focusing on sustainability and community empowerment.
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## INTRODUCTION

Given the growing urban population, urban transformation toward global sustainable development is imperative (Kennedy et al., 2015; Ernst et al., 2016; Ma et al., 2018). This is following the Sustainable Development Goals (SDGs) established by the United Nations, which are designed to develop sustainable, resilient, inclusive, and safe urban settlements (<https://sdgs.un.org/goals>). The success of tourism development in a tourist destination is determined by the role and participation of tourism stakeholders in the area (Amerta, 2017).

A tourism village is defined as a rural area that provides a whole atmosphere that reflects the authenticity of the countryside, such as the layout, architecture of the buildings, the pattern of social and cultural life of society, and everyday customs (Amerta, 2017). Tourism villages are rural areas designed as tourist destinations, emphasizing cultural and natural attractions and providing unique experiences that allow tourists to participate in the daily lives of local communities. A tourism village is a village with a distinct identity that can be used as a tourist travel destination, i.e., a journey for knowledge and pleasure (Nurvianti & Hastuti, 2021; Wijaya, 2021; Salouw & Pramono, 2022). Rural tourism is a profitable development strategy for many destinations because of the economic and social benefits it can generate, not only for rural areas but also for the entire tourism destination (Farmaki, 2016).

Improving the performance of socioeconomic indicators can help reduce income disparities and improve community welfare, thereby supporting long-term development. People from villages typically migrate to cities in search of higher income opportunities. Meanwhile, in cities, the income disparity between residents is expected to grow (Sertyesilisik, 2023). Push factors include limited economic opportunities, low wages, poverty, and inadequate access to essential services like healthcare and education. Environmental issues and resource scarcity also compel individuals to seek better prospects in cities. Conversely, pull factors consist of greater job availability, higher wages, and improved access to education and healthcare, as well as enhanced social benefits.

The proximity to major tourist attractions is a significant advantage for the village's development into a tourism village (Arintoko et al., 2020). Tourism villages located in urban areas offer both opportunities and challenges. Tourism villages are areas associated with the region and various local wisdoms (customs, culture, and resources) managed as tourist attractions supporting the village community's social and economic goals. Local wisdom is a characteristic of a specific community or culture that has evolved over time, has been passed down from generation to generation, and is owned and operated as a result of the reciprocal relationship between the population and their environment.

Regulation of the Minister of Culture and Tourism Number 26 of 2010 outlines the definition of a tourism village as a form of integration between attractions, accommodations, and supporting facilities presented in a community life structure integrated with applicable procedures and traditions. The success of a tourism village is greatly influenced by the tourist attractions it has, the activities it designs, the location and ease of accessibility, governance and management of the tourism village, support from village officials, figures, tourism actors and the local community, as well as the ecosystem of the tourism village that allows economic activities to run well. Currently, the number and quality of tourism villages in Indonesia are skyrocketing. Various appreciations are held and given to spur creativity in developing tourism villages. The number of tourism

villages in Bali continues to increase year by year. In 2018, there were 154 tourism villages recorded (Arismayanti et al., 2019), 179 in 2021, and has now reached 246 tourism villages (Bali Tourism Office, 2024); (<https://disparda.baliprov.go.id/>) spread across the regencies/cities in Bali. By virtue of the Decree of the Mayor of Denpasar Number 188.45/472/HK/2015, the number of tourism villages in Denpasar City is six tourism villages (2.44%) with a developing category (Bali Tourism Office, 2024); (<https://disparda.baliprov.go.id/>).

Denpasar Municipality has a total area of 125.97 km<sup>2</sup> and consists of 4 sub-districts, with the largest sub-district being South Denpasar (49.89 km<sup>2</sup>). The presence of tourism villages in urban areas such as Denpasar is unusual and intriguing. Given the numerous problems associated with tourism villages in Bali's regencies, such as difficult accessibility, limited infrastructure and marketing, human resource capabilities, and a variety of other issues. It appears that problems are also encountered in cities that should not be constrained by these problems. Furthermore, tourism villages in urban areas must be able to integrate traditional and modern elements in an urban setting. This concept enables visitors to experience authentic local culture without traveling far from the city center.

Denpasar is Bali Province's capital city, with a population of 673,270 people in 2024, divided into four sub-districts: West Denpasar (28.42%), South Denpasar (27.74%), North Denpasar (25.57%), and East Denpasar (18.22%) (Indonesia Statistics Denpasar City, 2025). Denpasar City has only six tourism villages, which are spread across two of its four subdistricts. South Denpasar District has four tourism villages (Serangan, Sanur Kauh, Sanur, and Sanur Kaja), while East Denpasar District has two (Kertalangu and Penatih). Figure 1 shows the location of each tourist village.

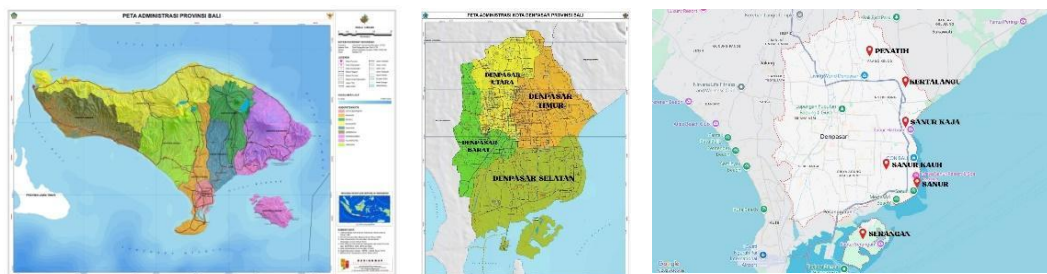


Figure 1. The Location of Tourism

Villages in Denpasar City

Sources <https://petatematikindo.wordpress.com/wp-content/uploads/2013/03/administrasi-bali-a1-1.jpg>;  
<https://images.app.goo.gl/pGxUjNgfBcCE7Tc57>;  
[https://maps.app.goo.gl/bPTEko3ymJcZi4ky6?g\\_st=com.google.maps.preview.copy](https://maps.app.goo.gl/bPTEko3ymJcZi4ky6?g_st=com.google.maps.preview.copy)

However, the development of tourism villages in Denpasar City has fallen significantly short of expectations, and it has failed to serve as a model for the development of tourism villages in other parts of Bali. Tourism development provides a new impetus for revitalizing traditional villages and can help guide the harmonious integration of modernity and tradition in rural areas (Wu & Xu, 2017). When developing a tourism village, the ecosystem is required as a product based on local potential. The tourism business ecosystem framework includes connections and collaborations among the various entities involved in the business. In the twenty-first century, collaborative business ecosystems have grown and expanded (Graça & Camarinha-Matos, 2017); (Tsou et al., 2019). The tourism village ecosystem is critical for the development of tourism villages because it has a significant impact on activity efficiency and effectiveness, convenience, competitive pricing, and

healthy business competition. Building a tourism village ecosystem is critical to achieving the goals of developing tourism villages because it promotes local economic empowerment, increases community income through tourism services, and preserves the environment, culture, and existing traditions. The tourism village ecosystem comprises interconnected businesses working together to create a system that provides value to customers. Understanding the dynamics of this ecosystem can provide essential insights for the organizations involved.

Stakeholder theory emphasizes the link between stakeholders' interests and business success. In this context, stakeholders are defined as individuals or groups influencing or impacting an organization's goals and activities (Freeman, 1984). This theory contends that the success of sustainable development necessitates considering the interests and perceptions of all stakeholders (Byrd, 2007). As a result, understanding these dynamics is critical to achieving the best outcomes for all parties involved. Control and coordination, collaboration and integration, clarity of roles and responsibilities, communication, and a focus on access and inclusion are all necessary for effective stakeholder collaboration to enable accessible tourism (Nyanjom et al., 2018). Roles are shared conceptions within a community, and changes in role understanding may indicate changes in the interactions and relationships between community members (Wittmayer et al., 2017). The concept of roles creates a shared reality to which actors can refer and provides a link to 'regularities in the cultural environment' (Lynch, 2007; Wittmayer et al., 2017). According to this viewpoint, a role is a collection of recognizable activities and attitudes used by an actor to deal with recurring situations. This implies that roles can be defined as ideal types, but they are socially constructed and thus subject to negotiation and change.

The problems in this study are as follows: 1) What is the model of the tourism village ecosystem in Denpasar City? 2) Who are the actors involved, and what roles do they play in Denpasar City's tourism village ecosystem? This study aims to create a model of a tourism village ecosystem and emphasize the role of the actors involved in overcoming the challenges that tourism villages face. This study adds to the ecosystem literature by developing a model of a tourism village ecosystem that can be applied to tourism villages. Based on the existing model, obstacles to tourism village development can be identified, with the goal of designing an ideal tourism village model that can be used as a reference for stakeholders and tourism villages. Because conceptual and empirical research on tourism village ecosystems is still limited, this study is expected to provide new insights into collaboration management as well as significant theoretical and managerial implications from the standpoint of a tourism village ecosystem.

Locally located stakeholders, such as farmers, suppliers, marketers, artists, and craftsmen, can play an active role with local governments to create value for consumers and thereby make the initiative innovative and sustainable (Billore, 2018). Ecosystems have different governance systems and coordination mechanisms, which are considered as cooperation (Rong et al., 2015). Tourism needs to respond appropriately to two main things: the tourism ecosystem that is not yet integrated, and the use of technology in tourism that is not yet optimal. In order to ensure integration in the tourism ecosystem, it is done through synergy efforts between stakeholders and by combining the diversity of types of tourism and policies, so as to produce an integrated tourism ecosystem (Yudhoyono et al., 2021).

There are four levels of tourism villages, as indicated by Aliyah et al. (2020), when mapped: 1) Pioneering, which still has potential but has received no tourist visits. Furthermore, the facilities and infrastructure are still significantly limited, with the level of public awareness not yet increasing; 2) Developing, which means that, while it is still a potential, it has begun to be considered for future development. 3) Advanced, which means that the community is already aware of tourism and has demonstrated that they can manage tourism businesses, including the use of village funds to develop tourism potential. Many tourists, including those from abroad, have visited the area. 4) Independent, which means that there is already tourism innovation in the community, and tourist destinations have been recognized globally with standardized facilities and infrastructure. In addition, the management is a collaborative pentahelix. Denpasar City's tourism villages are currently in the developing category, which means they attract tourists from outside the region and have a high level of appeal. Good facilities and infrastructure, such as housing, transportation, and support services, have created job opportunities for residents. The public is becoming more aware of tourism's potential and actively participates in management and skill-building programs. Sustainable practices are used to protect the local environment and culture, as well as effective marketing to attract more visitors.

Although numerous studies have been conducted on tourist villages, there are several significant gaps that must be addressed. First, research tends to focus on rural areas, whereas the challenges and opportunities of tourism villages in urban areas, such as Denpasar City, have received insufficient attention. Second, the understanding of stakeholder collaboration in developing tourism villages remains limited. Third, no comprehensive and well-measured ecosystem models are designed specifically for urban contexts. Limitations in the application of innovation highlight the need for additional research to develop a more comprehensive and practical approach to developing tourism villages in urban environments.

## METHODOLOGY

This study was conducted in 2024 in all tourism villages in Denpasar City, including Serangan, Sanur Kauh, Kertalangu, Sanur Kaja, Penatih, and Sanur Village. Data were collected through observation, interviews, Focus Group Discussion (FGD), and ISM questionnaire distribution. The study began with interviews and FGDs to explore the elements of each factor, followed by the next FGD by filling out the questionnaire elements in each factor using the respondent determination technique with purposive sampling of 17 respondents, namely stakeholders in six tourism villages in Denpasar City (each tourism village groups/village officials/community leaders/community business managers).

In addition, the FGD and questionnaire were also filled out by representatives of the Bali Provincial Tourism Office, Denpasar City Tourism Office, Chairperson of the Bali Provincial Communication Forum, Academics, Media, WWF Representatives, Chairperson of the Bali Tour Guide Association, and Chairperson of the Bali Travel Agency Association. The types of data used in this study are qualitative and quantitative data. The data sources are primary and secondary data. This study uses Interpretive Structural Modelling (ISM) data analysis techniques and qualitative descriptive methods.

This study examines the tourism village ecosystem model through a systematic application of elementary graph theory. It uses its theoretical, conceptual, and computational advantages to explain the conceptual relationships between elements (Attri





et al., 2013; Darmawan, 2017). There are six steps to developing the ISM model: 1) Structural Self-Interaction Matrix (SSIM), 2) Reachability Matrix, 3) Level partitions, 4) Conical Matrix, 5) Digraph, and 6) ISM Model.

This study employs seven factors: the community sector affected by the program, the needs of the program implementation, the main obstacles to the program, the program's objectives, the changes enabled by the program, the institutions involved in the program implementation, and the program's success benchmarks. All factors are examined to identify the key components, which are then used to build a structural model.

## FINDINGS AND DISCUSSION

### 1. Tourism Village in Denpasar City

Denpasar City is the capital of Bali Province and serves as the center of government, economy, and culture. Although often considered a gateway to other tourist destinations in Bali, Denpasar has several interesting tourist attractions for visitors. The tourism village of Sanur, located on the east coast of Bali, is known as one of the most popular tourist destinations in Bali, offering beautiful white sandy beaches and a peaceful atmosphere. Sanur Beach is famous for its long bicycle and pedestrian paths, which are ideal for leisurely activities such as walking, jogging, or cycling. In addition, the Sanur art market provides handicrafts, artwork, and typical Balinese food, while cultural performances and water sports activities, such as snorkeling and surfing, further enrich the tourist experience.

The tourism village of Sanur Kauh, which is a part of Sanur, provides a tranquil village atmosphere, a rich cultural heritage, and stunning natural beauty. In the context of agrotourism, Sanur Kauh offers visitors the opportunity to engage in educational workshops on sustainable farming practices and learn about organic farming at local gardens. Visitors can observe and experience local culture firsthand, as the local community is actively involved in preserving traditions and culture through various traditional ceremonies. Handicrafts, including traditional textiles and bamboo weaving, are also tourist attractions that facilitate interaction between craftsmen and tourists.

Sanur Kaja, situated in the northern region of Sanur, is distinguished by its rural atmosphere. The local community in this area continues to uphold the traditions and customs of Bali. The cultural park in Sanur Kaja is frequently utilized for community activities, festivals, and art performances, serving as a focal point for individuals to convene to commemorate traditional events. Furthermore, there are numerous temples in this region that serve as spiritual hubs, providing tourists with the opportunity to observe religious ceremonies that are frequently conducted. The community and tourists are also involved in environmental conservation activities, such as beach cleaning and tree planting, which raise awareness of the significance of sustainability.

Kertalangu is an example of a cultural village that combines agriculture and tourism, with a focus on preserving Balinese culture and providing educational opportunities for visitors. Kertalangu Agrotourism allows visitors to participate in agricultural activities such as planting rice and harvesting garden produce while learning about traditional farming techniques. In addition, the village frequently hosts arts and crafts workshops where visitors can learn how to make traditional products. Culinary tourism in Kertalangu also provides tourists with a rich gastronomic experience by serving local cuisine made from fresh ingredients.

In Penatih, the community is deeply dedicated to the preservation of Balinese cultural heritage, and the town is replete with tradition and culture. There are several historic temples in Penatih where religious ceremonies are frequently held, allowing visitors to learn about the temples' meaning and function in the lives of the locals. Quality handicrafts, such as weaving, carving, and jewelry, are among the attractions, with visitors able to purchase products directly from the artisans. Furthermore, various festivals and cultural events held throughout the year allow visitors to interact with the local community and experience daily life.

Serangan, a fishing village with strong cultural traditions, is situated on a small island near Denpasar. Visitors to Serangan may engage in marine tourism activities, including snorkeling, diving, and fishing, in the crystal-clear waters surrounding the area. Traditional dance and music are frequently featured in cultural events organized by the Serangan community, which offer a glimpse into the local culture. The village also offers visitors the opportunity to participate in environmental conservation activities, such as programs that protect coral reefs and turtles. The culinary traditions of the local fishermen community are reflected in the authentic local flavors offered by culinary tourism in Serangan.

In general, each of the six tourism villages in Denpasar City provides a distinctive and culturally significant tourism experience. Visitors can directly experience the cultural richness and natural beauty of Bali through a variety of activities and attractions that involve local communities. In addition to contributing to the preservation of culture and the environment, these villages also empower local communities, thereby establishing a sustainable tourism ecosystem. Additionally, they serve as tourist destinations. All tourism villages in Denpasar City are classified as "developing" by the Bali Provincial Tourism Office, indicating that they still have potential but are being considered for further development.

## 2. Tourism Village Ecosystem Model

The ecosystem model includes multiple factors in each element that interact with one another. These elements were explored through focus group discussions with related stakeholders who participated in this study. Table 1 shows the factors used in this study.

**Table 1.** Factors and Program Elements

Factors	Elements
Affected community sectors	Local communities, tourism village managers, government, local community institutions/organizations, community leaders, Micro, Small and Medium Enterprises (MSMEs), academics, media, travel agencies, Non-Governmental Organizations (NGOs), suppliers, security officers, and tourism organizations.
Needs for program implementation	Stakeholder commitment and support, tourism village governance and management, stakeholder roles and active participation, training and education, competent human resources, business capital, cleanliness, waste management, accessibility, supporting infrastructure and facilities, marketing, coaching, and mentoring.
Main program constraints	Lack of stakeholder commitment, lack of proper governance, lack of participation, need for training, incompetent human resources, need for capital, lack of cleanliness, less than optimal waste management, lack of accessibility, limited infrastructure and facilities, lack of coaching.

Program objectives	Increased income and welfare, village economic growth, additional employment opportunities, community empowerment, preservation of culture and environment, increased tourist visits, good governance, improved quality of human resources, availability of infrastructure and facilities, accessibility, cleanliness.
Possible changes	Stakeholder synergy, product innovation, increasing community participation, increasing employment opportunities, increasing visits, increasing income, competent human resources, better management, increasing access, infrastructure and facilities, cleanliness, and tourism villages are increasingly well-known.
Institutions involved	Central government (Ministry of Tourism); local government; traditional institutions; tourism village managers; suppliers; travel agencies; tourism industry; MSMEs; <i>BUMDes</i> (Village-owned Enterprises)/village cooperatives; universities; media.
Measures of success	Sustainability of culture, nature, and the environment; comfortable and clean tourism villages; increasing employment opportunities; increasing income; increasing the number of MSMEs; increasing industry profits; community welfare; repeat visits; professional services; good waste management; sustainable development.

Source: Research data, 2025

Based on data analysis with ISM (attached), key elements are generated in each factor, which serve as the primary drivers in identifying complex relationships and hierarchies between elements in a system. The main components of each factor are:

**Table 2.** Factors and Key Elements

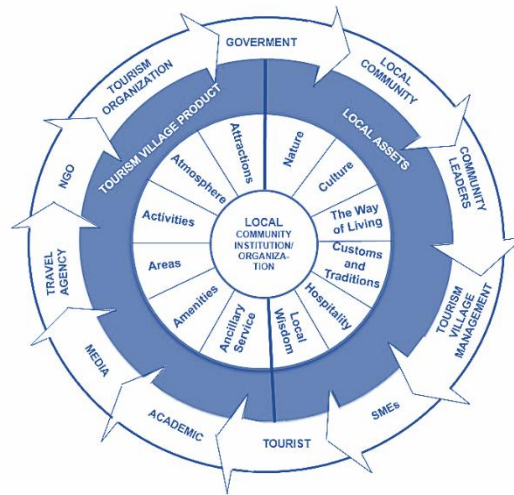
Factors	Key Elements
Affected community sectors	E4: local community institutions/organizations (traditional villages, traditional hamlets, <i>subak</i> , fishermen groups, youth groups, and others).
Needs for program implementation	E1: commitment and support of stakeholders in advancing the village.
Main program constraints	E2: governance and management of tourism villages.
Program objectives	E3: role and active participation of stakeholders in developing tourism villages.
Possible changes	E1: lack of commitment and support of stakeholders in advancing the village.
Institutions involved	E5: preservation of culture, nature, and the environment.
Measures of success	E6: increasing tourist visits.

Source: Research data, 2025

Based on the ISM analysis stages, a concept was produced that describes the collaboration between twelve stakeholders (Dedoca Helix) in the tourism village ecosystem, emphasizing that local community institutions/organizations (traditional villages, traditional *banjar*, *subak*, fishermen groups, youth groups, and others) are key elements of the affected community sector, namely the involvement of these institutions/organizations is crucial to ensure that the development. Success in developing tourism villages necessitates commitment and support, improved governance and management of tourism villages, and the active participation of stakeholders in the development process. The development of tourism villages is expected to protect culture, nature, and the environment, which are tourism villages' main assets. Furthermore, the



development of tourism activities to create tourist experiences and the innovation of tourism products are essential for attracting tourists to tourism villages and distinguishing one from another.



**Figure 2.** Dedoca Helix Tourism Village Ecosystem Model

The center and driving elements of local assets and products in tourism villages are traditional villages, traditional hamlets, *subak*, fishermen groups, youth groups, and other local community institutions/organizations, which are determined by the potential and needs of the community. In order to ensure sustainability, it is imperative to preserve the village's assets, including nature, culture, way of life, customs and traditions, hospitality, and existing local wisdom. In the interim, the development of tourism villages can be further facilitated by developing tourism village products (6A: Attractions, Atmosphere, Activities, Areas, Amenities, and Ancillary services), as they offer direct benefits and empower local communities. Tourism village products necessitate the support of ecosystem components, including the government, local communities, community leaders, tourism village managers, MSMEs, tourists, academics, media, travel agencies, NGOs, and tourism organizations. Each of these entities must possess, comprehend, and execute their respective responsibilities to facilitate tourism villages' sustainability.

The Dodeca Helix ecosystem model presents an innovative strategic approach to tourism village development, emphasizing synergies between stakeholders, including government, communities, and the private sector. Within this framework, government control serves as an essential mechanism to ensure regulatory compliance and promote the long-term sustainability of tourism initiatives. Analysis shows that the synergies created can expand the variety of products offered by MSMEs. This product diversification not only increases the attractiveness of tourism villages but also has the potential to increase local income significantly. Improving the quality of tourist experiences is a key indicator; positive experiences not only encourage repeat visits but also generate word-of-mouth promotion, which is highly valuable in the tourism industry.

The aspect of preserving culture and the environment is a central element in this model. The success of sustainable tourism lies in the ability to maintain and respect cultural heritage and local ecosystems. By involving communities in decision-making, the Dodeca Helix model ensures that local values are integrated into every development aspect. Strong

stakeholder collaboration creates a support network essential in overcoming development challenges, such as conflicts of interest and unsustainable resource management. Research shows that collective commitment can optimize resources and strengthen the competitiveness of tourism villages. The Dodeca Helix model can ensure the sustainability of the tourism village ecosystem while contributing significantly to improving the welfare of local communities. With an integrated approach and a focus on collaboration, tourism villages can develop into attractive and sustainable destinations for future generations, providing substantial economic benefits and preserving valuable culture.

### **3. Actors Involved and Their Roles in the Tourism Village Ecosystem**

Many parties must collaborate to implement and revitalize tourism villages that are part of a broader system in developing tourism villages. To date, the inadequacy of the governance and management of tourism villages in Denpasar City, the lack of involvement in the development of tourism villages, the ignorance of the roles and positions that should be performed in formal and informal organizational structures, the commitment to the development and management of tourism villages, the availability of time for actors who should be involved, and the limited budget available have prevented all parts/subsystems of tourism villages from fulfilling their full potential. The following individuals are engaged as agents of change and progress in the tourism villages of Denpasar City: local communities, tourism village managers, government, local community organizations, community leaders, MSMEs, tourists, academics, media, travel agencies, NGOs, and tourism organizations.

#### **1) The Role of Local Community Institutions/Organizations**

Local Community Institutions/Organizations play an important role in developing tourism villages, particularly in terms of cultural preservation, resource management, community empowerment, and decision-making. Cultural and traditional preservation is done by preserving the culture, customs, and traditions of tourist attractions. This organization educates and trains the younger generation about local culture while organizing festivals, ceremonies, and cultural events for tourists. Art and craft performances are also held to introduce local traditions. They can also manage natural resources because they have extensive local knowledge of sustainable natural resource management. They can promote environmentally friendly agricultural practices and advocacy for environmental protection and biodiversity, both of which are integral to indigenous peoples' cultural identity. Furthermore, economic empowerment is done by encouraging indigenous peoples to start small businesses, such as homestays and restaurants, which can provide alternative income. They can help market local products to tourists and form partnerships with the government and NGOs to increase market access for local businesses. Local community institutions/organizations can be decision makers, advocates, and protectors of indigenous peoples' rights to land, resources, and culture. They can ensure community participation in decisions that affect their lives and educate community members on their legal rights. Lastly, collaboration and networking are conducted by collaborating with local, national, and international organizations to strengthen indigenous communities' positions in tourism village development. They can attend forums and conferences to share their experiences and best practices, as well as

conduct research and advocacy with NGOs and academics. These organizations can help indigenous communities maintain their uniqueness and cultural richness.

## 2) The Role of Local Communities

The success and sustainability of the initiative are based on the participation of local communities in the development of tourism villages, highlighting their crucial role. One of them is economic empowerment, which enables communities to capitalize on opportunities to establish local businesses, including homestays, restaurants, and handicraft stalls, as well as to generate new employment opportunities in the tourism sector, including local tour guides, service businesses, and MSMEs. Next, preservation of culture and tradition through organizing festivals, art performances, and traditional events, as well as participating in preserving traditions and the arts. Local communities can also provide visitors with information about the culture and history of their area by serving as tour guides. Furthermore, they can manage sustainable practices in natural resource management, such as water conservation and waste management, implemented by communities. Communities can actively participate in the planning and decision-making process to express their needs. Local needs must be considered through active participation in all stages of development, from planning to evaluation. The next is capacity building - communities can participate in skills training in tourism management and customer service. Regarding product and service innovation, the community can innovate in the development of tourism products and services that reflect local culture. The community can promote the village through social media as tourism ambassadors, and the community can provide feedback on the impact of tourism village development and monitor projects to ensure sustainability by conducting monitoring and evaluation. It is essential to involve the local community to guarantee that tourism initiatives yield tangible advantages for the community. The development of sustainable tourism villages is contingent upon the active participation and support of local communities, which is a source of pride for the local community.

## 3) The Role of Community Leaders

Community leaders contribute significantly to the development of tourism villages through their influence, leadership, and reputation within the community. They serve as leaders and motivators who inspire residents to actively participate in tourism development. By organizing meetings and events to discuss development plans, they help mobilize the community and also represent its interests in discussions with the government and other stakeholders involved in tourism projects. In addition, community leaders act as mediators and communicators, serving as liaisons between the community and entities such as the government, NGOs, and the private sector. They convey the community's needs and aspirations, while also educating residents about the benefits and challenges of tourism, as well as the importance of cultural and environmental preservation. They also play a vital role in preserving culture and tradition by encouraging the community to maintain local customs and wisdom that hold tourism potential. These leaders often organize cultural events and festivals that showcase local arts and crafts, while also teaching younger generations about the value of cultural heritage. Moreover, they support economic empowerment by motivating the community to develop small tourism-related businesses,



such as homestays and restaurants. They assist in creating local products and help secure funding or capital needed to launch these ventures. Finally, community leaders are involved in monitoring and evaluating tourism village development projects to ensure they align with community goals and do not cause harm. They collect feedback on tourism's impact and compile reports that can inform future improvements. Overall, community leaders play an essential role in the growth of tourism villages by providing leadership, encouraging participation, fostering communication, preserving culture, supporting economic initiatives, and overseeing progress.

#### 4) The Role of Tourism Village Managers

Tourism village managers play a vital role in the development and management of local tourist destinations, significantly influencing their growth and sustainability. Their responsibilities span various key aspects, starting with the collection and management of data on tourist visits and local attractions. It is essential for tourism village managers to keep records of all visits, including those previously unrecorded, especially since several tourism villages in Denpasar City are already tourist destinations with often unclear boundaries. In addition, accurate data on village potential is crucial for evaluation purposes and serves as the foundation for developing tourism village products. Another critical role involves strategic planning, where managers are expected to formulate visions, missions, and long-term goals. They identify tourism potential within the village, oversee infrastructure development, and ensure that available facilities meet established quality standards for tourists. Promotion and marketing are also central to their duties. Managers strive to attract visitors by utilizing social media and digital platforms, participating in tourism exhibitions, crafting a unique village identity, and providing comprehensive tourist information. Furthermore, tourism village managers oversee sustainable resource management. This includes promoting environmentally responsible practices, preserving local culture and traditions, and supporting MSMEs in developing tourism products. Through these efforts, they can also contribute to local job creation. Education and training are equally important, as managers help build the community's capacity in tourism management and customer service. They also raise awareness about the importance of preserving cultural heritage and help ensure tourists are well-informed about local traditions. Lastly, managers are responsible for monitoring and evaluating service quality to enhance the overall tourist experience. They gather feedback to support continuous improvement and prepare reports detailing the economic, social, and environmental impacts of tourism in the village. In summary, tourism village managers play a central role in driving long-term development and improving the well-being of local communities. Their active engagement in planning, promotion, resource stewardship, education, and evaluation is essential to achieving sustainable tourism objectives.

#### 5) The Role of Micro, Small and Medium Enterprises (MSMEs)

MSMEs significantly contribute to improving the local economy, creating jobs, and preserving cultural heritage within tourism villages. One of their primary roles is economic empowerment, as they provide products and services needed by tourists, thereby increasing the local community's income. Through tourism-related businesses, residents—such as farmers and fishermen—can diversify their income sources beyond their primary professions. MSMEs also create employment opportunities for local residents, empower

local workers, and enhance their skills. In terms of product and service development, MSMEs produce local handicrafts and culinary specialties that reflect the region's cultural identity. They also offer accommodation services such as homestays and curate tour packages that facilitate meaningful interaction between tourists and the local community, offering authentic and memorable experiences. MSMEs further play a key role in cultural preservation by embedding local traditions and customs into their offerings. They often take part in organizing festivals and cultural events, share insights with tourists about local heritage, and help educate the community on the value of safeguarding their culture. Moreover, innovation and creativity are central to the growth of MSMEs in the tourism sector. They contribute by developing unique tourism services—such as ecotourism and adventure tourism—and by offering products that are both competitive and aligned with market trends and tourist preferences. This adaptability increases the overall appeal of tourism villages. Collaboration and networking are also crucial aspects of their contribution. MSMEs often work with government bodies and NGOs to receive support in business development. By building partnerships with other MSMEs, they foster mutual support, promote their products collectively, and take part in exhibitions or bazaars to boost visibility and attract more visitors. With the right support and ecosystem, MSMEs can serve as the main driver of sustainable tourism development. Their involvement enhances economic welfare while also strengthening the community's cultural and social identity, ultimately benefiting both local residents and tourists alike.

#### 6) The Role of Tourists

The development of tourism villages is strongly influenced by tourists, who play a significant role across economic, social, and environmental dimensions. Economically, tourists contribute by purchasing local products and services, which stimulates the village economy. This not only generates income for small businesses and the community but also creates jobs and supports the growth of local enterprises. Tourism can also play a pivotal role in preserving local traditions and culture. Environmentally conscious tourists may actively participate in conservation efforts and support initiatives aimed at preserving both cultural heritage and the natural environment. Another important contribution lies in education and awareness. Tourists who practice responsible behavior help raise awareness about the importance of preserving culture and the environment. Their actions—such as maintaining cleanliness and respecting local customs—can set positive examples and inspire both visitors and locals alike. Moreover, tourists act as promoters and marketers by becoming informal ambassadors of the destination. Through positive reviews on social media, travel platforms, blogs, and vlogs, they can share their experiences and attract more visitors. Some even engage in local marketing campaigns, boosting the visibility of tourism villages. Their feedback is also valuable, providing communities and entrepreneurs with insights that help improve services and tailor offerings to meet visitor expectations more effectively. Beyond that, tourism fosters meaningful social interaction between visitors and local communities. These interactions create opportunities for cultural exchange that enrich the experiences of both parties. Tourist visits can promote intercultural understanding and tolerance, and even extend to participation in volunteer programs that benefit the community. In essence, tourists play a multifaceted role in the development of tourism villages. When they act as responsible and engaged visitors, they contribute to sustainability and bring positive impacts to local communities. Their active participation is





crucial in ensuring that tourism village development results in mutual benefits for everyone involved.

#### 7) The Role of Academics

Academics play a vital role in the development of tourism villages through a range of activities, including research, education, and community service. Their involvement begins with research and the advancement of knowledge related to tourism trends and challenges. By offering data-driven recommendations, academics help design successful and sustainable tourism village development models and assess the social and economic impacts of tourism on local communities. In the field of education and training, academics contribute by enhancing the skills of both local communities and tourism managers. This includes integrating sustainable tourism topics into higher education curricula and conducting outreach on best practices in tourism development and cultural preservation. Their role also extends to consultation and community service. Academics often serve as consultants for government agencies or organizations involved in planning tourism village projects. In addition, they participate in community service programs aimed at empowering communities through tourism-based initiatives. Another key contribution is the evaluation of tourism's impact on both communities and the environment. Academics develop methodologies to measure outcomes and educate stakeholders about sustainable tourism management, offering data-informed policy recommendations to guide responsible development. In terms of promotion and marketing, they conduct market analyses that help tourism villages design effective marketing strategies. Academics also foster collaboration by building networks between universities, government institutions, and tourism industry players to facilitate the exchange of information and best practices. Lastly, they engage in continuous monitoring and evaluation of tourism village development to ensure its sustainability. Their assessments provide valuable recommendations for improvement and help track progress over time. Through their expertise and active involvement, academics serve as key partners in the advancement of tourism villages, ensuring that development is thoughtful, sustainable, and beneficial to all stakeholders.

#### 8) The Role of Media

The media plays a crucial role in the development of tourism villages by disseminating information, promoting destinations, and raising awareness about the importance of sustainable tourism. One of its key contributions is in promotion and marketing, where tourism villages are showcased through articles, vlogs, and social media content. This exposure boosts visibility and helps attract the interest of potential tourists by highlighting unique attractions, engaging activities, and available facilities. Beyond promotion, the media also contributes to education and awareness by informing both communities and tourists about tourism-related issues. These include the importance of adopting sustainable practices and understanding the environmental and cultural impact of tourism. Campaigns aimed at environmental preservation and promoting social responsibility among tourists can be effectively delivered through various media platforms. Positive coverage of tourism villages further helps shape a favorable public image. By emphasizing natural beauty, cultural richness, and local values, the media plays a part in crafting compelling narratives that pique the curiosity and interest of travelers. In addition,

the media facilitates networking and collaboration among local communities, government bodies, NGOs, and tourism industry players. Through partnerships, it can support the promotion of policies and programs that contribute to the growth and sustainability of tourism villages. The role of the media also includes monitoring and evaluation by collecting feedback from tourists through surveys, reviews, and digital engagement. This information can be analyzed to identify trends, strengths, and areas for improvement, helping villages enhance their services and offerings. Lastly, through consistent and positive coverage, the media aids in shaping a strong identity and brand for tourism villages. By telling unique stories and celebrating local traditions, the media entices tourists through storytelling, giving each village a distinct voice and appeal. Overall, the media plays an indispensable role in attracting visitors, promoting sustainable tourism, and empowering local communities—making it a powerful ally in the development of tourism villages.

#### 9) The Role of Travel Agencies

Travel agencies are instrumental in the growth of tourism villages, particularly through their role in promoting destinations, organizing excursions, and creating memorable tourist experiences. One of their key contributions is in marketing and promotion, where they develop attractive tour packages that include local activities, homestays, and village attractions. Through promotional materials, websites, and social media campaigns, travel agencies can effectively target potential tourists. They also help build a positive identity for tourism villages by emphasizing the uniqueness of local culture and the surrounding environment. Beyond promotion, travel agencies are essential in organizing trips by designing itineraries that offer a diverse range of activities and points of interest. These itineraries ensure that tourists enjoy a well-rounded experience while also providing them with valuable information about the village's culture, traditions, and attractions. Another important role involves arranging homestay accommodations, giving tourists the opportunity to immerse themselves in authentic village life. Travel agencies also offer flexibility by allowing tourists to customize their itineraries based on personal interests, making their visits more meaningful and tailored. In addition, travel agencies facilitate social interaction between tourists and local communities by organizing hands-on experiences such as cooking classes and craft workshops. They often provide brochures and educational materials that highlight the importance of preserving culture and the environment. By doing so, they foster stronger relationships between visitors and residents, encourage participation in volunteer programs, and communicate community expectations to tourists. Furthermore, travel agencies contribute to ongoing development by monitoring tourism trends, collecting feedback, and using this information to enhance services and support future planning efforts. Overall, travel agencies play a vital role in the development of tourism villages by promoting destinations, curating travel experiences, educating tourists, and fostering meaningful connections between visitors and local communities.

#### 10) The Role of Non-Governmental Organizations (NGOs)

NGOs serve as key liaisons between the government, local communities, and the private sector. Their involvement in tourism village development spans a wide range of important roles. One of their primary contributions is empowering local communities through training, capacity building, and providing access to the resources needed to manage

tourism effectively. NGOs also play an advocacy role by influencing public policies that support the development of sustainable and environmentally friendly tourism villages. They work to protect the interests of local communities by offering recommendations to the government on best practices and ensuring that community rights—such as land ownership and access to natural resources—are safeguarded. In addition, NGOs develop conservation projects that actively involve communities in preserving the environment and cultural heritage. They provide education and training in areas such as tourism management, customer service, and other essential technical skills, while also raising awareness about sustainable tourism practices and the importance of preserving local culture and ecosystems. Their role extends to infrastructure development as well. NGOs often provide financial support for tourism-related infrastructure projects, such as roads, public facilities, and waste management systems. They may collaborate with the government on project planning and implementation to ensure long-term sustainability. Promotion and marketing are also within the scope of NGO involvement. They help market tourism villages through promotional campaigns, social media engagement, and participation in tourism exhibitions. Additionally, NGOs often produce compelling marketing materials to attract potential tourists. To support cultural and environmental preservation, NGOs develop programs aimed at protecting local culture, biodiversity, and natural resources. They encourage sustainable practices and promote community participation in preservation initiatives. Finally, NGOs conduct monitoring and evaluation by researching the impacts of tourism village development on both communities and the environment. They ensure that projects align with sustainability goals and collect feedback from local stakeholders to support continuous improvement.

The active involvement of NGOs in tourism village development strengthens advocacy, education, infrastructure development, promotion, cultural and environmental preservation, and impact evaluation. Through close collaboration between NGOs, government bodies, and local communities, inclusive and sustainable development goals can be realized—creating long-term benefits for both visitors and residents.

#### 11) The Role of Tourism Organizations

The development of tourism villages in Bali is significantly influenced by various tourism organizations in Indonesia and Bali, including the Indonesian Tourism Industry Association (GIPI), the Association of Indonesian Tours and Travel Agencies (ASITA), the Indonesian Tour Guide Association (HPI), the Tourism Village Communication Forum (*Forkom Dewi*), and others. These organizations support the government in formulating policies that promote sustainable tourism and assist in the planning and development of tourism villages. One of their key contributions is in promotion and marketing. They organize campaigns at the local, national, and international levels to raise awareness of tourism villages and attract visitors. In addition, these organizations help develop regulations and standards to ensure tourism quality, and they prepare master plans that outline long-term development strategies. Education and training are also central to their role. They conduct workshops and training sessions for local communities on tourism management, customer service, and marketing. Alongside this, they produce promotional materials—such as brochures and videos—to showcase the unique culture and attractions of tourism villages, thereby shaping a positive image and boosting appeal. In terms of management and supervision, these organizations carry out regular evaluations to assess

the quality of services and facilities in tourism villages. They also work to educate communities on the importance of sustainable tourism practices and support MSMEs in developing tourism products and services. Furthermore, they foster cooperation and networking by establishing partnerships among the government, private sector, communities, and NGOs. These collaborations support tourism development, help monitor project implementation, and address emerging issues. Acting as mediators between communities, the government, and industry stakeholders, they help resolve conflicts and ensure inclusive participation. Tourism organizations also have the capacity to organize forums that encourage knowledge exchange between tourism villages and other tourism-related entities, strengthening networks and uniting stakeholders in shared goals. Overall, tourism organizations play a crucial role in the development of tourism villages by supporting planning, promotion, education, management, and collaboration. Their involvement enhances the sustainability and attractiveness of destinations while also improving the capacity of local communities to manage tourism effectively.

## 12) The Role of Government

The government plays a crucial role in the development of tourism villages, which require consistent guidance, attention, and support across various aspects. One of the government's key responsibilities lies in planning and policy formulation—developing regulations that support tourism development, including land management and environmental conservation. These policies must promote sustainable tourism practices without harming local ecosystems. Spatial planning and zoning are also essential. The government must integrate tourism village development into regional spatial plans to ensure that tourism infrastructure does not interfere with residential areas or agricultural land. This includes determining appropriate zones for tourism, conservation, and settlements. Financial support is another vital area, with the government providing grants for infrastructure projects and assisting communities in launching tourism-related businesses. Collaborating with the private sector is also important to boost investment in the tourism sector. In terms of infrastructure development, the government is responsible for improving transportation access, building visitor facilities, and ensuring access to clean water and proper sanitation. These improvements not only enhance the tourist experience but also elevate the quality of life for local residents. Promotion and marketing efforts are supported through digital platforms, including the development of official websites, social media campaigns, and participation in tourism exhibitions to raise awareness of tourism villages among broader audiences. The government also plays a role in the preservation of culture and the environment by educating both the community and visitors on the importance of cultural heritage. Supporting local cultural festivals is another way to attract tourists while fostering pride and continuity in local traditions. Effective management of natural resources is encouraged through conservation programs and sustainable practices to protect biodiversity and maintain ecological balance. Additionally, the government facilitates access to resources by offering funding, training, and technical assistance necessary for the development of tourism villages. Coordination among stakeholders is key, with the government serving as a bridge to promote cooperation between communities, businesses, and other organizations for integrated tourism development. Education and training initiatives are provided to enhance the capacity of tourism village managers and community members in areas such as tourism management, marketing, and local product

development. Lastly, monitoring and evaluation are carried out through regular studies that assess the impact of tourism development. The government collects feedback to support continuous improvement and adapts policies based on evaluation findings. In conclusion, the government's role encompasses policy development, financial and technical support, infrastructure enhancement, community empowerment, cultural and environmental preservation, promotion, and evaluation. With the right support and collaboration, tourism villages can grow into sustainable destinations that benefit local communities while safeguarding cultural identity and natural resources.

When it comes to developing tourist villages, particularly in urban areas, all stakeholders play a significant role based on their skills and capacities. In order to enhance and harmonize current roles and obligations, coordination, communication, and collaboration are essential. Changing roles can be a sign of changes in the broader social order and can create new opportunities for multi-actor collaboration to address community challenges, making it a critical component of the transition (Wittmayer et al., 2017). Expert tourism knowledge can be enhanced by the valuable tacit knowledge and unique skills of marginalized individuals, which can contribute to developing more sustainable places and inclusive communities. Bellato and Cheer (2021) emphasize the importance of local governments, NGOs, and community groups in ensuring that marginalized populations and individuals are incorporated into sustainable tourism development. The sustainability of tourism development is significantly impacted by the level of support provided by local communities, which is contingent upon their perspectives on tourism and its effects on the community. Local communities are essential for preserving rural cultural heritage and attracting tourists, and they serve as the primary stakeholders and owners of tourism villages (Guo, 2019; Madanaguli et al., 2022). In the development of tourism villages, local communities do not independently make decisions. Traditional institutions and organizations convene meetings and gatherings to make critical decisions regarding the management of tourism villages, which serve as a refuge for local communities. The tourism villages' ecosystem facilitates collaboration and synergy, thereby resolving a variety of communication, coordination, and participation challenges that have previously impeded progress. The role elements (12 elements) are the primary focus of the ecosystem model of tourism villages in Denpasar City, as illustrated in Table 3.

**Table 3.** The Role of Elements and Actors

No.	Elements	Actors	Roles
1	Leadership	Leaders of local institutions/ organizations	Responsible for decision-making and determining the direction of tourism village development.
2	Welfare	Local communities	Aims to improve the quality of life for local communities through job creation and increased income.
3	Involvement	Community leaders	Encourage active community participation in the decision-making and management of tourism villages, fostering a sense of ownership and responsibility for sustainability.
4	Coordination	Tourism village managers	Organize cooperation among various parties to ensure that activities are carried out efficiently and in an integrated manner.
5	Creativity	MSMEs	Innovate in creating variations of tourism products, which is key to measuring success.



6	Satisfaction	Tourists	Receive tourism experiences that meet expectations, leading to positive reviews and loyalty, which impacts future visits.
7	Skills	Academics	Develop community capabilities through training and education, enhancing the competitiveness of tourism villages.
8	Communication	Media	Plays a vital role in conveying information among stakeholders, increasing transparency, building trust, and enhancing the positive image of tourism villages.
9	Quality	Travel agencies	Ensure that tourism products meet established standards and attract tourists to the village, helping increase visits and local community income.
10	Sustainability	NGOs	Advocate for sustainable and environmentally friendly tourism practices, preserving resources for future generations.
11	Collaboration	Tourism organizations	Coordinate cooperation between communities, government, and businesses to strengthen inclusive and sustainable tourism development.
12	Control	Government	Supervise tourism activities to ensure compliance with established standards, maintaining service quality, and the sustainability of tourism village development.

Source: Research data, 2025

This study supports previous findings on the significance of empowering local communities in the development of tourism villages. Such empowerment should be implemented innovatively, allowing community members to engage in all phases of planning, development, and management of tourism businesses (Nair et al., 2015). Additionally, forming effective partnerships among all tourism stakeholders acts as a vital mechanism for promoting rural tourism. Emphasizing strong partnerships and networks is essential for the effective management, marketing, and promotion of tourism enterprises, thus enhancing the sustainability of these villages (Arintoko et al., 2020).

Moreover, tourism development has the capacity to revitalize traditional villages by merging modernity with tradition (Wu & Xu, 2017). In this regard, a strong tourism village ecosystem, grounded in local potential and collaboration among various entities, is crucial for improving efficiency and encouraging healthy competition (Graça & Camarinha-Matos, 2017; Tsou et al., 2019). Achieving accessible tourism requires effective collaboration, which involves elements such as control, clarity of roles, communication, and a commitment to inclusion (Nyanjom et al., 2018). The roles within a community represent shared understandings, and alterations in these roles can signify changes in the interactions among actors (Wittmayer et al., 2017). These socially constructed and negotiable roles play a vital role in assisting actors in managing recurring situations (Lynch, 2007; Wittmayer et al., 2017).

## CONCLUSION

The tourism village ecosystem model in Denpasar City highlights the establishment of mutually advantageous synergies through the collaboration of various actors. This model also emphasizes the significance of local assets as local values and primary potentials that must be owned by tourism villages, supported by the potential of tourism village products and the actors involved in the tourism village ecosystem. To date, the governance and management of tourism villages, the role and active participation of stakeholders in the construction of tourism villages, and the lack of commitment and support from stakeholders in advancing villages have prevented all parts/subsystems of tourism villages in Denpasar City from contributing and playing a maximum role. This



study underscores the importance of synergy and the role of actors in a tourism system that has not been documented and is poorly understood. Local communities, tourism village managers, government, local community organizations, community leaders, and MSMEs are among the stakeholders involved in developing and managing tourism villages in Denpasar City. Tourists, academics, media, travel agencies, NGOs, and tourism organizations that have not been involved in the advancement of tourism villages are required to make optimal contributions and play their respective roles. Tourism villages in urban areas should offer numerous advantages regarding tourism product components (6A). However, a system must be developed to fuel the existing ecosystem, which is capable of integrating traditional elements with modernity in an urban context. This will enable consumers, specifically tourists, to experience authentic local culture and convenience compared to tourism villages in other districts of Bali. The ecosystem of tourism villages is essential for the development of tourism villages, as it significantly influences the efficiency and effectiveness of activities, as well as the creation of convenience, competitive prices, and healthy business competition. The critical factor in the successful development of tourism villages is the ecosystem, which is a network system of value creation and co-evolution that is achieved by stakeholders in the independent organizing mode of tourism villages.

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#### Attachment (ISM data analysis):

Factors	Agregat VAXO	Agregate Reachability Matrix	Agregate Structure	Agregate Graph
Affected community sectors				
Needs for program implementation				
Main program constraints				



Program objectives	<table><tr><th>NO</th><th>E1</th><th>E2</th><th>E3</th><th>E4</th><th>E5</th><th>E6</th><th>E7</th><th>E8</th><th>E9</th><th>E10</th><th>E11</th><th>DP</th><th>R</th></tr><tr><td>E1</td><td>1</td><td>V</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td></td><td></td></tr><tr><td>E2</td><td>0</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td></td><td></td></tr><tr><td>E3</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>8</td><td></td></tr><tr><td>E4</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>6</td><td></td></tr><tr><td>E5</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>7</td><td></td></tr><tr><td>E6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>6</td><td>6</td><td></td></tr><tr><td>E7</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>7</td><td></td></tr><tr><td>E8</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>8</td><td></td></tr><tr><td>E9</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>9</td><td></td></tr><tr><td>E10</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td></td></tr><tr><td>E11</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>7</td><td>5</td></tr><tr><td>D</td><td>10</td><td>11</td><td>9</td><td>9</td><td>9</td><td>8</td><td>4</td><td>3</td><td>2</td><td>1</td><td>8</td><td></td><td></td></tr><tr><td>L</td><td>2</td><td>1</td><td>3</td><td>3</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>4</td><td></td><td></td></tr></table>	NO	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	DP	R	E1	1	V	A	A	A	A	A	A	A	A	A			E2	0	A	A	A	A	A	A	A	A	A	A			E3	0	0	1	1	1	1	0	0	0	0	1	8		E4	0	0	0	1	1	1	0	0	0	0	1	6		E5	0	0	0	0	1	1	0	0	0	0	1	7		E6	0	0	0	0	0	1	0	0	0	0	6	6		E7	0	0	0	0	0	0	1	0	0	0	1	7		E8	0	0	0	0	0	0	0	1	0	0	0	8		E9	0	0	0	0	0	0	0	0	1	0	1	9		E10	0	0	0	0	0	0	0	0	0	1	1	1		E11	0	0	0	0	0	0	0	0	0	0	0	1	7	5	D	10	11	9	9	9	8	4	3	2	1	8			L	2	1	3	3	3	4	5	6	7	8	4			<table><tr><th>NO</th><th>E1</th><th>E2</th><th>E3</th><th>E4</th><th>E5</th><th>E6</th><th>E7</th><th>E8</th><th>E9</th><th>E10</th><th>E11</th><th>DP</th><th>R</th></tr><tr><td>E1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr><tr><td>E2</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>6</td></tr><tr><td>E3</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>7</td></tr><tr><td>E4</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>2</td><td>9</td></tr><tr><td>E5</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>7</td></tr><tr><td>E6</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>9</td></tr><tr><td>E7</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>8</td></tr><tr><td>E8</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>9</td><td>3</td></tr><tr><td>E9</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>6</td></tr><tr><td>E10</td><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>5</td></tr><tr><td>E11</td><td>0</td><td>1</td><td>7</td><td>8</td><td>10</td><td>9</td><td>11</td><td>2</td><td>4</td><td>3</td><td>7</td><td>9</td><td></td></tr><tr><td>D</td><td>1</td><td>8</td><td>4</td><td>3</td><td>2</td><td>3</td><td>1</td><td>7</td><td>5</td><td>6</td><td>4</td><td>3</td><td></td></tr></table>	NO	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	DP	R	E1	1	1	1	1	1	1	1	1	1	1	1	1	1	E2	0	1	1	1	1	0	0	0	0	0	0	1	6	E3	0	1	1	1	1	0	0	0	0	0	0	1	7	E4	0	0	0	1	0	1	0	0	0	0	0	2	9	E5	0	1	1	1	1	0	0	0	0	0	0	1	7	E6	0	0	0	0	0	1	0	0	0	0	0	1	9	E7	0	1	1	1	1	1	0	0	0	0	0	1	8	E8	0	1	1	1	1	1	0	1	1	1	1	9	3	E9	0	0	0	1	1	0	0	0	0	0	0	1	6	E10	0	0	1	1	1	1	0	0	0	0	0	1	5	E11	0	1	7	8	10	9	11	2	4	3	7	9		D	1	8	4	3	2	3	1	7	5	6	4	3																
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