

Sustainable Religious Tourism Development In Tana Toraja: Hierarchical Structural Model Approach

Tatan Sukwika^{1*} and Ekayana Sangkasari Paranita²

¹Environmental Engineering Study Program, Faculty of Engineering, Sahid University Jakarta, Indonesia; e-mail: tatan.swk@gmail.com

²Management Study Program, Graduate School, Sahid University Jakarta, Indonesia

ABSTRAK

Pariwisata religi di Tana Toraja, Indonesia, memiliki potensi besar dari aspek budaya, spiritual, lingkungan, dan ekonomi. Namun, pengembangannya masih terkendala oleh tata kelola yang belum terintegrasi, keterbatasan infrastruktur, lemahnya koordinasi antar-pemangku kepentingan, serta belum tersedianya kerangka yang mampu menetapkan prioritas pengembangan secara sistematis. Penelitian terdahulu umumnya mengkaji pengelolaan destinasi, promosi, dan dampak sosial ekonomi secara terpisah tanpa menjelaskan keterkaitan struktural antar faktor pengembangan. Penelitian ini bertujuan mengembangkan model struktural hierarkis untuk pengembangan pariwisata religi berkelanjutan yang berpusat pada Patung Yesus Kristus di Tana Toraja. Data dikumpulkan melalui survei, wawancara semi-terstruktur, dan konsultasi dengan lima orang pakar yang mewakili pemerintah, dunia usaha, akademisi, masyarakat adat, dan lembaga swadaya masyarakat. Analisis menggunakan Interpretive Structural Modeling (ISM) yang dipadukan dengan teknik hubungan kontekstual VAXO terhadap 17 subelemen pengembangan. Hasil penelitian menunjukkan bahwa institusi pemerintah, sarana transportasi, fasilitas pendukung pariwisata, jaringan jalan, dan informasi pariwisata merupakan faktor penggerak utama yang menjadi prioritas jangka pendek. Sumber daya alam dan budaya, akomodasi wisata, serta institusi swasta menjadi prioritas jangka menengah, sedangkan partisipasi masyarakat, pelestarian lingkungan, atraksi pendukung, kesadaran masyarakat, dan keterlibatan lembaga swadaya masyarakat menjadi prioritas jangka panjang. Model yang dihasilkan memperluas penerapan ISM pada pariwisata religi serta menyediakan kerangka pendukung pengambilan keputusan bagi pemerintah daerah dan pemangku kepentingan dalam merumuskan kebijakan pengembangan pariwisata religi yang berkelanjutan.

Keywords: Interpretive Structural Modeling (ISM); teknik VAXO; pariwisata religi; pengembangan pariwisata berkelanjutan; model struktural hierarkis; Tana Toraja

ABSTRACT

Religious tourism in Tana Toraja, Indonesia, possesses significant cultural, spiritual, environmental, and economic potential. However, its development remains constrained by fragmented governance, inadequate infrastructure, weak stakeholder coordination, and the absence of a systematic framework for prioritizing development factors. Previous studies have primarily examined destination management, tourism promotion, and socio-economic impacts independently, without explaining the structural interdependencies among key development factors. Therefore, this study aims to develop a hierarchical structural model for sustainable religious tourism development centered on the Jesus Christ Statue in Tana Toraja. Data were collected through surveys, semi-structured interviews, and expert consultations involving five experts representing government, the private sector, academia, indigenous communities, and non-governmental organizations. Interpretive Structural Modeling (ISM) integrated with the VAXO contextual relationship technique was employed to analyze the hierarchical relationships among 17 tourism development sub-elements. The results identify government institutions, transportation facilities, tourism support facilities, road networks, and tourism information as the primary driving factors requiring short-term priority. Natural and cultural resources, tourist accommodations, and private institutions constitute medium-term priorities, while community participation, environmental conservation, supporting attractions, public awareness, and NGO involvement represent long-term priorities. The proposed hierarchical model extends the application of ISM to religious tourism and provides an evidence-based decision-support framework for local governments and stakeholders to prioritize policies, strengthen multi-stakeholder collaboration, and promote environmentally sustainable religious tourism development.

Keywords: Interpretive Structural Modeling (ISM); VAXO technique; religious tourism; sustainable tourism development; hierarchical structural model; Tana Toraja

Citation: Sukwika, T., and Paranita, E. S. (2026). Sustainable Religious Tourism Development in Tana Toraja: Hierarchical Structural Model Approach. *Jurnal Ilmu Lingkungan*, 24(3), 713-727, doi:10.14710/jil.24.3.713-727

1. INTRODUCTION

Indonesia is a country that is very rich in its strong customs and culture, holds much local wisdom, and also has great natural potential combined with people from various ethnic groups, religions and races who live side by side with one another (Parlindungan et al., 2021). Tana Toraja Regency, South Sulawesi Province, is an area with attractive natural, cultural and customary wealth as a tourist destination. These riches always fill every space in the traditional activities of the Tana Toraja people. There are at least four categories of tourist destinations in Tana Toraja: natural tourism, arts, cultural and religious tourism, historical tourism and agro-tourism (Aziz et al., 2022).

Of the various tourist attractions in Tana Toraja, most are natural tourism, and some are well-known to the Indonesian people and foreign tourists. The superior tourist attractions in Tana Toraja have enormous potential to be developed. However, traditions, customs and culture have still become tourism icons in this area which are well known abroad. Various tourist attractions in Tana Toraja should receive more attention and handling by all parties, both the government and the community, who must also play a role because Tana Toraja has been nominated as one of the 23 sites on the World Heritage Culture list by UNESCO.

One of the most prominent tourist attractions in Tana Toraja is the Jesus Christ Statue located in Buntu Burake. Standing 45 meters high at an elevation of approximately 1,100 meters above sea level, the monument is internationally recognized as the world's tallest Jesus Christ statue. Beyond its iconic physical characteristics, the site serves as both a major Christian pilgrimage destination and a cultural tourism attraction, drawing domestic and international visitors. These unique characteristics make the destination strategically important for examining the sustainable development of religious tourism in Indonesia.

The pilgrimage to the Jesus statue in Toraja, Indonesia, holds profound significance within Christian doctrine. This statue is not only a symbol of faith but also a gathering place for the community to strengthen their spirituality. Pilgrimages to this location reflect devotional practices that connect the faithful with God and enhance the sense of solidarity among pilgrims. The pilgrimage activities are often accompanied by rituals and prayers, making this experience an opportunity for reflection and renewal of faith. Thus, the Jesus statue serves as a spiritual and cultural center, reinforcing the appreciation of religious values in the lives of the Toraja people.

Religious tourism refers to travel motivated primarily by religious obligations, pilgrimage, or visits to sacred sites, whereas spiritual tourism encompasses broader personal experiences of meaning, reflection, and emotional transformation that may or may not be associated with formal religious practices (Aulet & Duda, 2020). In the context of the Jesus Christ Statue in Tana Toraja, both

dimensions coexist. The destination functions as a Christian pilgrimage site for worshippers while simultaneously attracting non-pilgrim visitors seeking cultural appreciation, landscape experiences, and spiritual reflection. Therefore, this study adopts religious tourism as the primary conceptual framework while recognizing spiritual experience as one of the important outcomes supporting sustainable destination development.

Understanding the behavior and activities of pilgrims at the Jesus statue in Tana Toraja is essential for the development of religious tourism in the region. Pilgrimage activities go beyond mere physical visits; they encompass spiritual practices, rituals, and social interactions that enrich the overall experience of the pilgrims. To enhance this experience, several critical elements must be addressed, including adequate facilities, accessibility, and clear information dissemination regarding religious activities.

The provision of adequate facilities is paramount. This includes the establishment of places of worship, reflection areas, and amenities that cater to the needs of pilgrims. The physical environment significantly influences the visitor experience at sacred sites (Bideci & Bideci, 2021). Accessibility issues can deter potential visitors from fully engaging with religious tourism sites (Aulet & Duda, 2020). Conversely, improving facilities around the statue can facilitate a more meaningful engagement for pilgrims (Mana et al., 2024). Effective promotion strategies can enhance the visibility of religious events and activities, thereby attracting more visitors to the site (Mariati et al., 2023). This aligns with findings from other studies that emphasize the importance of communication in shaping the pilgrimage experience (Hussain & Wang, 2024). By ensuring that pilgrims are well-informed about available activities, the management can create a more engaging and fulfilling experience. Additionally, pilgrimage activities that involve social interaction can enhance the spiritual experience (Nangpiire et al., 2022).

According to data from local government, the number of tourists visiting the religious site of the Jesus statue in Tana Toraja Regency in 2023 was 180,601 (BPS, 2024). The Jesus Christ Statue was deliberately selected as the case study because it represents a strategic religious tourism destination facing complex development challenges. Although the site has gained international recognition and continues to attract both domestic and international visitors, tourist arrivals have remained relatively stagnant over recent years, indicating that its development potential has not yet been fully realized. Furthermore, the destination involves multidimensional issues related to governance, infrastructure, environmental conservation, stakeholder coordination, and community participation. These interrelated challenges make the site an appropriate case for investigating hierarchical relationships among development factors using a systems-based approach. During the period from

2020 to 2023, the number of visitors to this destination remained stagnant, averaging below 200,000 visitors each year. Generally, tourists to Toraja come from various regions, including major cities in Indonesia such as Jakarta, Surabaya, Ambon, and Makassar, as well as some international tourists from Malaysia, Singapore, the Philippines, and China (BPS, 2024).

Despite the growing body of literature on religious tourism in Tana Toraja, previous studies have primarily focused on destination management, tourism promotion, community perceptions, visitor satisfaction, and the socio-economic impacts of tourism. These studies have provided valuable insights into individual aspects of religious tourism; however, they have generally examined these issues separately and descriptively without explaining the structural interdependencies among the critical factors influencing sustainable destination development. Consequently, there remains limited understanding of which factors should be prioritized and how these factors interact to shape the long-term sustainability of religious tourism destinations.

This study addresses the identified research gap by applying Interpretive Structural Modeling (ISM) integrated with the VAXO contextual relationship technique to develop a hierarchical structural model for religious tourism development. Unlike previous studies that mainly provide descriptive or partial analyses, this research identifies the driving and dependent factors, reveals their hierarchical relationships, and establishes phased development priorities consisting of short-, medium-, and long-term strategies. Therefore, the study contributes both methodologically by extending the application of ISM to the context of religious tourism and practically by providing a decision-support framework for governments and stakeholders in formulating sustainable tourism development policies.

Based on the identified research gap, the Jesus Christ Statue in Tana Toraja has substantial potential to become a sustainable religious tourism destination, yet its development is constrained by governance, infrastructure, environmental, promotional, and stakeholder-related challenges. Therefore, this study aims to develop a hierarchical structural model for sustainable religious tourism development at the Jesus Christ Statue in Tana Toraja using the Interpretive Structural Modeling (ISM) approach to identify key development factors, analyze their hierarchical relationships, and formulate phased development priorities for sustainable destination management.

2. METHODOLOGY

This study offers significant theoretical and methodological contributions to the development of religious tourism, particularly within the context of destinations in developing countries such as Indonesia. The ISM calculations, reachability matrix construction, level partitioning, and Driver Power-

Dependence analysis were performed using Exsimpro software. The use of the Interpretive Structural Modeling (ISM) approach combined with the VAXO contextual relationship technique in this study introduces a new framework that has rarely been applied in community-based and environmentally sustainable religious tourism. Most previous studies on religious tourism have tended to focus on economic impacts, tourist perceptions, or partial destination management, whereas this research builds a holistic structural model that systematically integrates elements of governance, community participation, promotion, infrastructure, and environmental conservation. Thus, this study addresses a methodological gap and broadens the theoretical horizon in the development of inclusive and sustainable religious tourism.

The structural model developed in this study is not only relevant for the development of religious tourism in Tana Toraja but also has the potential to be replicated in various religious tourism destinations worldwide, such as pilgrimage sites in South Asia, Latin America, and Europe that face similar challenges, including overtourism, excessive commercialization risks, and low community engagement. By prioritizing multi-stakeholder collaboration and environmentally conscious development, this model can serve as a reference for the sustainable development of religious tourism destinations on a global scale.

2.1. Research Stages

2.1.1. Data Collection Techniques

ISM analysis helps map and structure abstract problems, making them easier to understand and analyze. However, interpreting assessments using the VAXO scale requires careful attention to ensure accuracy and consistency. This stage is crucial for designing or engineering a stakeholder structural model. Such a model can then be applied to guide the development of religious tourism centered on the statue of Jesus Christ.

They are determining the sub-elements for developing religious tourism for the statue of Jesus Christ use of five experts is considered adequate for ISM because the method emphasizes the quality and expertise of respondents rather than statistical representativeness. Previous ISM studies generally recommend involving between 5 and 15 domain experts, provided that they possess substantial knowledge and decision-making experience relevant to the research problem (Darmawan, 2017; Sukwika, 2018; Tripathy et al., 2013). Therefore, expert selection was purposive rather than random. The selected respondents are people who understand the conditions of the roles and duties of stakeholders in the development of religious tourism for the statue of Jesus Christ in the Tana Toraja area, Buntu Burake City. The opinions of each respondent can be trusted because they are very competent in their field.

2.1.2. Sub-element Identification and Hierarchy Arrangement

The identification of the 17 development sub-elements was conducted through a systematic three-stage procedure. First, an extensive literature review on sustainable tourism, religious tourism, destination management, stakeholder governance, and environmental conservation was undertaken to compile an initial list of development factors frequently reported in previous studies. Second, preliminary field observations were carried out at the Jesus Christ Statue destination in Buntu Burake to verify the contextual relevance of these factors and identify local development characteristics that might not be adequately represented in the literature. Third, the preliminary list was evaluated, refined, and validated through expert consultations involving representatives from government, academia, the private sector, indigenous communities, and non-governmental organizations. Through a consensus-based discussion, overlapping variables were merged, less relevant factors were excluded, and the final set of 17 sub-elements was established for the ISM analysis.

This identification is determined based on several aspects, namely economic and institutional aspects (community livelihoods and human resources), socio-cultural (customary values and religious norms), and environmental ecology (natural resources and the environment). In contrast, the influence of identification on the human resources involved is the optimization of the role of stakeholders and the relationship between the Jesus Christ Statue religious tourism program and the attributes of each aspect. The strengthening elements of these aspects are further broken down into 17 sub-elements (E) including Natural Resources (E1), Cultural Resources (E2), Environmental Conditions (E3), Supporting Attractions (E4), Transportation Facilities Availability (E5), Road Networks (E6), Tourism Support Information (E7), Tourism Support Facilities (E8), Tourism Service Facilities (E9), Tourist Accommodations (E10), Community Activities (E11), Community Concern (E12), Citizen's Awareness (E13), Government Institutions (E14), Community Institutions (E15), Private Institutions (E16), Expert NGO Institutions (E17).

Based on four criteria (Table 1): (1) having a minimum of five years of professional experience in tourism, environmental management, community development, or public policy; (2) possessing recognized expertise and decision-making authority relevant to religious tourism development; (3) actively participating in planning, managing, or evaluating tourism development programs in Tana Toraja; and (4) willingness to participate throughout the ISM assessment process. The selection of five experts is consistent with the principles of Interpretive Structural Modeling (ISM), which prioritize expert knowledge and the quality of judgments rather than large sample sizes. Previous

ISM studies have commonly involved between five and fifteen experts, provided that they possess substantial domain knowledge and practical experience (Darmawan, 2017; Sukwika, 2018; Tripathy et al., 2013). Therefore, the selected experts were considered sufficient to represent the perspectives of the key stakeholder groups involved in the development of religious tourism at the Jesus Christ Statue in Tana Toraja.

Table 1. Characteristics of Expert Respondents (ER)

Expert Code	Stake holder	Area of Expertise	Experience	Position
ER1	Government	Tourism Planning & Policy	>10 years	Tourism Office
ER2	Business	Destination Management	>8 years	Tourism Entrepreneur
ER3	Academic	Sustainable Tourism & ISM	>10 years	University Lecturer
ER4	Indigenous Community	Cultural Heritage & Community Participation	>15 years	Traditional Leader
ER5	NGO	Environmental Conservation & Community Empowerment	>8 years	NGO Practitioner

They are determining the sub-elements for developing religious tourism for the statue of Jesus Christ using five experts as respondents, including representatives from government, business, non-governmental organizations, indigenous communities and universities. The selected respondents are people who understand the conditions of the roles and duties of stakeholders in the development of religious tourism for the statue of Jesus Christ in the Tana Toraja area, Buntu Burake City. The opinions of each respondent can be trusted because they are very competent in their field.

Semi-structured interviews were conducted using a structured questionnaire containing pairwise comparisons among the 17 development sub-elements. Each expert was asked to assess the contextual relationship between every pair of sub-elements based on their professional knowledge and practical experience in religious tourism development.

The interview instrument was designed to capture expert judgments regarding causal influence among development factors, which subsequently formed the basis for constructing the Structural Self-Interaction Matrix (SSIM). The interview responses were subsequently transformed into pairwise contextual relationships using the VAXO symbols before constructing the Structural Self-Interaction Matrix (SSIM). Each expert's judgments were first recorded individually and then converted into the corresponding V, A, X, or O relationships according to the predefined ISM contextual rules. Assessment of

contextual relationships in the pairwise comparison matrix uses the symbol (Table 2).

Table 2. Summarize the Explanation of V A X O

Symbol	Meaning	Relationship
V	i influences j	$e_{ij}=1$ $e_{ji}=0$
A	j influences i	$e_{ij}=0$ $e_{ji}=1$
X	mutual influence	$e_{ij}=1$ $e_{ji}=1$
O	no relation	$e_{ij}=0$ $e_{ji}=0$

After the individual interviews, the pairwise relationship matrices were compared to experts. Where differences occurred, a structured consensus discussion was conducted to clarify the rationale underlying each judgment. Disagreements were resolved through iterative discussion until a common interpretation was achieved before constructing the final SSIM matrix. This consensus-building process reduced subjective inconsistencies while preserving the expert-based nature of the ISM methodology.

The processed results are arranged in a structural self-interaction matrix (SSIM). By adding subelement values horizontally, the ranking value is determined based on the value of the driver power, which is sorted from largest to smallest; the dependence value is obtained from adding the subelement values vertically. The level value is determined based on the dependence value ordered from largest to smallest.

To improve data validity, the pairwise assessments were conducted iteratively until consensus was achieved among all experts. Differences in judgment were discussed through expert consultation sessions, and the final SSIM matrix represented a consensual agreement rather than individual opinions. Figure 1 is procedure follows the standard ISM protocol for ensuring logical consistency.

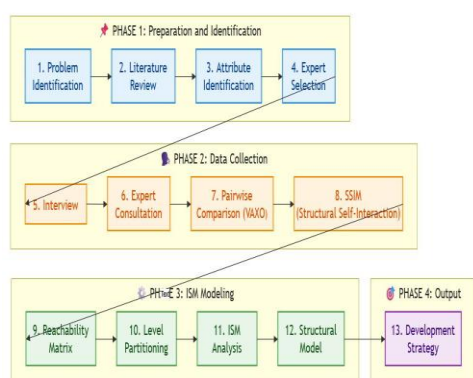


Figure 1. Research Flowchart

In general, the subelements are classified into four quadrant sectors based on their driving power (DP) and dependence (D) values. Quadrant I represents the interaction of weak drivers with weak dependent variables, known as the autonomous quadrant. Elements in this quadrant are not strongly connected to the system and may only have a minimal relationship with it. They are positioned where the DP value is less than or equal to 0.5X and the D value is also less than or equal to 0.5X, with X representing the

total number of subelements. Quadrant II describes the interaction of weak drivers with strongly dependent variables, which place them in the dependent category. Subelements in this quadrant are significantly influenced by others but have limited influences themselves. These are positioned where the DP value is less than or equal to 0.5X, while the D value is greater than 0.5X. Quadrant III involves the interaction of strong drivers with strongly dependent variables. This is referred to as the linkage quadrant, which includes unstable subelements that are both influential and highly influenced. These elements are located where both the DP and D values exceed 0.5X. Finally, Quadrant IV represents the interaction of strong drivers with weak dependent variables, categorized as independent. These subelements exert strong influence on the system but are minimally affected by other factors. They are situated where the DP value is greater than 0.5X and the D value is less than or equal to 0.5X.

3. RESULTS AND DISCUSSION

3.1. Results

Based on the Structural Self-Interaction Matrix (SSIM) analysis, a picture of the interconnection conditions between variable attributes that support the development of the Jesus Christ statue religious tourism in Tana Toraja is obtained. This matrix illustrates the relationships among 17 key subelements influencing the development of religious tourism for the Jesus Christ statue in Tana Toraja. The data is dominated by the symbols "V", "A", and "X", indicating varying degrees and directions of influence between the variables. Notably, no "O" symbols are present, suggesting that all sub-elements are structurally interconnected (Darmawan, 2017; Sukwika, 2018; Tripathy et al., 2013). These interactions reflect a complex network of socio-economic, institutional, and environmental factors that must be managed holistically to support sustainable tourism planning. Respondent data information can be seen in Figure 2.

The next analysis is the Reachability Matrix; at this stage, the VAXO symbol in the SSIM table is changed to "1" and "0", indicating the relationship between one factor and another. The Initial Reachability Matrix (RM) is useful for filling gaps (if any) in collecting opinions during the development of the Structural Self-Instructional Matrix (SSIM) (Darmawan, 2017; Tripathy et al., 2013). The results of the transitivity treatment obtained the final Reachability Matrix, as shown in Figure 3.

The basis for determining group classification in this quadrant is the Driver Power (DP) and Dependence (D) measurement results of the final reachability matrix. The results of this analysis are useful for examining direct relationships between variables (Darmawan, 2017; Tripathy et al., 2013). Figure 2 shows a distribution plot of the attributes of 17 sub-elements according to their classification groups.

VAXO Reachability Revision Final	
DATA VAXO	
No	Sub Elemen
1	Natural Resources
2	Cultural Resources
3	Environmental Conditions
4	Supporting Attractions
5	Transportation Facilities Availability
6	Road Network
7	Tourism Support Information
8	Tourism Support Facilities
9	Tourism Service Facilities
10	Tourist Accommodation
11	Community Activities
12	Community Concern
13	Citizen's Awareness
14	Government Institutions
15	Community Institutions
16	Private Institutions
17	Expert NGO Institution

NO	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17
E1		X	V	V	A	A	A	A	V	V	V	V	V	A	V	X	V
E2			V	V	A	A	A	A	V	X	V	V	V	A	V	X	V
E3				A	A	A	A	A	A	A	X	X	A	A	A	A	V
E4					A	A	A	A	A	A	V	V	A	A	A	A	V
E5						V	V	X	V	V	V	V	V	A	V	V	V
E6							X	A	V	V	V	V	V	A	V	V	V
E7								A	V	V	V	V	V	A	V	V	V
E8									V	V	V	V	V	A	V	V	V
E9										A	V	V	V	A	V	A	V
E10											V	V	V	A	V	X	V
E11												V	V	A	X	A	V
E12													X	A	A	A	V
E13														A	A	A	V
E14															V	V	V
E15																A	V
E16																	V
E17																	

Figure 2. Structural Self-Interaction Matrix (SSIM) of Sub-elements Supporting Sustainable Religious Tourism in Tana Toraja

INTREPRETATIVE STRUCTUR MODELLING(Burake Toraja IC=0 EN)	
File Input Data Output	
Inconsistency Index : 0 %	
AGREGAT	
VAXO Reachability Revision Final	
NO	E1 E2 E3 E4 E5 E6 E7 E8 E9 E10 E11 E12 E13 E14 E15 E16 E17
E1	1 1 1 1 0 0 0 0 1 1 1 1 1 0 1 1 1
E2	1 1 1 1 0 0 0 0 1 1 1 1 1 0 1 1 1
E3	0 0 1 0 0 0 0 0 0 0 0 0 1 1 0 0 0
E4	0 0 1 1 0 0 0 0 0 0 0 0 1 1 0 0 0
E5	1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1
E6	1 1 1 1 0 1 1 0 1 1 1 1 1 0 1 1 1
E7	1 1 1 1 0 1 1 0 1 1 1 1 1 0 1 1 1
E8	1 1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 1
E9	0 0 1 1 0 0 0 0 1 0 1 1 1 0 1 0 1
E10	1 1 1 1 0 0 0 0 1 1 1 1 1 0 1 1 1
E11	0 0 1 1 0 0 0 0 0 0 0 0 1 1 0 1 0
E12	0 0 1 0 0 0 0 0 0 0 0 0 1 1 0 0 0
E13	0 0 1 0 0 0 0 0 0 0 0 0 1 1 0 0 0
E14	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
E15	0 0 1 1 0 0 0 0 0 0 0 0 1 1 0 1 0
E16	1 1 1 1 0 0 0 0 1 1 1 1 1 0 1 1 1
E17	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

NO	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13	E14	E15	E16	E17	DP	R
E1	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	12	4
E2	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	12	4
E3	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	8
E4	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	5
E5	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	16	2
E6	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	14	3
E7	1	1	1	1	0	1	1	0	1	1	1	1	1	0	1	1	1	14	3
E8	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	16	2
E9	0	0	1	1	0	0	0	0	1	0	1	1	1	0	1	0	1	8	5
E10	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	12	4
E11	0	0	1	1	0	0	0	0	0	0	0	1	1	0	1	0	1	7	6
E12	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	8
E13	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	8
E14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17	1
E15	0	0	1	1	0	0	0	0	0	0	0	1	1	0	1	0	1	7	6
E16	1	1	1	1	0	0	0	0	1	1	1	1	1	0	1	1	1	12	4
E17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	9
D	9	9	16	13	3	5	5	3	10	9	12	16	16	1	12	9	17		
L	6	6	2	3	8	7	7	8	5	6	4	2	2	9	4	6	1		

Figure 3. Reachability Matrix (RM): Revision and Final Matrix on Sustainable Religious Tourism in Tana Toraja

The classification of sub-elements can be explained as follows: (a) Autonomous — This group consists of attributes with low influence and low dependence. In this study, no sub-elements fall into this category, indicating that all identified factors are interconnected to some extent with the development of religious tourism at the Jesus Christ statue in Tana Toraja. (b) Dependent — Attributes in Quadrant II have low influence but high dependence. Based on the ISM analysis, the sub-elements in this category include Tourism Service Facilities, Community Activities, Community Institutions, Supporting Attractions, Environmental Conditions, Community Concern, Citizen's Awareness, and Expert NGO Institutions (elements 9, 11, 15, 4, 3, 12, 13, and 17). Environmental conditions (E3) are placed here,

suggesting that while the environment is significantly affected by tourism development, it does not independently drive the process, emphasizing the need for strong external management to ensure environmental sustainability. (c) Linkage — This quadrant consists of attributes with both high influence and high dependence, meaning they can both affect and be affected by changes in other elements. The sub-elements in this group are Natural Resources, Cultural Resources, Tourist Accommodations, and Private Institutions (elements 1, 2, 10, and 16). The inclusion of natural resources (E1) in this category highlights their central but dynamic role in religious tourism development — they serve as key attractions while also being vulnerable to degradation if not properly managed.

(d) Independent — Attributes in this quadrant have high influence and low dependence, meaning they can significantly shape the development system with minimal reliance on other factors. These include Government Institutions, Transportation Facilities Availability, Tourism Support Facilities, Road Networks, and Tourism Support Information (elements 14, 5, 8, 6, and 7). While the study acknowledges the importance of environmental factors such as natural resources and environmental conditions, the primary focus remains on socio-economic and managerial components, which are viewed as critical levers for sustainable and effective tourism planning. Nonetheless, these findings underscore the need to integrate environmental considerations into the broader framework to ensure long-term preservation of the natural assets that underpin religious tourism in the region.

The next stage of analysis is that the results of the Reachability Matrix are divided in a structured manner based on predetermined levels. Figure 4 shows that the upward direction of the arrow means that the attribute produces the attribute above it, while the arrow direction to the side means that there is a mutual influence in producing the above attribute (Darmawan, 2017; Tripathy et al., 2013).

The results of the ISM quadrant classification directly inform the proposed development strategies by aligning the position of each sub-element with its role in the system. Attributes in Quadrant IV (Independent)—such as government institutions, transportation facilities availability, tourism support facilities, road networks, and tourism support information—are identified as short-term priorities due to their strong influence and low dependence.

These factors must be addressed first to provide enabling conditions for subsequent development stages.

Attributes in Quadrant III (Linkage)—including natural resources, cultural resources, tourist accommodations, and private institutions—fall under the medium-term strategy because of their mutual interdependence and potential to trigger systemic shifts once foundational elements are in place. Meanwhile, attributes in Quadrant II (Dependent)—such as environmental conditions, community activities, institutions, and public awareness—are positioned as long-term outcomes that rely on prior systemic support to fully manifest. This alignment of ISM results with staged development priorities demonstrates how the structural model can be operationalized in planning efforts, ensuring that tourism development is both strategic and responsive to stakeholder dynamics. Based on the hierarchical structure in Figure 5, it is known that there are three handling groups for the development of the Jesus Christ statue religious tourism in Tana Toraja, namely short-term, medium-term and long-term handling. The handling of this futures program starts from the highest level (Nine), moving to the lowest level (One). As seen in Figure 5, attributes at levels 9, 8 and 7 are recommended for inclusion in the short-term religious tourism development program of the Buntu Burake regional government. The sub-element that is the most important factor for developing the Jesus Christ statue religious tourism in Tana Toraja is prioritizing strengthening the role of Government Institutions in issuing strategic decisions. In particular, decisions that support the availability of easy and adequate transportation infrastructure for tourism development in Buntu Burake.

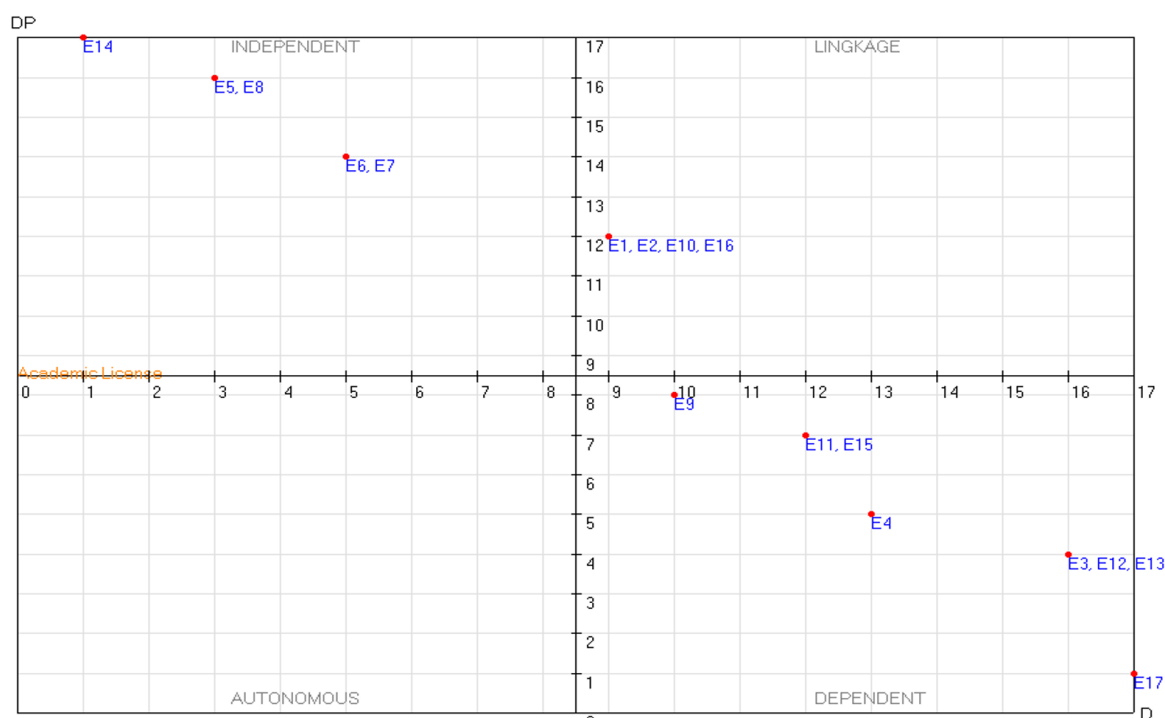
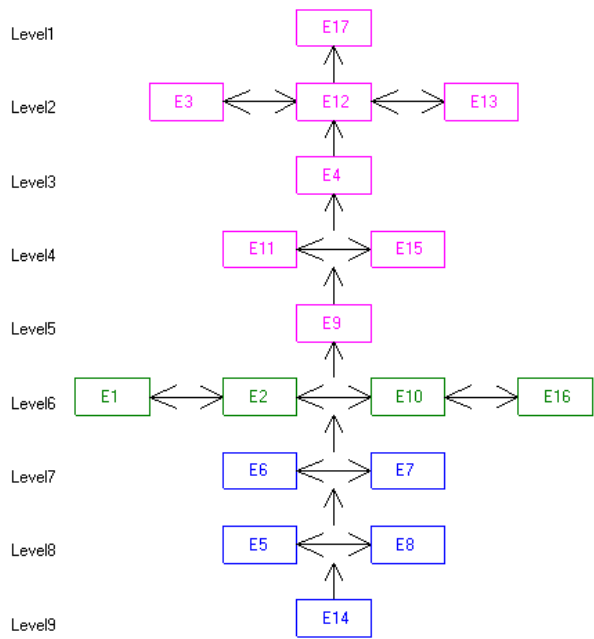


Figure 4. Quadrant Classification for the Development of Religious Tourism in Tana Toraja



E1=Natural Resources, E2=Cultural Resources, E3=Environmental Conditions, E4=Supporting Attractions, E5=Transportation Facilities Availability, E6=Road Networks, E7=Tourism Support Information, E8=Tourism Support Facilities, E9=Tourism Service Facilities, E10=Tourist Accommodations, E11=Community Activities, E12=Community Concern, E13=Citizen's Awareness, E14=Government Institutions, E15=Community Institutions, E16=Private Institutions, E17=Expert NGO Institutions.

Figure 5. Hierarchical Structure Model for the Development of Religious Tourism in Tana Toraja

The ISM-derived hierarchy (Figure 5) challenges linear tourism development models. It demonstrates that: Spiritual significance (E2) is a *dependent* outcome (Level 1), flourishing only when underpinned by functional infrastructure (E5, E8) and inclusive governance (E14). This contests assumptions that spiritual appeal inherently drives tourism (Nangpiire et al., 2022). Environmental conservation (E3) operates as a *linkage* variable (Quadrant III), simultaneously influencing and influenced by cultural resources. This interdependence necessitates integrated policies, advancing Graci's (2020) call for "cross-sectoral sustainability" in sacred sites.

The phased strategy provides a template for sites facing UNESCO compliance pressures or interfaith visitor growth. Short-term state-led infrastructure investments enable medium-term private-community partnerships, ultimately fostering organic stewardship—a pathway validated in Tana Toraja but applicable to sites from Varanasi to Camino de Santiago.

3.2. Discussion

3.2.1. Short-Term Development Program

The dominance of Government Institutions (E14) as the primary driver confirms the governance perspective in sustainable tourism, which emphasizes that institutional capacity determines the effectiveness of infrastructure provision, stakeholder coordination, and destination management. Unlike conventional tourism development models that

prioritize attractions as the main driver, the ISM hierarchy indicates that institutional governance forms the foundation upon which other tourism attributes depend. This finding is consistent with Romanelli et al. (2021) and Streimikiene et al. (2021) who argue that governance quality is a prerequisite for sustainable destination competitiveness.

Unlike Mana et al. (2024), who identified promotion as the primary issue in Tana Toraja, the present ISM analysis indicates that institutional governance precedes promotional activities. This finding suggests that tourism promotion will have limited effectiveness unless supported by adequate governance capacity and transport infrastructure.

The hierarchical structure generated through ISM demonstrates that institutional governance is not merely one of several contributing factors but serves as the enabling driver that activates subsequent development attributes. Rather than functioning independently, governance provides the institutional foundation upon which transportation infrastructure, tourism support facilities, information systems, and community participation can be effectively developed. This systems perspective extends previous tourism studies by revealing causal priority rather than simple associative relationships among destination attributes, thereby highlighting the added value of ISM in identifying strategic intervention sequences for sustainable religious tourism development.

The emergence of governance and transportation infrastructure as the highest driving elements can be explained by the structural characteristics of religious tourism destinations in Tana Toraja. Unlike mass tourism destinations where market demand often drives development, pilgrimage destinations require coordinated public policies, accessibility, and institutional arrangements before tourism services can operate effectively. Without government leadership, road connectivity, transport accessibility, and supporting facilities, investments in accommodation, promotion, or community programs cannot generate optimal tourism outcomes. Therefore, the ISM hierarchy reflects the causal sequence through which destination development gradually evolves rather than merely indicating the relative importance of individual factors.

As a stakeholder, the government has an important role in developing rural and urban tourism (Noviana et al., 2025; Parlindungan et al., 2021). So, the government should not become an organization separate from the citizens who have participated in developing tourism in their region (Malini et al., 2023; Noviana et al., 2025; Sukwika & Rahmatulloh, 2021). Therefore, synergistic interaction is needed between the government, the private sector and the community to encourage faster development in the Jesus Christ statue religious tourism in Tana Toraja.

Gradually, the next step is to improve Transportation Facilities Availability and Tourism Support Facilities. Improving Transportation Facilities Availability and Tourism Support Facilities

in the religious tourism sector in developing countries can support economic growth, sustainability and cultural exchange while ensuring the comfort and safety of pilgrims visiting important historical and religious sites. Pilgrimage tourism destinations have high religious and spiritual value for pilgrims or pilgrims. In many cases, pilgrims travel long distances to visit these sites as part of their religious practice. Therefore, having good transportation infrastructure will facilitate access to these sites, allowing more people to join their religious journey (Fang, 2020; Streimikiene et al., 2021). It also helps strengthen the area's cultural identity and tourist attraction (Aziz et al., 2022; Hvizdova, 2018; Parlindungan et al., 2021).

In the short term, the development of road networks and tourism support information is essential to enhance pilgrim accessibility and site management. These infrastructure components significantly contribute to the efficiency, safety, and overall quality of the religious tourism experience in Tana Toraja. Road infrastructure plays a critical role in ensuring accessibility, safety, and comfort for pilgrims, particularly those traveling long distances. Well-developed roads, complemented by essential facilities such as parking areas, restrooms, and rest stops, enhance the overall travel experience and support the operational effectiveness of religious tourism services (Aziz et al., 2022; Kim et al., 2020; Malini et al., 2023; Romanelli et al., 2021).

Effective Tourism Support Information can determine visits by tourists and foreign residents to sacred buildings; this depends on regional promotion methods and the promotion of these sacred buildings. Tourism Support Information includes providing information about pilgrimage sites, visiting procedures, religious celebration schedules, and cultural guides. This information helps pilgrims better understand the sites they visit and carry out their journeys per local rules and traditions. Good information and easy access help pilgrims plan their journey better and have a more positive experience overall. It can also help them feel more comfortable and connected to their surroundings, culture and local community. Tourism Support Information also helps in marketing and promoting pilgrimage destinations. Appropriate and easily accessible information can attract more pilgrims, benefiting the local economy and promoting religious tourism. By having accurate information about the number of pilgrims and their travel patterns, governments and related institutions can plan sustainable development of infrastructure and services. It helps balance tourism development, environmental preservation, and cultural sustainability.

The availability of a good road network and tourism support information is an important foundation for developing pilgrimage tourism (Aziz et al., 2022; Fang, 2020; Parlindungan et al., 2021). Religious tourists are often more loyal, characterized by shorter but repeat visits to destinations (Kim et al., 2020; Ruru et al., 2022). Therefore, the role of these

two important aspects is not only to improve the pilgrim's experience but also to support local economic growth and the preservation of valuable religious and cultural sites (Handriana et al., 2020; Parlindungan et al., 2021). Religious tourism can motivate many people from various parts of the world to travel to that place for religious reasons, either for pilgrimage, preaching or relaxation (Fang, 2020). Religious Tourism has long played an important role in raising the standards of the tourism industry and promoting regional environmental and economic development (Hsiao-Hsien et al., 2021; Kim et al., 2020).

Beyond physical infrastructure, the long-term sustainability of religious tourism depends on preserving the site's spiritual significance and socio-cultural authenticity. Pilgrimage to the Jesus Christ Statue is not merely a recreational activity but also a religious practice that reinforces spiritual identity, cultural continuity, and community cohesion. Consequently, tourism development should protect sacred values and local traditions while accommodating visitor needs. Excessive commercialization without cultural safeguards may reduce the authenticity of the pilgrimage experience and weaken community support. Therefore, infrastructure development should be accompanied by cultural preservation programs, interpretation of local religious traditions, and active participation of indigenous communities in destination governance.

3.2.2. Medium-Term Development Program

In the medium term, the development of religious tourism in Tana Toraja by the Buntu Burake regional government needs to focus on attributes at level 6, namely Natural Resources, Cultural Resources, Tourist Accommodations, and Private Institutions. These attributes can collectively positively impact the success and sustainability of the religious tourism industry. Figure 5 shows four attributes that can be implemented simultaneously in the medium term.

The placement of Natural Resources, Cultural Resources, Tourist Accommodations, and Private Institutions at the medium-term level reflects the hierarchical logic identified through ISM. Unlike the short-term priorities, which are dominated by governance and infrastructure, these attributes become effective only after institutional capacity and accessibility have been strengthened. This finding demonstrates that destination competitiveness develops sequentially rather than simultaneously. The ISM hierarchy therefore extends previous tourism studies by revealing that environmental, cultural, and private-sector investments depend on the successful establishment of governance and supporting infrastructure during the initial stage of destination development.

The Jesus Christ statue religious tourism in Tana Toraja is a favourite natural and religious destination for local and foreign tourists. Apart from being surrounded by beautiful views, the statue of Jesus was

erected on a hilltop with pristine community culture. The construction of this statue is to increase tourist attraction and provide an alternative to religious tourism in Tana Toraja. The development of religious and pilgrimage tourism has great potential in the tourism industry and can provide various benefits, both from an economic and social perspective (Handriana et al., 2020). The development of religious and pilgrimage tourism can help diversify the tourism industry in a region (Streimikiene et al., 2021). It means that the area not only relies on certain types of tourism, such as beach or cultural tourism but also attracts tourists interested in spiritual and religious aspects (Aulet & Duda, 2020).

The development of Natural Resources (Natural Resources) by stakeholders can reinforce beautiful natural resources (natural beauty), such as mountains, lakes, rivers and beaches, which can be a stunning backdrop for religious sites and events. It can attract pilgrims and tourists seeking spiritual experiences connected to nature (Aulet & Duda, 2020; Streimikiene et al., 2021). Another strengthening of the sustainability aspect, namely maintaining and conserving natural resources, is important for sustainable tourism. Paying attention to natural sustainability can help maintain natural beauty that attracts pilgrims and tourists (Aziz et al., 2022; Sukwika & Rahmatulloh, 2021).

The development of Cultural Resources on stored historical and cultural heritage is an integral part of religious tourism in Tana Toraja, for example, exploring historical sites, temples, churches, and cultural and religious celebrations. At the same time, tourism actors continue to maintain and promote these cultural resources, helping to maintain local cultural identity and attract tourists (Griera et al., 2023; Parlindungan et al., 2021) and functioning Cultural Resources as a source of education and understanding for pilgrims. Preparing a good interpretation of the history and meaning of these sites can deepen the pilgrim's spiritual experience (Bideci & Bideci, 2021; Dyas, 2020; Sellner, 2020).

Beyond preserving cultural heritage, Cultural Resources reinforce the spiritual significance and socio-cultural sustainability of religious tourism destinations. Pilgrimage activities at the Jesus Christ Statue strengthen local identity through the preservation of religious rituals, indigenous traditions, and collective memory. Therefore, cultural conservation should not merely be viewed as an attraction for visitors but as a mechanism for maintaining the authenticity and continuity of Torajan cultural values. This interpretation complements previous studies by Griera et al. (2023) and Sellner (2020), which primarily emphasize heritage preservation without explicitly explaining its hierarchical role in sustainable destination development.

The development of Tourist Accommodations is important to create comfort for pilgrims. Providing comfortable and affordable accommodation near

religious sites is key in attracting pilgrims. Good accommodation allows pilgrims to stay longer and spend more time in the area. The pilgrimage tourism industry can be a significant source of income for areas that are pilgrimage destinations. By improving transportation and accommodation facilities, the area can attract more pilgrims, which in turn will increase local income through hotels, restaurants, souvenir trade and other services (Malini et al., 2023; Maršanić et al., 2021). Over time, the development of Tourist Accommodations has positive implications for economic growth because the development of tourist accommodation also supports local economic growth by creating employment and income opportunities for local communities (Hsiao-Hsien et al., 2021; Liu et al., 2020; Mana et al., 2024).

Unlike conventional tourism development strategies that prioritize accommodation expansion at an early stage, the ISM results indicate that accommodation should follow improvements in governance, accessibility, and destination management. Expanding accommodation capacity without adequate institutional support may increase operational costs while generating limited benefits for local communities. Therefore, accommodation development should be implemented progressively according to projected visitor growth and environmental carrying capacity.

The development of Private Institutions can be directed at investment and management cooperation, where private institutions, such as hotels, restaurants and travel agents, can play an important role in investing funds, managing facilities and promoting religious tourism destinations, as well as assisting in expanding tourism infrastructure (Aziz et al., 2022; Handriana et al., 2020; Kim et al., 2020). Simultaneously, the development of innovation in partnership continues to be explored. So far, private institutions have often been more flexible in implementing innovations and special services that can improve the pilgrim experience (Fang, 2020; Malini et al., 2023; Parlindungan et al., 2021).

The medium-term positioning of Private Institutions also indicates that private-sector investment is more effective when supported by clear government policies and reliable infrastructure. This finding differs from market-oriented tourism models that consider private investment as the initial development driver. Instead, the ISM hierarchy suggests that public-sector leadership should precede private-sector participation to reduce investment uncertainty and strengthen long-term collaboration among stakeholders. Consequently, local governments should establish public-private partnership (PPP) mechanisms, investment incentives, and transparent governance frameworks to encourage sustainable tourism investment.

This finding supports the argument of Aulet dan Duda (2020) that natural landscapes enhance the attractiveness of pilgrimage destinations. However, the present study extends previous research by

demonstrating that environmental conservation should not be treated as an isolated objective but as a medium-term strategic investment that becomes effective only after basic governance and infrastructure have been established. This sequential relationship has rarely been highlighted in earlier studies of religious tourism.

3.2.3. Long-Term Development Program

The long-term development of religious tourism in Tana Toraja should be implemented in stages, depending on the availability of local resources and institutional capacity. Key attributes requiring sustained attention include tourism service facilities, community engagement, institutional collaboration, supporting attractions, environmental conditions, public awareness, and expert NGO support. Strengthening these elements is essential to ensure the long-term sustainability and quality of religious tourism in the Buntu Burake area.

The positioning of these attributes in the long-term development stage indicates that sustainable religious tourism cannot be achieved solely through infrastructure investment or institutional intervention. Instead, the ISM hierarchy demonstrates that community empowerment, environmental stewardship, and institutional collaboration emerge only after governance, accessibility, and supporting facilities have been adequately established. This finding reinforces the systems perspective that sustainable destination development is an evolutionary process in which social and environmental resilience becomes the ultimate outcome of earlier institutional and infrastructural investments. Therefore, the long-term attributes represent indicators of destination maturity rather than initial development priorities.

The development of Tourism Service Facilities for tourist comfort must support good tourism service facilities, such as accommodation, restaurants, tourist information centres and transportation, which can increase tourist comfort. It can help them feel satisfied with their experience and potentially return or recommend the destination to others. Improved facilities can also lead to sustainable tourism development, which considers environmental and social impacts. It is important to maintain the long-term sustainability of pilgrimage destinations, which are often very vulnerable to environmental damage due to large flows of pilgrims (Handriana et al., 2020; Malini et al., 2023; Tohirovich & Mamarasulovna, 2020).

The development of Community Activities focuses on interaction with tourists, namely involving local communities in activities related to religious tourism, which can create opportunities for tourists to interact with residents. It can increase cross-cultural understanding and deeper experiences for tourists. A pilgrimage trip is an opportunity to interact with people from various cultural and religious backgrounds. Investments in tourism facilities can

increase cultural exchange and understanding between communities, which can benefit inter-ethnic and religious relations (Liu et al., 2020; Rambulangi et al., 2023). Community Empowerment Development effectively impacts community activities related to tourism, which can provide direct economic benefits to local residents and help in the economic empowerment of local communities (Mana et al., 2024).

Unlike conventional tourism models that primarily emphasize economic participation, the present findings indicate that community activities function as mechanisms for strengthening socio-cultural resilience and preserving local identity. Active community participation enables religious traditions, cultural performances, and indigenous knowledge to be continuously transmitted across generations, thereby enhancing both visitor experiences and the long-term sustainability of the destination. This interpretation extends the findings of (Rambulangi et al., 2023) by positioning community participation as a strategic outcome within the hierarchical ISM model rather than merely a supporting tourism activity.

The development of Community Institutions can take the form of joint management; for example, involving community institutions in management and maintenance of religious sites can help ensure that cultural and spiritual aspects are respected (Lin, 2021; Panggula et al., 2023; Rambulangi et al., 2023). It can also help protect historic sites from damage and destruction (Parlindungan et al., 2021). Another development approach is through community participation to increase the sense of ownership and responsibility for tourism destinations so that community institutions can provide a forum for community participation in decision-making related to religious tourism (Graci, 2020; Streimikiene et al., 2021).

The ISM hierarchy further suggests that community institutions become effective only when supported by strong government leadership and stakeholder collaboration established during earlier development stages. This finding differs from governance models that advocate community-based management as the primary intervention. Instead, the present study demonstrates that institutional empowerment should be implemented progressively to ensure that local communities possess adequate organizational capacity and decision-making authority before assuming greater management responsibilities.

Development of supporting attractions for tourist experiences; supporting attractions like museums, art galleries, and cultural events can complement tourists' experiences in religious tourism destinations. They can also help maintain tourist interest in the long term by offering various attractions (Malini et al., 2023; Sukwika & Rahmatulloh, 2021). One way to develop diversification is by having various supporting attractions. Religious tourism destinations can attract

various types of tourists, including those who may not only be interested in religious aspects (Handriana et al., 2020; Kim et al., 2020; Sellner, 2020).

The placement of Supporting Attractions in the long-term state indicates that attraction diversification should not precede the development of core religious values. Excessive emphasis on entertainment-oriented attractions during the early stages of destination development may weaken the authenticity of pilgrimage experiences and increase the risk of commercialization. Therefore, attraction diversification should complement rather than replace the site's primary spiritual function.

The development of Environmental Conditions can be done through environmental conservation, one of the aims of which is to protect the environmental conditions around religious sites, which is important for maintaining the sustainability of tourism. Conservation efforts can help avoid damage to nature and the surrounding environment (Dyas, 2020; Fang, 2020; Sellner, 2020). Creating a tourist experience by providing clean and well-maintained environmental services can improve the tourist experience and enable them to appreciate better the natural and religious beauty of their surroundings (Malini et al., 2023; Sukwika & Rahmatulloh, 2021).

Environmental conservation is not only essential for maintaining landscape quality but also for protecting the spiritual atmosphere of the pilgrimage destination. Sacred natural environments contribute to visitors' perceptions of authenticity, tranquility, and spiritual reflection. Consequently, environmental sustainability should be integrated into tourism planning through carrying-capacity management, waste reduction programs, ecosystem restoration, and environmentally responsible visitor management. These findings reinforce previous studies while extending them by demonstrating the hierarchical dependence of environmental stewardship on earlier governance and infrastructure improvements.

Community concern and citizen awareness are essential to sustaining religious tourism (Hsiao-Hsien et al., 2021; Romanelli et al., 2021). Local communities that recognize the significance of tourism development are more likely to support, preserve, and promote their religious and cultural heritage. Enhancing public understanding fosters shared responsibility and long-term commitment to sustainable practices (Kim et al., 2020; Romanelli et al., 2021).

The emergence of community concern and public awareness as long-term priorities suggests that sustainable religious tourism ultimately depends on behavioral change rather than physical infrastructure alone. Increased awareness encourages local communities to preserve religious traditions, respect sacred spaces, and actively participate in environmental conservation. Therefore, long-term educational programs, cultural interpretation initiatives, and community-based tourism training

should become integral components of destination management policies.

The development of Expert NGO Institutions can involve practitioners and observers of religious tourism to provide assistance and support. NGO institutions that have expertise in cultural preservation, environmental preservation, or community development can provide guidance, training, and technical support to communities and local in efforts to develop sustainable religious tourism (Liu et al., 2020; Rambulangi et al., 2023).

The role of Expert NGO Institutions extends beyond technical assistance by facilitating knowledge transfer, stakeholder mediation, and independent monitoring of tourism sustainability. Their involvement strengthens adaptive governance by ensuring that tourism development remains aligned with environmental conservation, cultural preservation, and community empowerment objectives. Consequently, local governments should establish long-term partnerships with universities and non-governmental organizations to provide continuous capacity building and evidence-based policy evaluation.

Overall, the long-term development strategy identified through ISM demonstrates that the sustainability of religious tourism extends beyond infrastructure provision and destination marketing. Sustainable development is ultimately achieved through the integration of spiritual values, socio-cultural preservation, environmental stewardship, and collaborative governance. This systems-based perspective distinguishes the present study from previous research by demonstrating that destination sustainability emerges from cumulative interactions among institutional, environmental, cultural, and community-based factors rather than isolated development interventions. From a policy perspective, local governments should complement physical investment with long-term programs focusing on cultural preservation, environmental management, community capacity building, and multi-stakeholder collaboration to ensure that religious tourism at the Jesus Christ Statue remains both spiritually authentic and socio-economically sustainable.

3.2.4. Strategic Integration

By aligning the ISM-derived quadrant structure with phased planning strategies, this study demonstrates how religious tourism development can proceed holistically. Immediate efforts should focus on enabling factors with high influence, while medium-term and long-term initiatives build on these foundations to foster community empowerment, cultural preservation, and environmental sustainability. The structural model provides a replicable framework for religious tourism planning that balances strategic governance with local participation (Table 3).

Table 3. Development Strategic Integration for Sustainable Religious Tourism Development in Tana Toraja

Quadrant	Term	Development Strategy
Quadrant IV (independent)	Short Term	Government institutions must lead policy formation, infrastructure investment, and stakeholder coordination. Efficient transportation and road access facilitate pilgrimage flows and improve the overall visitor experience. Moreover, accessible and accurate tourism support information helps guide pilgrim behavior, strengthens cultural understanding, and enhances site reputation. Collectively, these elements serve as prerequisites for broader development goals.
Quadrant III (linkage)	Medium Term	Their development is proposed in the medium term following the stabilization of key infrastructures. Conservation and interpretation of natural and cultural resources strengthen the spiritual and aesthetic value of the destination. Expanding tourist accommodation, particularly those operated through private sector partnerships, ensures capacity for increased visitation while supporting local livelihoods. Private institutions also contribute innovation and investment needed to scale religious tourism sustainably.
Quadrant II (dependent)	Long Term	Community engagement and institutional participation are crucial to embedding religious tourism in the local socio-cultural fabric. Supporting attractions enrich the experience beyond the pilgrimage site itself, while environmental preservation ensures long-term viability. Awareness campaigns and NGO involvement reinforce sustainability and equity in tourism development.

3.2.5. Environmental Management Implications

Although institutional governance emerged as the primary development driver, environmental sustainability should become an integral component throughout every development phase. Increased tourist arrivals may create pressures on carrying capacity, solid waste generation, domestic wastewater, surface runoff, vegetation disturbance, and biodiversity surrounding the Buntu Burake area. Consequently, tourism development should incorporate environmental monitoring indicators such as visitor carrying capacity, waste generation per visitor, water consumption, erosion risk, vegetation cover change, and biodiversity conservation status. Periodic environmental monitoring would enable local governments to balance tourism growth with ecosystem protection.

Tabel 4. Environmental Monitoring Framework for Sustainable Religious Tourism Management

Environmental Issue	Indicator	Monitoring
Carrying capacity	Visitors/day	Monthly
Waste	kg/day	Weekly
Wastewater	BOD COD	Monthly
Water use	m ³ /day	Monthly
Vegetation	NDVI	Annual
Erosion	Soil loss	Annual
Biodiversity	Species richness	Annual

4. CONCLUSIONS

This study developed a hierarchical structural model for sustainable religious tourism at the Jesus Christ Statue in Tana Toraja using the Interpretive Structural Modeling (ISM) approach integrated with the VAXO contextual relationship technique. The findings demonstrate that sustainable religious tourism development follows a sequential hierarchy. Government Institutions emerged as the primary driving factor, followed by transportation infrastructure, tourism support facilities, natural and cultural resources, accommodation, private-sector participation, community engagement, environmental conservation, and institutional collaboration. These results indicate that governance and infrastructure provide the essential foundation for achieving long-term socio-cultural and environmental sustainability.

The study contributes conceptually, methodologically, and practically. Conceptually, it demonstrates that sustainable religious tourism should be understood as an interconnected hierarchical system rather than a collection of independent destination attributes. Methodologically, the integration of ISM and the VAXO technique provide a systematic approach for identifying causal relationships and development priorities in religious tourism planning. Practically, the proposed structural model offers a decision-support framework for local governments, tourism managers, and other stakeholders to formulate phased development strategies, allocate resources more effectively, strengthen multi-stakeholder collaboration, and preserve both the spiritual significance and socio-cultural authenticity of the destination.

Beyond its methodological contribution, this study provides a new theoretical insight into the sustainable religious tourism literature by demonstrating that the development of religious tourism follows a hierarchical and sequential process rather than a simultaneous one. The findings indicate that institutional governance and enabling infrastructure function as prerequisite drivers, whereas community empowerment, environmental conservation, and cultural sustainability emerge as long-term outcomes of earlier interventions. This system's perspective extends previous religious tourism studies, which have generally examined development factors independently without explaining their structural interdependencies and implementation priorities.

Several limitations should be acknowledged. First, the ISM analysis was developed based on the judgments of five purposively selected experts. Although this number is considered acceptable for ISM because the method prioritizes expert knowledge over large sample sizes, the findings remain dependent on expert perspectives and may not fully represent all stakeholder groups. Second, the VAXO pairwise assessment inherently involves subjective judgments despite the consensus-building process adopted during expert consultation. In addition, this study was conducted as a single case study focusing exclusively on the Jesus Christ Statue destination in

Tana Toraja. Consequently, the hierarchical relationships identified may reflect the institutional, cultural, and environmental characteristics specific to this destination and should not be generalized directly to other religious tourism sites without further empirical validation.

Future research should validate the proposed hierarchical model using complementary approaches such as DEMATEL, ANP, MICMAC, or Structural Equation Modeling (SEM) to strengthen causal verification and improve model robustness. Comparative studies involving other religious tourism destinations, such as Borobudur (Indonesia), Angkor Wat (Cambodia), and My Son Sanctuary (Vietnam), are also recommended to evaluate the broader applicability of the proposed framework across different cultural and institutional contexts.

REFERENCES

- Aulet, S., & Duda, T. (2020). Tourism accessibility and its impact on the spiritual sustainability of sacred sites. *Sustainability*, 12(22), 9695. doi:10.3390/su12229695
- Aziz, A. M., Sukwika, T., & Gunawijaya, J. (2022). Management of ecotourism development "Lolai Village, the country above the clouds of North Toraja" based on nature and culture conservation. *Jurnal Industri Pariwisata*, 4(2), 108-121. doi:10.36441/pariwisata.v4i2.659
- Bideci, M., & Bideci, C. (2021). Framing the visitor experience in sacred places. *The TQM Journal*, 34(3), 377-397. doi:10.1108/tqm-02-2021-0044
- BPS. (2024). *Tana Toraja in Figures 2024: Number of Indonesian Tourists Visiting Tana Toraja Regency*. Tana Toraja Regency: the Central Statistics Agency (BPS).
- Darmawan, D. P. (2017). *Interpretative structural modelling*. Yogyakarta: Elmaterra Press.
- Dyas, D. (2020). *The Dynamics of Pilgrimage: Christianity, Holy Places, and Sensory Experience*: Routledge.
- Fang, W.-T. (2020). *Tourism in emerging economies*. Singapore: Springer.
- Graci, S. (2020). Collaboration and partnership development for sustainable tourism. In *Tourism and Sustainable Development Goals* (pp. 232-249): Routledge.
- Griera, M., Müller, T., & Martínez-Ariño, J. (2023). The Politics of Mapping Religion: Locating, Counting, and Categorizing Places of Worship in European Cities. *Space and Culture*, 26(2), 167-179. doi:10.1177/12063312221130247
- Handriana, T., Yulianti, P., & Kurniawati, M. (2020). Exploration of pilgrimage tourism in Indonesia. *Journal of Islamic Marketing*, 11(3), 783-795. doi:10.1108/JIMA-10-2018-0188
- Hsiao-Hsien, L., Ling, Y., Lin, J.-C., & Liang, Z.-F. (2021). Research on the development of religious tourism and the sustainable development of rural environment and health. *International Journal of Environmental Research and Public Health*, 18(5), 2731. doi:10.3390/ijerph18052731
- Hussain, T., & Wang, D. (2024). Social Media and the Spiritual Journey: The Place of Digital Technology in Enriching the Experience. *Religions*, 15(5), 616. doi:10.3390/rel15050616
- Hvizdova, E. (2018). Religious tourism and its socio-economic dimensions. *European Journal of Science and Theology*, 14(2), 89-98. http://www.ejst.tuiasi.ro/Files/69/89_Hvizdova.pdf
- Kim, B., Kim, S., & King, B. (2020). Religious tourism studies: evolution, progress, and future prospects. *Tourism recreation research*, 45(2), 185-203. doi:10.1080/02508281.2019.1664084
- Lin, C.-P. (2021). The salience of stakeholders in religious tourism: A case study of the Dajia Mazu pilgrimage. *Annals of Tourism Research*, 86, 103091. doi:10.1016/j.annals.2020.103091
- Liu, C., Dou, X., Li, J., & Cai, L. A. (2020). Analyzing government role in rural tourism development: An empirical investigation from China. *Journal of Rural Studies*, 79, 177-188. doi:10.1016/j.jrurstud.2020.08.046
- Malini, L. H., Eddyono, F., Sulistyadi, Y., & Sukwika, T. (2023). The Decision to visit Mount Gede Pangrango National Park, West Java: Attribute analysis approach. *Jurnal Manajemen (Edisi Elektronik)*, 14(1), 127-140. doi:10.32832/jm-uika.v14i1.8912
- Mana, P., Allo, R. P. R., Paranoan, N., & Parapak, M. (2024). *Analysis of Buntu Burake Tourism Object Management and Its Impact on Community Welfare In Tana Toraja*. Paper presented at the Conference on SDGs Transformation through the Creative Economy: Encouraging Innovation and Sustainability (TCEEIS 2023).
- Mariati, S., Prabowo, Y. D., Rahmanita, M., Habibie, F. H., & Mustika, A. (2023). Analysis of Tourism Village Management in Wewengkon Kasepuhan Customary Citorek, Lebak Regency, Banten Province-Indonesia. *TRJ Tourism Research Journal*, 7(2), 244-267. doi:10.22334/jihm.v13i1.241
- Maršanić, R., Mrnjavac, E., Pupavac, D., & Krpan, L. (2021). *Integrated approach to developing a parking model in tourist destinations*. Paper presented at the 6th International thematic monograph - Modern management tools and economy of tourism sector in present era, Beograd.
- Nangpiire, C., Silva, J., & Alves, H. (2022). Customer engagement and value co-creation/destruction: The internal fostering and hindering factors and actors in the tourist/hotel experience. *Journal of Research in Interactive Marketing*, 16(2), 173-188. doi:10.1108/jrim-05-2020-0104
- Noviana, L., Situmorang, M. T. N., Cahyaputri, B., Farida, F., & Sukwika, T. (2025). Analysis of Pentahelix Tourism Village for Ecotourism Development in Batu City, East Java. *International Journal of Sustainable Development and Planning*, 20(3), 1273-1282. doi:10.18280/ijstdp.200332
- Panggula, N. A. N., Alwi, A., & Susanti, G. (2023). Synergistic Stakeholder Strategies in Sustainable Tourism Development in Tana Toraja. *International Journal of Multicultural and Multireligious Understanding*, 10(12), 525-529. doi:10.18415/ijmmu.v10i12.5475
- Parlindungan, H. H., Sukwika, T., & Manurung, H. (2021). Prambanan Temple Tourist Destination Development in Indonesia as World Cultural Heritage. *European Journal of Science, Innovation and Technology*, 1(3), 39-56. <https://www.ejsit-journal.com/index.php/ejsit/article/view/20>.

- Sukwika, T., and Paranita, E. S. (2026). Sustainable Religious Tourism Development in Tana Toraja: Hierarchical Structural Model Approach. *Jurnal Ilmu Lingkungan*, 24(3), 713-727, doi:10.14710/jil.24.3.713-727
- Rambulangi, A. C., Pasoloran, O., Pongtuluran, A. K., & Ramba, D. (2023). Community Response to Buntu Burake Religious Tourism Management in Tana Toraja District. *Interdisciplinary Social Studies*, 2(11), 2537-2546. doi:10.55324/iss.v2i11.518
- Romanelli, M., Gazzola, P., Grechi, D., & Pollice, F. (2021). Towards a sustainability-oriented religious tourism. *Systems Research and Behavioral Science*, 38(3), 386-396. doi:10.1002/sres.2791
- Ruru, J. M., Londa, V. Y., Palar, N. R., & Rompas, W. Y. (2022). Management of religious tourism objects based on local wisdom. *Journal La Sociale*, 3(5), 197-208. doi:journal-la-sociale.v3i5.722
- Sellner, E. C. (2020). *Pilgrimage: Exploring a great spiritual practice*: Wipf and Stock Publishers.
- Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable development*, 29(1), 259-271. doi:10.1002/sd.2133
- Sukwika, T. (2018). Actor analysis in formulating institutional models for community-forest development in Bogor regency. *Journal of Regional and Rural Development Planning*, 2(2), 133-150. doi:10.29244/jp2wd.2018.2.2.133-150
- Sukwika, T., & Rahmatulloh, F. (2021). Assessment of Situ-Gunung Sukabumi Natural Tourism Park: Implementation of TCM. *Jurnal Pariwisata*, 8(2), 80-89. doi:10.31294/par.v8i2.10427
- Tohirovich, T. K., & Mamarasulovna, T. Z. (2020). The Issue of Studying Religious Tourism in Uzbekistan. *International Journal on Integrated Education*, 3(8), 43-47. doi:10.31149/ijie.v3i8.535
- Tripathy, S., Sahu, S., & Ray, P. K. (2013). Interpretive structural modelling for critical success factors of R&D performance in Indian manufacturing firms. *Journal of Modelling in Management*, 8(2), 212-240. doi:10.1108/JM2-11-2011-0061