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# Pathways toward transformation of sustainable rural tourism management: The Case Central Java Rural Tourism Indonesia

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, complexity of rural institution, and able to accommodate the dynamics of future changes. In addition, it must pay attention to the inclusivity aspect, especially in areas with many stakeholders and poverty problems. This paper presents transformation pathways toward sustainable rural tourism management in the context of developing countries, including determining policy options, programs, and scenarios. The general objective of this paper is to develop sustainable development strategies in the rural tourism context. Specifically, the objectives are to develop the policy pathways and the best scenarios for sustainable trasnformation in rural tourism. The study was conducted in the Kedung Ombo area in Central Java, Indonesia, a representative area involving several districts and other public organizations as stakeholders. Data analysis applying the MULTIPOL method. The results show that an integrated development policy that consider all stakeholders interest, rural resources potential, infrastructure, and human resources capacity would be the most preferable policy to be implemented. Priority programs that need to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the flight of the flamingo and the leapfrog scenarios can simultaneously be considered to achieve future tourism growth goals and objectives. This study is an essential input for the authorities in determining rural tourism development policies in research locations and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL Method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1] and is recognized as an essential means of economic development in rural areas [2]; [3]. Rural tourism is recognized both directly and indirectly as a catalyst for development progress in rural areas[4] and is capable of being a strategic lever in revitalizing the economy of the rural regions and supporting poverty alleviation [5];[6]. Although the development of rural tourism sometimes triggers conflicts between various parties, the perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of generating employment and income creation, combating rural exodus, becoming a socio-economic

networking proposal, becoming a vehicle for processing and enhancing cultural and natural heritage, and improving the quality of life for local residents [8];[9]; [10]. During the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality, environmental degradation, and saving the community's culture [12]. Rural tourism is an endogenous alternative to developing tourism in less-developed areas, allowing local people to increase their income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism aiming to meet the needs of current residents and tourists without compromising the needs of future generations[14]; [15]; [16]. According to [17], rural tourism should not be understood only as a type of tourism but also as a tool for conserving and regenerating rural society and culture.

Indonesia is aendowed with rich material and cultural capital that could be developed for tourism activities. In addition, , the tourism sector is a central issue playing a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages which since 2021 has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth, people's welfare, eradicate poverty, overcome unemployment, preserve nature, the environment, natural resources, and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage villages' social, cultural, and economic transformation. [19]. Eventhough some studies such as Hua [20] found that rural related factors are not contributing factors for rural development from tourism, this study might be special case in Malaysia during covid-19 pandemic. Most studies ([21][22] [23]) agree that the success of the tourism village will become a lever for the village and regional economy, ultimately driving national economic growth

According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1,831, and only 2.73% of them have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions community economy. However, this number is still tiny compared to the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as a pilot, developing, developed, and independent villages [24]. Many factors cause the low number of developed tourism villages. The lack of understanding of policymakers at the village government and regional government levels in comprehensively developing a tourism village, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects are the contributing factors.

As a complex system, tourism development requires careful planning, which is supported by all stakeholders [25]; [26]; [27]; [28]; [29] and should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate tourism tend to have a detrimental effect on social and natural conditions [31]. According to [32], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically and must be based on the potential of an area [33]. Therefore, the success of tourism development is highly dependent on the integration between policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and coordinated actions and policies. A different policy pathway might be needed for another

type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

This general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by developing transformation pathways toward sustainable management of rural tourism in an institutional context in the Kedung Ombo reservoir area, Central Java Province, Indonesia. The general objective can be broke down into three specific objective based on three research questions, i.e.;

1. What strategies can be used to promote sustainable rural tourism in the nature based Central Java tourism?
2. What policies can be implemented to support transformation toward sustainabl rural tourism development?
3. What are the potentials and best scenarios for sustainable rura tourism development.

Developing sustainable tourism is very important in the context of rural tourism as stated by Lane [34], that sustainable strategies could reconcile conflicting demand, avoid wasteful investment and efforts, and seek out niche market where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for tourism recovery in the case of disturbances experienced by rural tourism [22] This study is extending the line of research in rural development strategies by enhancing various strategic options through developing pathways for policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing tourism potential in Indonesia related to the many parties involved in an area, but the coordination and synergy are weak. As a result, conflicts often arise, especially concerning land use rights and division of authority. The parties involved in the Kedung Ombo area are the local government, forest area managers, dam managers, and the community.

In the Kedung Ombo reservoir area, there are 8 (eight) tourist villages, namely Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari . However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area, are just at status developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods through several strategic analyses focusing on the in situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies that do not only implement the Kedung Ombo case but become bridges and can be scaled up at a broader level, especially tourist villages in several developing countries that have the same characteristics. This study is also the first to create a comprehensive policy strategy considering the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

As one of the natural resource-based economic sectors, rural tourism is highly dependent on goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development will be sustainable only if it is planned strategically to reach goals whose effects manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects, coordinating and balancing relationships between various stakeholders and emphasizing fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, the protection of local culture, and the promotion of local products [39].

The success of sustainable tourism development is highly dependent on appropriate [40] and comprehensive [30] policy framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis with the environment and social life [42]. Successful tourism development requires an in-depth study of systems, performance, budget constraints, implications for the economy, and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by coordinating all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' various motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and ensuring inclusive decision-making takes place [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]; researchers from various countries have developed their descriptions based on the unique experiences or contexts they encounter [47]. The World Tourism Organization (WTO) defines rural tourism as products that give visitors personal contact, experiencing the physical environment and rural life, and enable them to participate in local communities' activities, traditions, and lifestyles [14]. Most authors define rural tourism as tourism in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, ecotourism, and other related activities in rural areas [48]; [49]. Rural tourism is a new development model combining modern tourism with the traditional agricultural culture [50]. The three main attributes of rural tourism include culture, nature, and history [51].

There has been much debate about the definition of a tourist village in the literatur without reaching a firm consensus [52]. e The diversity of literature and the different meanings of terminology in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts, with accommodation in traditionally furnished rooms, and traditional breakfasts are often based on homemade products. In Finland, rural tourism usually rents out cottages. In Netherlands, the product of rural tourism means camping on farms and bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a special meaning: the tourist village refers to tourism in villages, presenting village life plus

traditions with the active participation of visitors [51]. Nuryanti, W., define tourism villages in Indonesia as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

From the various existing definitions, a tourist village can be interpreted as a rural area with particular characteristics to become a tourist destination through the local community's physical uniqueness, social life, and culture as an attraction. As for the crucial factors of rural tourism, namely: (1) takes place in rural areas and is functionally rural, (2) the purpose of visiting tourists is to study, be actively involved, experience or enjoy attractions, (3) tourism attributes in the form of culture, nature, history, and unique rural activities offered as attractions, (4) collaboration and involvement of key stakeholders, namely tourists, rural communities, businesses, and government agencies, (5) emphasizing sustainability in social, economic development, and environmental preservation [41 ]). In addition, the development of tourist villages can provide benefits in the form of (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood activities and lifestyle community traditional life, and (6) reduction of urban-ta-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for sustainability of rural tourism [50], for example, using a qualitative approach such as the Delphi Technique to determine the priority ranking for rural tourism development in Russia. Meanwhile, [56] uses an event-based approach to integrate rural tourism in Hungary. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism in this study [57]. Meanwhile, [58] uses an Interpretative Structural Modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches above, one method commonly used in developing sustainability strategies is to use the SWOT approach and its variations, such as AWOT, which is the combination of AHP and SWOT, and TOWS such an approach was used in the case of rural tourism in Iran [58]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing strengthening the role and capacity of the community. A similar approach was also taken by Vipriyanti, et all [59] in the case of rural ecotourism in the Bali region of Indonesia.

Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] use a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, [60] uses artificial intelligence (machine learning) to develop a marketing strategy, one of rural tourism's sustainability strategies.

This study uses a different approach whereby the prospective method, which has rarely been used in rural tourism, is used to develop future strategies for rural tourism. This study is the first to use prospective analysis for rural tourism in Indonesia. Still, this method can be scaled up to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation in the Kedung Ombo area and reach future thinking. The Kedung Ombo Reservoir is the largest in Southeast Asia, with an area of 6,576 hectares consisting of 2,830 hectares of water and 3,746 hectares of plains. The dam's location crosses three districts: Grobogan Regency, Sragen Regency, and Boyolali Regency (Figure 1). From the aspect of accessibility, this

area is easily accessible to reach. However, the infrastructure condition still needs improvement related to the quality and infrastructure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

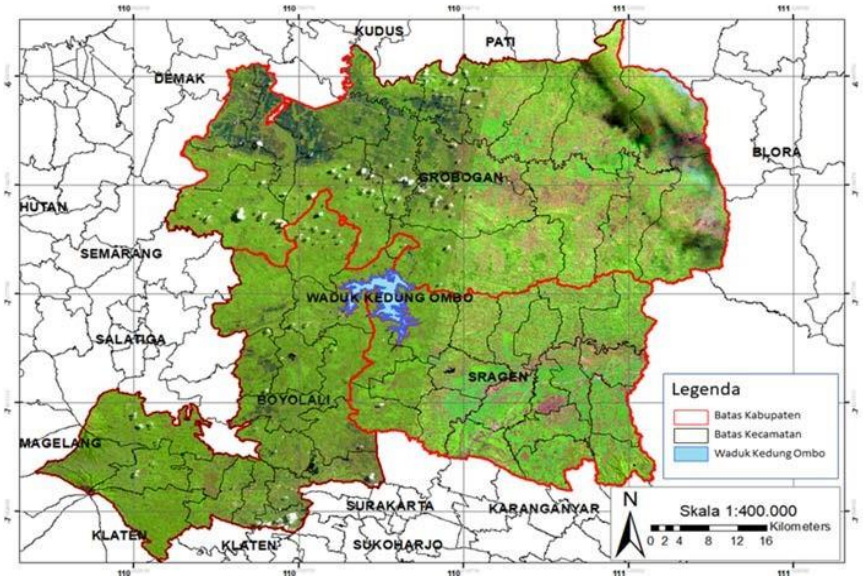


**Figure 1.** Map of Kedung Ombo Area

The Kedung Ombo area is in a hilly forest area. In addition to the dam landscape with beautiful natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in 1991, several community groups, forest managers, local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some of them are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development in the region. To strengthen this goal, the MULTIPOL prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that apply to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

The research data is processed with the MULTIPOL computer program software, developed by the LIPSOR organization, to choose which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages to achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [61], in an institutional context [62]. MULTIPOL facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus [63]. Experts assign weights to each policy, based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [64]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen understanding of causal relationships [65].

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshop methods. The FGD selected twenty people consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a way as to make it possible to present the opinions of each stakeholder equally. MULTIPOL combines two different types of evaluation, namely: 1) program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and: 2) evaluation of policies against scenarios to determine the most appropriate policies and become priority policies for specific scenarios [58].

Multipol method is developed to address the three problematic problems in decision making, i.e.

- Selecting the best actions
- Classifying the actions into sub group (sorting)
- Ranking the actions

By allowing a comparative evaluation to be made about the actions while taking account different context of policies and scenarios. In Multipol such comparative evaluation can be made in a simple way yet it encompasses complexity of decision problems. The advantages of Multipol method therefore lies in its simplicity and flexibility of utilization [66]. Another advantage of Multipol is that it's feature that integrate participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also enables to accommodate uncertainty and testing the effectiveness of different policies and actions at different scenarios ([67]; [68].

The structure of the Multipol method consists of four elements, namely [67]:

1. The evaluation criteria describe the fundamental aspects of assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects (Table 1).

**Table 1.** Criteria for the Success of Kedung Ombo Rural Tourism Development

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |
| Accountability | Institution | 4 | Increase accountability |

Source: FGD results

2. Scenarios. Show a structured picture of the future in which the goals and objectives will be achieved. In this case, the scenarios are ways that can be done to achieve successful rural tourism development in the Kedung Ombo area. From the FGD, decide on four alternative scenarios to be evaluated (Table 2).

**Table 2.** Alternative Scenarios for Kedung Ombo Rural Tourism Development

| Scenario alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | The way to achieve the success criteria for tourism development is fast, unpatterned, skipping several stages of the traditional development process to go straight to new development, and has no link with previous development strategies [69]. |
| Evolutionary | 4 | The way to achieve the success criteria for tourism development is slow and gradual, focusing on how tourism changes through a less dynamic process over time [70]. |
| Resilience | 3 | The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [71]. |
| Flight of the flamingo | 6 | The way to achieve the success criteria of tourism development is supported by consistent and efficient policies, and moral investment [72] |

Source: FGD results

3. Policy describe strategies for achieving goals and objectives related to the political, social, economic, and physical context. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [73]. This study proposes four alternative policies (Table 3).

**Table 3.** Alternative Kedung Ombo Rural Tourism Development Policies

| Policy alternatives | Weight | Description |
|---|---|---|
| Agro-based policy | 5 | The tourism development policies are based on agricultural and plantation products. The Kedung Ombo area is suitable for developing tropical fruits, including longan, tailings, guava, mango, "matoa,", and durian, likewise for fishing. |

| | | |
|---|---|---|
| Nature-based policy | 5 | Tourism development policies are based on natural potential. Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including panorama of the vast surface of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are also developing several regional arts that have the potential to be developed as tourist attractions. Some of them are "reog", a traditional dance performed in an open arena with magical elements, the main dancer being a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected |

Source: FGD results

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Development programs are proposed to develop rural tourism in the research location, as presented in Table 4.

**Table 4.** Alternatives Programs to the Kedung Ombo Rural Tourism Development

| Program Alternative | Description |
|---|---|
| Infrastructure strengthening | Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, internet networks, and other similar things. |
| Private investment strengthening | Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |

| | |
|---|---|
| Information Communication Technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information |
| Capacity building | Development of skills and capabilities community, such as leadership, management, finance and fundraising, marketing, programs, and evaluation, so that the development is effective and sustainable. |
| Entrepreneurship development | Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics and tourism business development. |
| Network development | Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions in various aspects that can support more successful development. |
| Local financial development | Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |
| Maintenance natural resources | Maintenance of potential natural resources. Resources included in this category include forests and fisheries. |

Source: FGD results

The programs, policies, and alternative scenarios are then evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

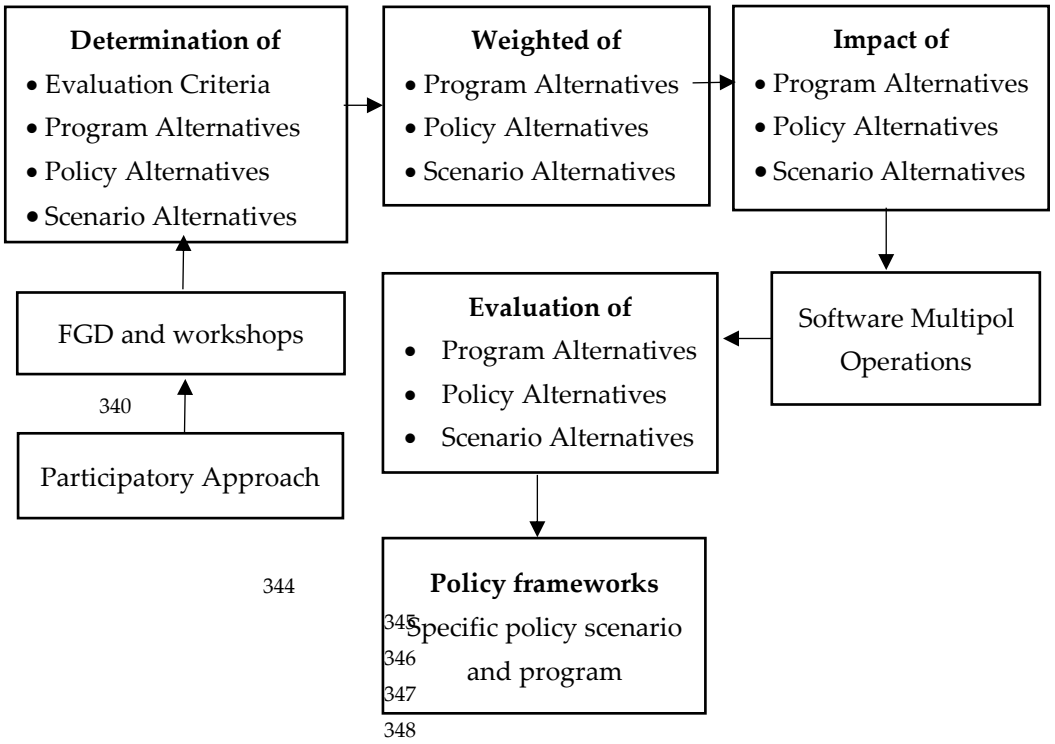


**Figure 2.** Stages of Determining the Best Strategy Based on MULTIPOL Method

## 4. Results

This session presents the results of evaluating the suitability between criteria, programs, policies, and scenarios shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0-20).

### 4.1. Conformity Analysis between Programs and Policies

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [67]. The three programs that were ranked as the highest position were: strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of Program Performance Related to Policies

| Program/Policy | Agrotourism | Natural tourism | Culture tourism | Integrated tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

Source: The MultipolAnalysis Results

From the results of the program-policies evaluation, a graph called a Profile Map is obtained, which presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). On the other hand, Multipol also provides a graph known as a Sensitivity Classification Map, representing the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are most elevated on the graph.

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and programs with the most significant relevance to support the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector are programs that can be managed to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the X-axis and the standard deviation on the Y-axis, where the

closer the distance of a program to a policy, the more appropriate and effective the program supports the success of the policy. From Figure 5, it is known that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private investment strengthening, and networking development are the most compatible programs with the integrated tourism development policy.

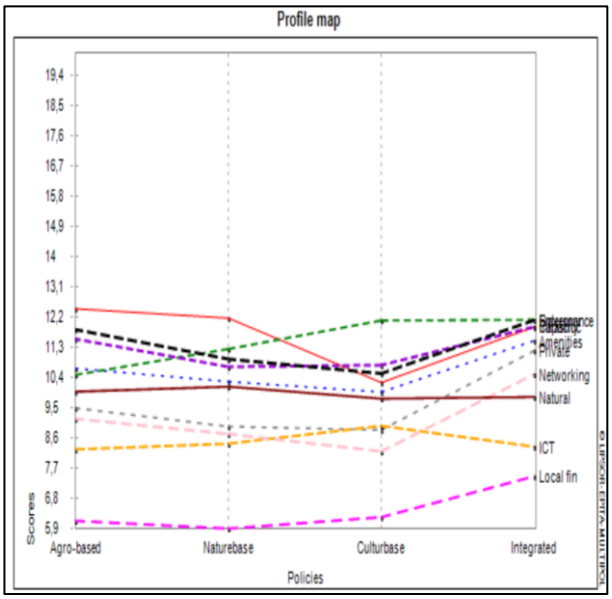


**Figure 3.** Program Profile Map
Source: The Multipol Analysis Results

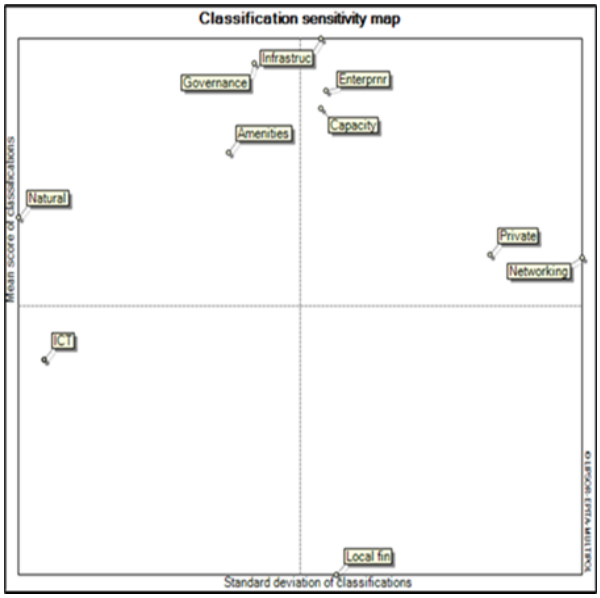


**Figure 4.** Program Sensitivity Classification Map
Source: The Multipol Analysis Results

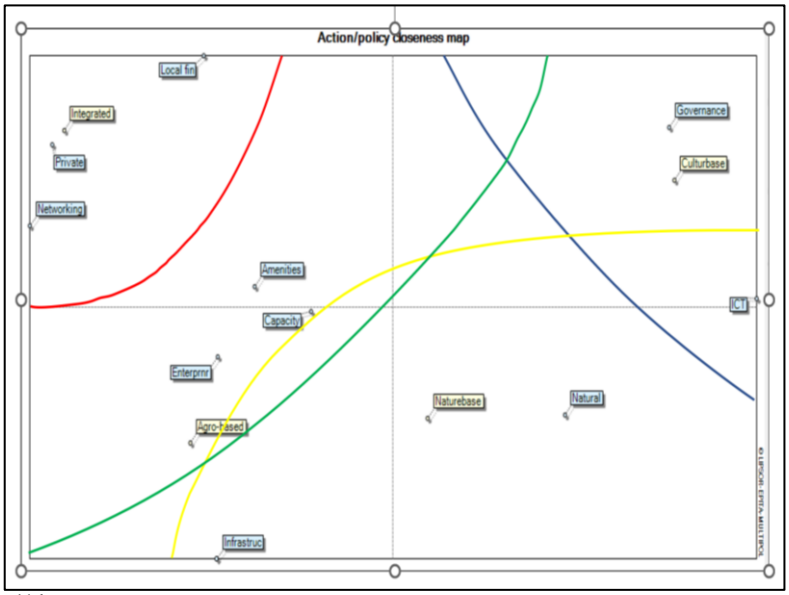


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**Figure 5.** Map of the Program's Closeness to Policy 417

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4.2. Conformity Analysis between Policy and Scenario 419

Next, the results of evaluating the relationship between policies and scenarios and performance ratings are presented (Table 6). Table 6 shows that an integrated policy is the best, while a culture-based policy is the least best. An integrated policy is a policy that combines various tourism potentials and resources, and plans from all stakeholders. The results of this study follow research [74] which states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries. 420 421 422 423 424 425

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**Table 6.** Policy Performance Related to Scenarios 427

| Policies/ Scenario | Leapfrog | Evolution | Resilience | Flamingo | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: The Multipol Analysis Results 428

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Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic), and the roles of related stakeholders, are part of a tourism development strategy that is considered capable of creating successful tourism destinations [75]. Integrated tourism policies are intended to develop integrated tourism destinations explicitly linked to the localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [73]. Furthermore, integrated tourism policies refer to developing alternatives that emphasize a bottom-up approach, centrally involve local stakeholders in their implementation, and are based on local physical, economic, social, and cultural resources [75]. 430 431 432 433 434 435 436 437 438 439

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability and to empower local communities, thereby contributing to the sustainability of the wider region's development system. Specifically, integrated tourism destinations cover two aspects, namely: 1) bringing together various interests, requirements, and needs, in a unified strategic tourism plan, and 2) Unifying tourism with the social and economic life of an area and its community [73].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking maintaining programs are the best when viewed as a policy package. Strengthening private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public-private partnership (PPP), which will be an effective financing solution. The implementation of PPP will also have a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as creating jobs and increasing income for the population.

The networking development program is intended to develop reciprocity relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will encourage all parties' increased ability to optimize resource use, reducing conflicts and taking advantage of opportunities.

The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in under-resourced communities, offering clients financial education, business training, and low-interest loans to increase their economic potential and help build wealth.

Figure 6 presents the behavior of the relationship between policies and scenarios. All policies and each scenario are assessed with criteria by experts with a weight per interaction line of 100. The MULTIPOL application allows for the presentation of a graphical interpretation of the policies associated with the scenario matrix profile map, Figure 6. This presents the calculation of the set of policy evaluation matrix weights related to scenario matrix criteria. Figure 6 shows that integrated policies are the best in two scenarios: leapfrog and flight of the flamingo. In contrast, agro-based policies are the best policies in evolutionary scenarios and resilience policies.

As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

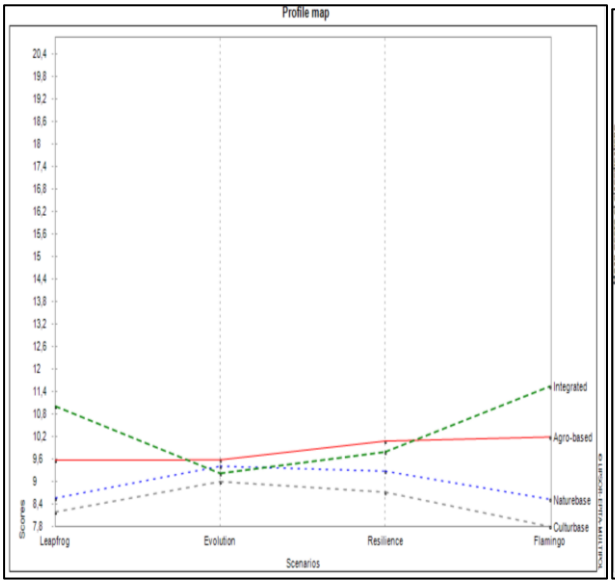


**Figure 6.** Policy Profile Map

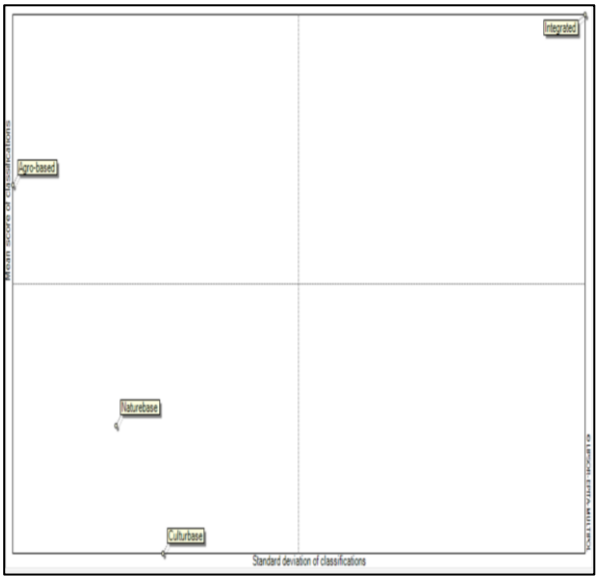


**Figure 7.** Policy Sensitivity Classification Map

Based on the evaluation of the relationship between the policy and the scenario, it is known that the integrated development policy is effective for the leapfrog and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

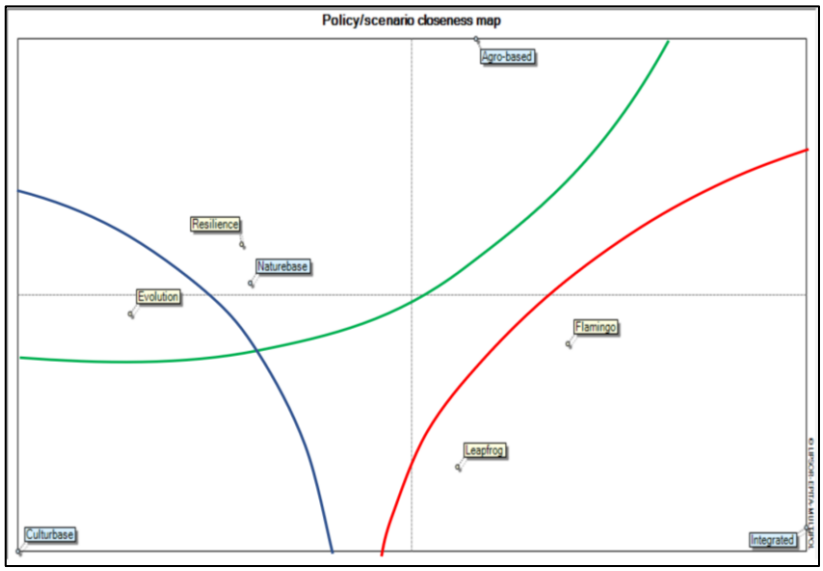


**Figure 8.** Map of Policy Adherence to Scenarios

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs: strengthening private investment, developing networking, and developing

local finance. Meanwhile, related to how to achieve successful development, policymakers can implement it through the flight of flamingo or leapfroging scenarios. However, the risk from the leapfroging scenario that requires speed and is often patternless is worth considering, given the particular limitations in governance. Thus the flight of flamingo scenario has the following characteristics: involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, efficient and no corrupt), and sustainable economic growth is the most appropriate scenario to apply [66].

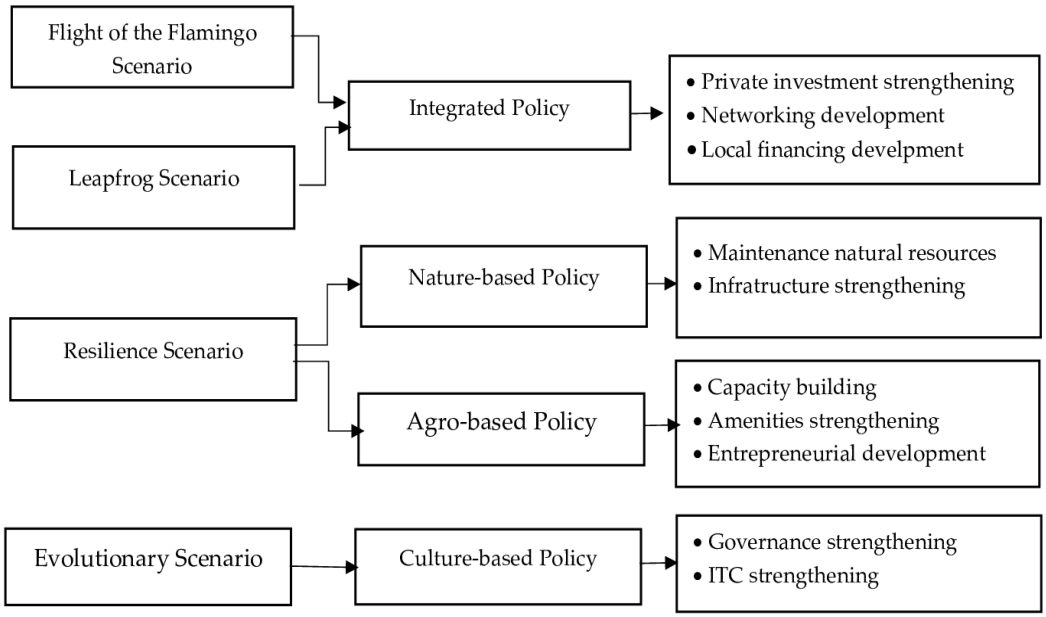


**Figure 9.** Potential Policy Pathways to Achieving Each Future Scenario of Kedung Ombo Rural Tourism
Source**:** Extracted ftom Multipol Result

## 5. Conclusions and Future Reseacrh Direction

### 5.1. Conclusion

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, complex institutional setting, and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward sustainable management of rural tourism is one of the strategies that could be delivered to achieve sustainable rural tourism. Strategic transformation by providing different pathways toward sustainable management could reduce some obstacles associated with managing complexity of rural tourism management. Such findings are supported by various research on rural tourism such as [21]) and [22] whereby strategic planning of rural tourism could be a catalyst for tourism recovery as well as improving resilience of local economy.

The study also acknowledge that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario through "the flight of flamingo" requires strong stakeholder engagement. Just like it was experienced in South Africa during the transformation toward a democratic country, the "flight of flamingo" scenario is characterized by slow transformation, then fly high and fly together. In the case rural tourism, sustainable transformation also need to be taken

slowly and involves all stakeholders. It is also recognized that the transformation might not be running smoothly, therefore some adjustment might be needed along the way once the decision toward sustainable transformation is reached.

The results of the analysis show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy option for sustainable transformation. An Integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural resources, could be developed using an agro-cultural based policy, that is, combing natural based agricultural tourism with cultural assest owned by rural communities. This conclusion is supported by other studies such Curcic et al [23] whereby diversification of natural and cultural assets could enhanced the sustainability of rural tourism. Such a policy needs strong support from private investment as well as local financial sources. The effectiveness of the policy will also depend on the strong network development, appropriate entrepreneur development program and strong capacity building of the communities. This is in line with other findings such as Khartishvili et al [10]() that rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition lack of awareness and capacity of local community could be obstacles for transformation for sustainable tourism [34]

The results of this study become a model for institutional-based rural tourism development in other regions, which often has problems with coordination factors related to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, risks and possible levels of success.

### 5.2. Future Research Direction

The contribution of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to findings of this study and relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenarios. In our study, each transformation pathways are assumed to be independent, yet they might interconnect in the space and time. Such a study, therefore, could provide a deeper insight how the policies and actions are changing over time and how they adapt to the dynamic of rural institutional setting.

Second, further research that considers the risk and uncertainty related to that transformation toward sustainable tourism is needed. This is due to the fact that stakeholders in rural areas might behave as risk-averse and avoid any structural changes in tourism management that consider costly. Further examination of risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge on the overall benefits and costs of managing rural tourism.

Third, this study employed mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination using was carried out for filtering the interest of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further examination such factors could provide a more robust strategies for sustainable rural tourism transformation.

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# 2. Bukti Hasil Review Pertama
# (11 Januari 2023)

Gmail ariyani nafiah <arienafiah@gmail.com>

# [Sustainability] Manuscript ID: sustainability-2137861 - Major Revisions

4 messages

**Sustainability Editorial Office** <sustainability@mdpi.com> Wed, Jan 11, 2023 at 8:40 AM
Reply-To: lesliee.chen@mdpi.com
To: Nafiah -- Ariyani <arienafiah@gmail.com>
Cc: Akhmad Fauzi <akhmadfauzi@apps.ipb.ac.id>, Sustainability Editorial Office <sustainability@mdpi.com>

Dear Dr. Ariyani,

Thank you again for your manuscript submission:

Manuscript ID: sustainability-2137861
Type of manuscript: Article
Title: Pathways toward transformation of sustainable rural tourism management: The Case Central Java Rural Tourism Indonesia
Authors: Nafiah Ariyani *, Akhmad Fauzi
Received: 19 December 2022
E-mails: arienafiah@gmail.com, akhmadfauzi@apps.ipb.ac.id
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Kind regards,
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**ariyani nafiah** <arienafiah@gmail.com> Fri, Jan 20, 2023 at 9:33 AM
To: lesliee.chen@mdpi.com

Dear Ms. Chan

This is to inform you that we have made some major revision on our manuscript Sustainability-2137861. Detail of the revision is attached in "Response to reviewer" document. We are sending three documents containing the original revision with track and changes, the English editing revision with track and changes, and the clean version after changes and track were removed. We're also attaching the cover letter describing our revision.

Sincerely,

Dr. Nafiah Ariyani
[Quoted text hidden]

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**Mr. Lesliee Chen/MDPI** <lesliee.chen@mdpi.com> Fri, Jan 20, 2023 at 10:15 AM
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On 1/20/2023 10:33, ariyani nafiah wrote:

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# 3. Bukti Respon kepada Reviewer, Artikel yang disubmit, dan Konfirmasi Penerimaan Artikel (20 Januari 2023)

Response to Reviewers
Journal Sustainability (ISSN 2071-1050)
Manuscript ID sustainability-2137861

| **Reviewers** | **Responses**<br>**(Please refer to clean version file Sustainability-2137861-rev-eng-clean)** |
|---|---|
| Reviewer #1<br><br>1. Can the use and implementation of renewable energy sources, agrovoltaics and modern sustainable development technologies be present and contribute to the development of rural tourism considered by the authors?<br><br>2. The authors should disclose and describe the "Multipol" method in more detail.<br>3. What determines the weight of the criteria in Tables 1, 2 and 3?<br>4. Apparently there are typos in Table 1 "Reduce population", "Alternatif" in Table 4.<br>5. The authors should add the section "Directions for further research" and indicate where and how it is planned to implement the results of the work carried out. | Reviewer #1<br><br>1. In the case of area being studied, renewable energy sources, agroviltaics and other modern technologies have not been considered to be implemented since the area is relatively remote area and it considered costly to implement agrivoltaic.<br><br>2. This concern has been addressed in the method section<br>3. Concern has been addressed in line …..<br>4. The typo has been corrected<br><br>5. Concern has been addressed in section 5.2 on Future research direction |
| Reviewer # 2<br><br>**First**, the introduction is comprehensive, but it needs to lay out more clearly what the gap in the literature is and what platform does it refer to? This gap can be articulated by proposing a clear research question. The contributions have been laid out in a pretty general manner. Each contribution can be justified using past literature, such as how it is extending this line of research.<br><br>**Second**, it seems the paper has relied a lot on academic research papers, which is understandable considering the emergence of | Reviewer # 2<br><br>The Introduction has been extended and reseracrh questions have been added into the introduction<br><br>Reference on policy and industries has been added in line….. |

| | |
|---|---|
| platforms. A few more articles related to the industry and policy could be added. | |
| **Third,** research methods have been well explained. However, the arguments on Multipol Method (Multicriteria-Policy) are not clear to me and the explanation is not adequate. Please elaborate on this. | The MULTIPOL method has been extended and has been elaborated further |
| **Fourth,** the choice of the data analysis techniques in general and Alternative Scenarios is particular could be elaborated further. | Concern has been addressed by extending and elaborating the method as can be seen in line… to line …… |
| **Fifth**, please justify theoretical contributions using relevant references and clearly showing how they are extending theories. Study findings could be used to back them up. Similarly, practical findings can use industry example to validate research findings. | Concern has been addressed in section conclusion and research for future direction |
| **Finally,** proper proofreading can improve the quality of the manuscript. | Proff reading by native speaker has been carried out |
| Reviewer # 3 | Reviewer # 3 |
| »English language and style must be improved. some grammatical, format and spelling corrections are needed. Please, check the entire manuscript. For instance: Lines 17-18: please clarify (English problems); Lines 32 and 40: "Mean" : Not "means"; Line 54: "Indonesia is a beautiful country in tourism potential" (it's not clear); Line 133: "policy support, suported (repetition); Line: 430: "managing the complexity of rural tourism management" (repetition: managing and management) | The final version has been proof read by native speakers (see the editing version) |
| » Abstract and Introduction should better present general and specific objectives, in order to highlight what author expects to achieve from this research. The objectives should be aligned with the overall problem being researched and objectives should be enunciated in logical sequence. | Abstract has been revised and includes the objectives of the study both general dn specific |
| | Both keywords have been included in the keywords section |

| | |
|---|---|
| » 'Multipol method' and 'tourism planning' can be included among keywords | This wording has been rewritten in line…. And the Bibliographical reverence has been added |
| » Line 69: Author says: "villages are categorized as a pilot, developing, developed and independent villages" Source typology? Bibliographical reference? | More examples from other countries has been added as can be seen from line…. To line…. |
| » In the context of section "Literature review" see: Lines 160-166: Author gives 2 examples (Hungary and Indonesia). More examples should be given in order to promote discussion./Lines: 189-190: "... One method commonly used in ...is to use SWOt" (attention to "use" repetition) | The wording has been rewritten |
| » Regarding section "3. Material and Methods", the methods are well chosen. Author says that "Data collection was carried out ..." (lines 226-230). However, the date, number of participants, type of stakeholders [categorised by public/private, community, village (how many stakeholders from each village (author identified 8 villages:)?) ...] and place should also be indicated. Additionally, author presents a set of tables and figures (e.g. table 3. and 4, / and Figure 2) that are a result of FGD. It could be important to be better clarified what is a result (in order to enhance the discussion in the section "4. Results"). | Thdetail of metho has been improved, the date, number of participants, type of stakeholders have been included in line…….. |
| | Information on Table 3 and 4 have been extended as can be seen in line….. |
| | Tabel 1 has been corrected |
| » See Table 1, line "Pollution" Description: Reduce pollution (and not "population") | Table 2 (reference on leapfrogging scenario) has been appended |
| » Table 2. The scenario alternatives (leapfrogging) are based in which Bibliographical reference | Table 5 has been corrected |
| » Clarify table 5 title: "against"? \|Source: "Multiple" or "Multipol"? | The wording has been replaced by |
| » Line 348: "terrible". Please, consider other classification. | Source of Figure has ben written |
| » Figure 9. Source:? | The conclusion has been revised and paragraph 2,3 and 4 have been completely rewritten |

| | |
|---|---|
| » The conclusion should be improved (for instance paragraphs 2, 3 and 4 are not clear).<br><br>» Line 447: "developed coordinated manner"? (English language)<br><br>» Author should add the study limits and future implications.<br><br>» References: Corect reference nº 7, 47 | This wording has been rewritten<br><br>This issue has been addressed in section 5.2 on Future Research Direction<br><br>» References was been corrected |

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# Pathways toward the transformation of sustainable rural tourism management in Central Java, Indonesia

**Nafiah Ariyani*[1], Akhmad Fauzi [2]**

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, the complexity of rural institutions, and the dynamics of future changes. In addition, it must be inclusive. This paper presents transformation pathways toward sustainable rural tourism management in developing countries. The general objective is to develop strategies to promote sustainable rural tourism, as well as to develop policy pathways, and the best scenarios in the rural tourism development context as the specific objectives. The study was conducted in the Kedung Ombo area in Central Java, Indonesia: a representative area involving several districts and other public organizations as stakeholders. Data analysis was performed using the MULTIPOL method. The results show that an integrated development policy that considers the interests of all stakeholders, the potential of rural resources, the infrastructure, and human resources capacity would be the optimal policy. Priority programs to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the “flight of the flamingos” and “leapfrogging” scenarios can be considered to achieve future tourism growth goals and objectives. This study is an essential resource for authorities in determining rural tourism development policies in the research location and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1], and it is recognized as an essential means of economic development in rural areas [2, 3]. It is recognized both directly and indirectly as a catalyst for progress in rural areas [4], and it is capable of being a strategic lever in revitalizing the economy of rural regions and supporting poverty alleviation [5, 6]. Although the development of rural tourism sometimes triggers conflicts between various parties, its perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of generating employment and income, combating rural exodus, and facilitating socio-economic networking, and it is capable of becoming a vehicle for processing and enhancing cultural and natural heritage and improving the quality of life for local residents [8, 9, 10]. For example, during the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality,

environmental degradation, and saving the community's culture [12]. It is an endogenous alternative to developing tourism in less-developed areas, as it allows the local people to increase their income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism that aims to meet the needs of current residents and tourists without compromising the needs of future generations [14], 15, 16]. According to Gao and Wu [17], rural tourism should not be understood only as a type of tourism, but also as a tool for conserving and regenerating rural society and culture.

Indonesia is endowed with rich material and cultural capital that could be developed for tourism activities. In addition, the tourism sector plays a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages. Since 2021, this has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth and people's welfare; eradicate poverty; overcome unemployment; preserve nature, the environment, and natural resources; and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage the villages' social, cultural, and economic transformation. [19]. Even though some studies such as Chin [20] found that rural related factors are not contributing factors for rural development from tourism, most studies [21, 22, 23] show that the success of the tourism village will become a lever for the village and regional economy: ultimately driving national economic growth.

According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1,831. Yet only 2.73% of them have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions in the community economy. This number is tiny compared to the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as pilot, developing, developed, and independent villages [24]. Many factors cause the low number of developed tourism villages. Contributing factors are a lack of understanding of policymakers at the village government and regional government levels in comprehensively developing a tourism village, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects.

As a complex system, tourism development requires careful planning, which is supported by all stakeholders [25, 26, 27, 28, 29], and it should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate tourism that tends to have a detrimental effect on social and natural conditions [31]. According to An and Alarcón [31], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically, and it must be based on the potential of an area [33, 34]. Therefore, the success of tourism development is highly dependent on the integration of policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and coordinated actions and policies. A different policy pathway might be needed for another type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

The general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by developing transformation pathways toward the sustainable management of rural tourism in an institutional context in the Kedung Ombo reservoir area, Central Java Province, Indonesia. The objective can be broken down into three specific objectives based on three research questions:

1. What strategies can be used to promote sustainable rural tourism in the nature based Central Java area?
2. What policies can be implemented to support transformation toward sustainable rural tourism development?
3. What are the potentials and best scenarios for sustainable rural tourism development?

Developing sustainable tourism is very important in the context of rural tourism as stated by Lane [34], as sustainable strategies could reconcile conflicting demand, avoid wasteful investment and efforts, and identify niche markets where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for

tourism recovery in the case of disturbances experienced by rural tourism [22]. This study extends the line of research in rural development strategies by enhancing strategic options through developing pathways for policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing the tourism potential in Indonesia, as the parties involved in tourism in the area (the local government, forest area managers, dam managers, and the community) have weak coordination and synergy. As a result of this, conflicts often arise, especially concerning land use rights and the division of authority.

In the Kedung Ombo reservoir area, there are eight (8) tourist villages: Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari. However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, according to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area are categorized as developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods through several strategic analyses focused on the in-situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies that are not only implemented in the Kedung Ombo case but become bridges and can be scaled up at a broader level, especially tourist villages in developing countries that have the same characteristics. The study is also the first to create a comprehensive policy strategy considering the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

As one of the natural resource-based economic sectors, rural tourism is highly dependent on the goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development is sustainable only if it is planned strategically to reach goals whose effects are manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects: coordinating and balancing relationships between various stakeholders and emphasizing fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, protect the local culture, and promote local products [39].

The success of sustainable tourism development is highly dependent on an appropriate [40] and comprehensive [30] policy framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis between the environment and social life [42]. Successful tourism development requires an in-depth study of systems; their performance, budget constraints, and implications for the economy; and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by the coordination of all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with

private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and inclusive decision-making [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]. Researchers from various countries have developed their descriptions based on the unique experiences or contexts they have encountered [47]. The World Tourism Organization (WTO) defines rural tourism as products that give visitors personal contact and experiences with the physical environment and rural life and enable them to participate in the activities, traditions, and lifestyles of the local community [48]. Most authors define rural tourism as tourist activities in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, and ecotourism [48, 49]. Rural tourism is a new development model combining modern tourism with the traditional agricultural culture [50]. The three main attributes of rural tourism are culture, nature, and history [51].

There has been much debate about the definition of a rural tourism in the literature without reaching a firm consensus [52]. The diversity of literature and the different meanings of terminology in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts with accommodation in traditionally furnished rooms and traditional breakfasts based on homemade products. In Finland, rural tourism usually involves the rental of cottages. In Netherlands, the product of rural tourism means camping on farms and engaging in bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a special meaning: it refers to tourism in villages and presents village life plus traditions with the active participation of visitors [51]. In Indonesia tourism villages is defined as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

From the various definitions, a tourist village can be interpreted as a rural area with particular characteristics that make it a tourist destination and the local community's physical uniqueness, social life, and culture serving as attractions. The crucial factors of sustainable rural tourism are: (1) it takes place in rural areas and is functionally rural, (2) the purpose of visiting tourists is to study, be actively involved, experience, or enjoy the attractions, (3) tourism attributes in the form of culture, nature, history, and unique rural activities are offered as attractions, (4) it requires the collaboration and involvement of key stakeholders (i.e., tourists, rural communities, businesses, and government agencies), and (5) sustainability in social, economic development, and environmental preservation is emphasized [41]. In addition, the development of tourist villages can provide benefits in the form of (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood activities and lifestyle community traditional life, (6) reducing urban-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for the sustainability of rural tourism [50]. For example, a qualitative approach such as the Delphi technique can be used to determine the priority ranking for rural tourism development in Russia. In Hungary, Trukhachev [56] used an event-based approach to integrate rural tourism. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism [57]. Meanwhile, Kumar et al. [58] used an interpretative structural modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches listed above, one method commonly used in developing sustainability strategies is the SWOT approach and its variations, such as AWOT (the combination of AHP and SWOT) and TOWS (Threats, Opportunities, Weaks, and Strength). Such an approach was used in the case of rural tourism in Iran [59]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing strengthening the role and capacity of the community. A similar approach was taken by Vipriyanti et al. [60] in the case of rural ecotourism in the Bali region of Indonesia.

Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] have used a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, Xie and He [61] used artificial intelligence (machine learning) to develop a marketing strategy: one of rural tourism's sustainability strategies.

This study uses the prospective method, which has rarely been used in rural tourism, to develop future strategies for rural tourism. It is the first to use prospective analysis for rural tourism in Indonesia. Nevertheless, this method can be scaled up and applied to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation as well as reach future thinking in the context of sustainable tourism development in the Kedung Ombo area. The Kedung Ombo Reservoir is the largest in Southeast Asia, with an area of 6,576 hectares consisting of 2,830 hectares of water and 3,746 hectares of plains. The dam's location crosses three districts: Grobogan Regency, Sragen Regency, and Boyolali Regency (Figure 1). From the aspect of accessibility, this area is easily accessible. However, the condition of the infrastructure still needs improvement related to the quality and structure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

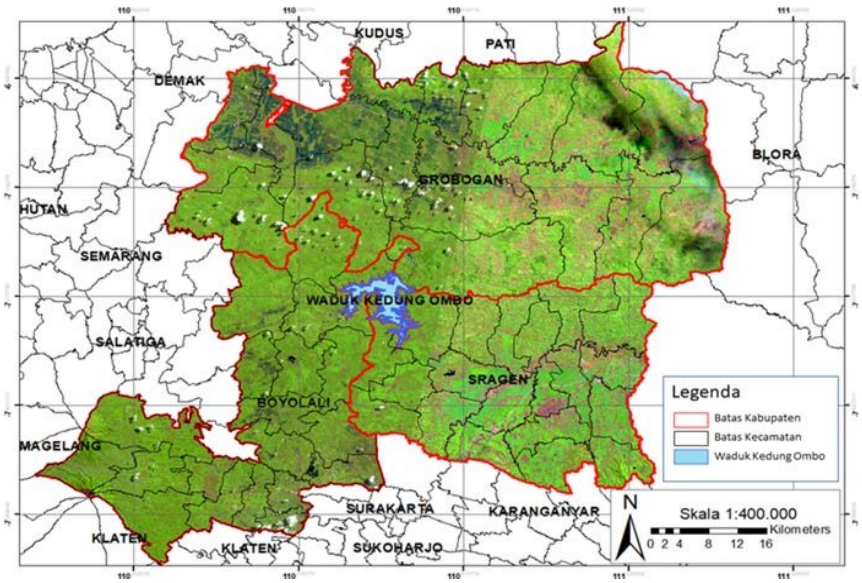



**Figure 1.** Map of Kedung Ombo Area

The Kedung Ombo area is in a hilly forest area. In addition to the dam landscape with beautiful natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in 1991, several community groups, forest managers, local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some of them are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development in the region. To strengthen this goal, the multicriteria and policy (MULTIPOL) prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that apply to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

The research data is processed with the MULTIPOL computer program software developed by the LIPSOR organization. The goal is to identify which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages to achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by

determining scenarios, strategic or policy directions, and choices of actions or programs [62], in an institutional context [63]. It facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus [64]. Experts assign weights to each policy based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [65]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen the understanding of causal relationships [66]. MULTIPOL combines two different types of evaluation: 1) the program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and 2) the evaluation of policies against scenarios to determine the most appropriate policies to become priority policies for specific scenarios [58].

The MULTIPOL method is developed to address three problems in decision making:

- Selecting the best actions
- Classifying the actions into sub group (sorting)
- Ranking the actions

It allows a comparative evaluation to be made about the actions while taking into account different contexts of policies and scenarios. In MULTIPOL, a comparative evaluation can be made in a simple way, yet it encompasses the complexity of decision problems. The advantages of the MULTIPOL method therefore lies in its simplicity and flexibility of utilization [67]. Another advantage of MULTIPOL is that it is a feature that integrates a participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also accommodates uncertainty and enables testing of the effectiveness of different policies and actions in different scenarios [68, 69].

The structure of the MULTIPOL method consists of four elements, namely evaluation criteria, and scenarios, policy, and actions [62]. In this study, the FGD has determined the four elements and weights by consensus. The weight determination is based on the level of importance and relevance to the conditions of the Kedung Ombo area, covers the availability of resources, the characteristics, and patterns of coordination between institutions, the work of the population, and the cultural values of the local community life, as well as considering the possible future conditions of the Kedung Ombo area. Following the nature of MULTIPOL, the weight values range from 3-6 according to the degree of importance.

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshop methods. Twenty people were selected for the FGD consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a way as to make it possible to present the opinions of each stakeholder equally. FGD was held on August 15, 2022 in Sumber Lawang District, Sragen Regency.

1. The evaluation criteria describe the fundamental aspects of assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects (Table 1).

**Table 1.** Criteria for the Success of Kedung Ombo Rural Tourism Development

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |

| | | | |
|---|---|---|---|
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |
| Accountability | Institution | 4 | Increase accountability |

Source: Focus group discussion results.

2. Scenarios show a structured picture of the future in which the goals and objectives will be achieved. In this case, scenarios are ways that can achieve successful rural tourism development in the Kedung Ombo area. The FGD decided on four alternative scenarios to be evaluated (Table 2): (1) the leapfrogging scenario, (2) the evolutionary scenario, (3) the resilience scenario, and (4) the flight of the flamingos scenario.

**Table 2.** Alternative Scenarios for Kedung Ombo Rural Tourism Development

| Scenario Alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | The way to achieve the success criteria for tourism development is fast and unpatterned, skipping several stages of the traditional development process to go straight to new development, and it has no link with previous development strategies [70]. |
| Evolutionary | 4 | The way to achieve the success criteria for tourism development is slow and gradual, focusing on how tourism changes through a less dynamic process over time [71]. |
| Resilience | 3 | The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [72]. |
| Flight of the flamingos | 6 | The comprehensive way to achieve the goals of tourism development success criteria includes social reconstruction, broad participation, good government, and sustainable economic growth. [73]. |

Source: Focus group discussion results.

3. Policy describes strategies for achieving goals and objectives related to the political, social, economic, and physical context. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [74]. This study proposes four alternative policies (Table 3): (1) the agro-based policy, (2) the nature-based policy, (3) the culture-based policy, and (4) the integrated policy.

**Table 3.** Alternative Kedung Ombo Rural Tourism Development Policies

| Policy Alternatives | Weight | Description |
|---|---|---|
| Agro-based policy | 5 | The tourism development policies are based on agricultural and plantation products. The Kedung Ombo area is suitable for cultivating tropical fruits, including longan, tailings, guava, mango, “matoa,” and durian, and for fishing. |
| Nature-based policy | 5 | Tourism development policies are based on natural potential. Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including the panorama of the vast surface of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are several |

| | | |
|---|---|---|
| | | regional arts that have the potential to be developed as tourist attractions. Some of them are "reog", a traditional dance performed in an open arena with magical elements in which the main dancer is a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected. |

Source: Focus group discussion results.

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Several development programs are proposed to develop rural tourism in the Kedung Ombo area, as presented in Table 4.

**Table 4.** Alternatives Programs to Kedung Ombo Rural Tourism Development

| Program Alternative | Description |
|---|---|
| Infrastructure strengthening | Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, and internet networks. |
| Private investment strengthening | Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |
| Information Communication Technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information. |
| Capacity building | Development of skills and capabilities community, such as leadership, management, finance and fundraising, marketing, programs, and evaluation, so that the development is effective and sustainable. |
| Entrepreneurship development | Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics, and tourism business development. |
| Network development | Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions in various aspects that can support more successful development. |
| Local financial development | Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |
| Maintenance of natural resources | Maintain potential natural resources. Resources included in this category include forests and fisheries. |

Source: Focus group discussion results.

Next, the programs, policies, and alternative scenarios are evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

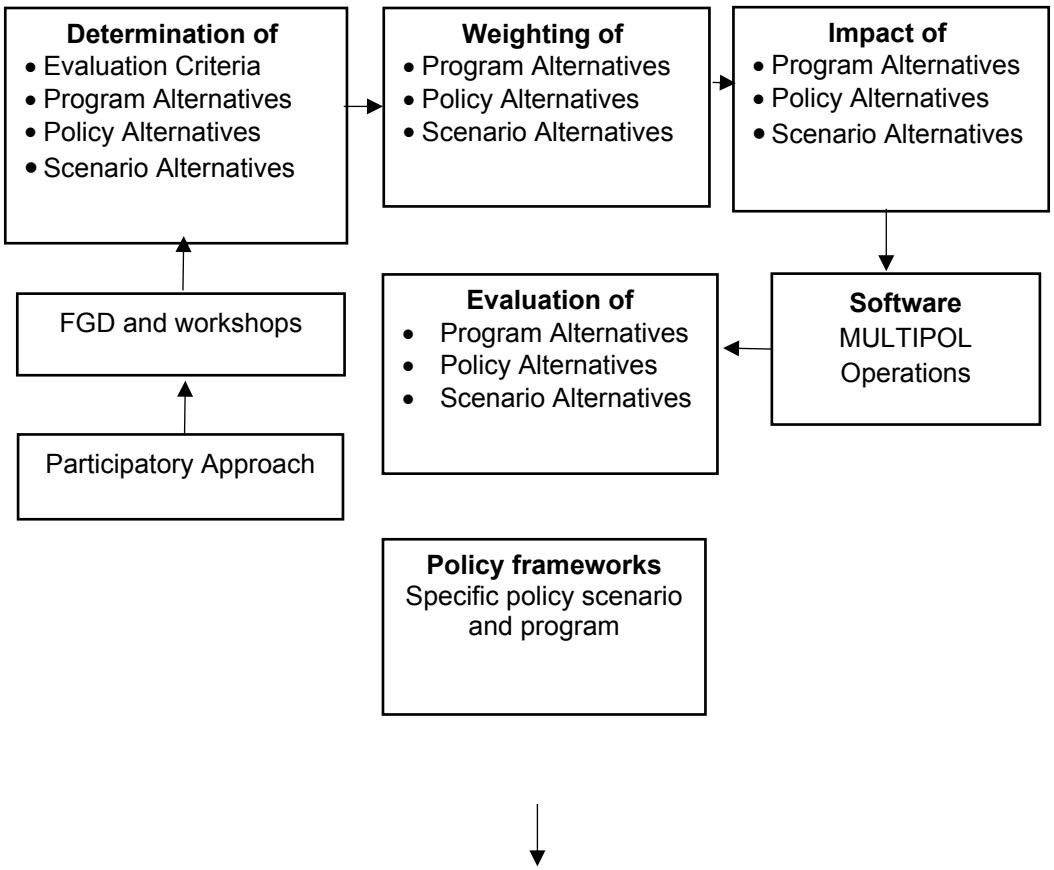



**Figure 2.** Stages of determining the best strategy based on the MULTIPOL method

## 4. Results

This section presents the results of the evaluation of the suitability between criteria, programs, policies, and scenarios. The results are shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0-20).

### 4.1. Conformity Analysis between Programs and Policies

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [68]. The three programs ranked in the highest

position were strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of Program Performance Related to Policies

| Program/Policy | Agrotourism | Natural Tourism | Culture Tourism | Integrated Tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance of natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

Source: MULTIPOL analysis results.

From the results of the program-policies evaluation, a graph called a profile map was obtained from MULTIPOL, which presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). MULTIPOL also provides a graph known as a sensitivity classification map, which represents the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are elevated the most on the graph.

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and are programs with the most significant relevance to support the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector can be managed to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence

analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the X-axis and the standard deviation on the Y-axis. The closer the distance of a program to a policy, the more appropriate and effective the program is in terms of supporting the success of the policy. Figure 5 shows that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private investment strengthening, and networking development are programs that are the most compatible with the integrated tourism development policy.

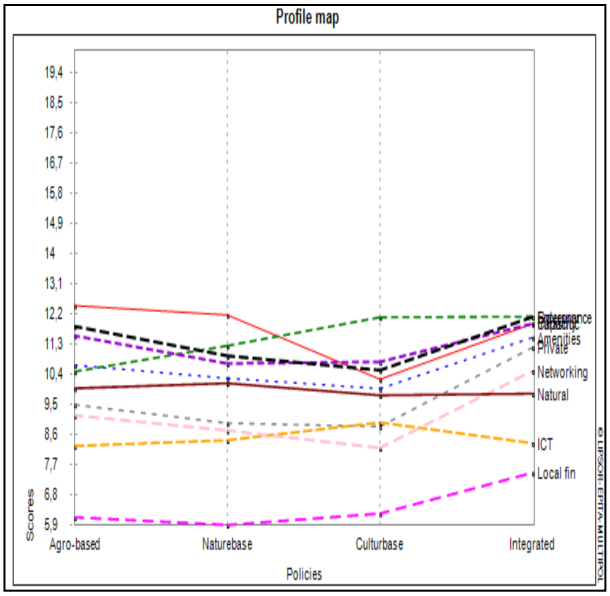



**Figure 3.** Program profile map (Source: MULTIPOL analysis results).


**Figure 4.** Program sensitivity classification map (Source: MULTIPOL analysis results).

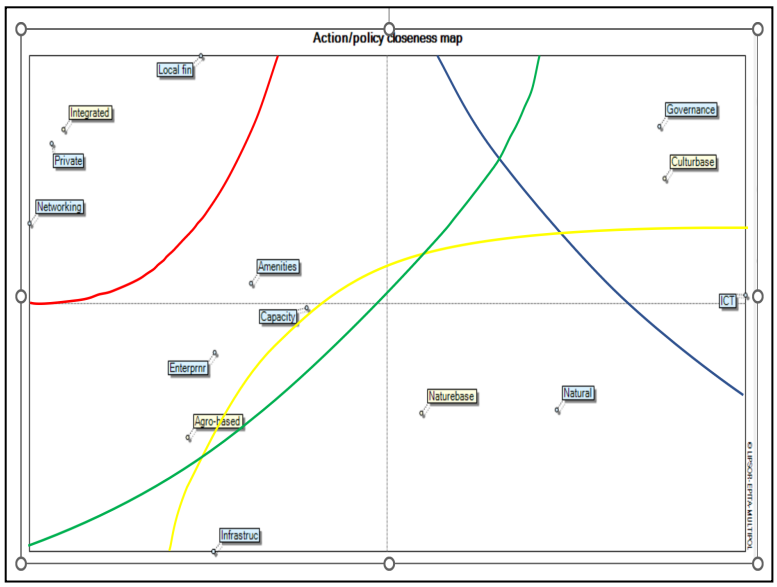



**Figure 5.** Map of the program's closeness to policy.

Source: MULTIPOL analysis results

4.2. Conformity Analysis between Policy and Scenario

Next, the results of evaluating the relationship between policies and scenarios and performance ratings are presented (Table 6). Each scenario by FGD participants was assessed to the criteria with a weight per interaction of 100. Table 6 shows that an integrated policy is the best, while a culture-based policy is the least best. An integrated policy is a policy that combines various tourism potentials and resources and plans from all stakeholders. The results of this study follow research [75] that states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries.

**Table 6.** Policy Performance Related to Scenarios

| Policies/ Scenario | Leapfrogging | Evolution | Resilience | Flamingos | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: MULTIPOL analysis results.

Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic) and the roles of related stakeholders are part of a tourism development strategy that is considered capable of creating successful tourism destinations [76]. Integrated tourism policies are intended to develop integrated tourism destinations explicitly linked to localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [74]. Furthermore, integrated tourism policies refer to developing alternatives that emphasize a bottom-up approach, centrally involve local stakeholders in their implementation, and are based on local physical, economic, social, and cultural resources [76].

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability and to empower local communities: thereby contributing to the sustainability of the wider region's development system. Specifically, integrated tourism destinations cover two aspects: 1) bringing together various interests, requirements, and needs in a unified strategic tourism plan, and 2) unifying tourism with the social and economic life of an area and its community [74].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking development programs are best when viewed as a policy package. Strengthening private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public-private partnership (PPP), which is an effective financing solution. The implementation of PPP has a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as job creation and increased income for the population.

The networking development program is intended to develop reciprocal relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will encourage all parties to optimize resource use, reduce conflicts, and take advantage of opportunities.

The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in

under-resourced communities. They offer financial education, business training, and low-interest loans to clients to increase their economic potential and help build wealth.

The MULTIPOL application allows for the prestantion of a graphical interpretation of the policies associated with the scenario matrix profil map. Figure 6 shows that integrated policies are the best policies in two scenarios: the leapfrogging scenario and the flight of the flamingos scenario. In contrast, agro-based policies are the best policies in the evolutionary scenario and culture-based policies are the best in the resilience scenario.

As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

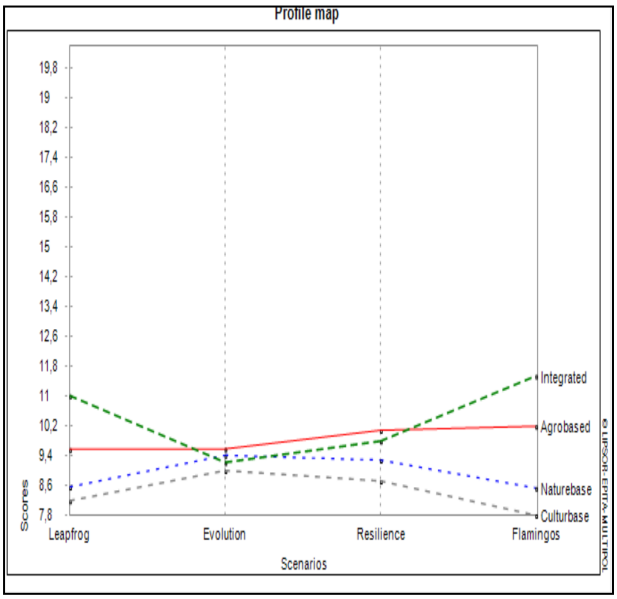



**Figure 6.** Policy profile map.
(Source: MULTIPOL analysis results)

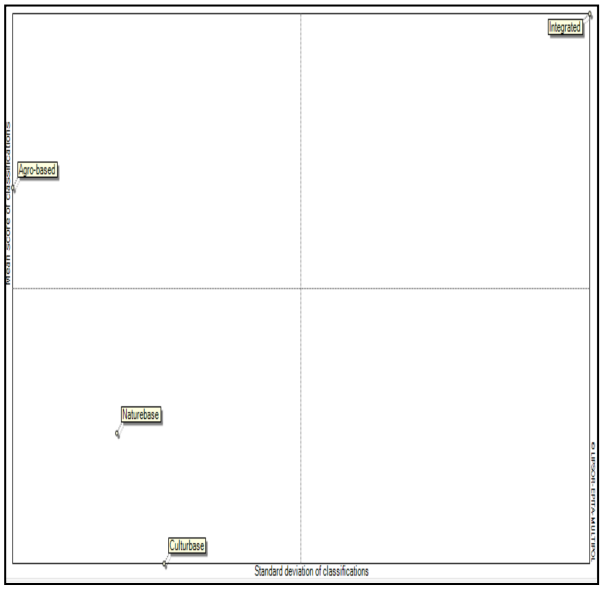



**Figure 7.** Policy sensitivity classification map.
(Source: MULTIPOL analysis results)

Based on the evaluation of the relationship between the policy and the scenario, it can be seen that the integrated development policy is effective for the leapfrogging and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

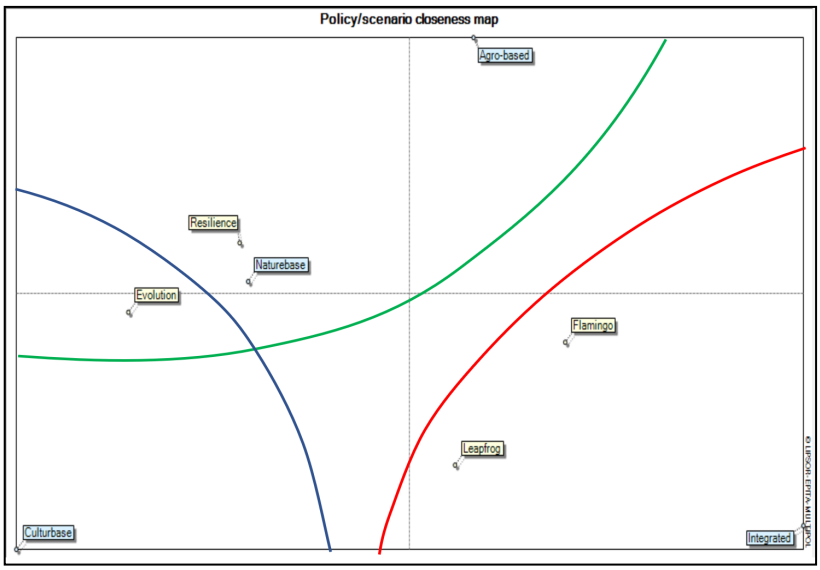
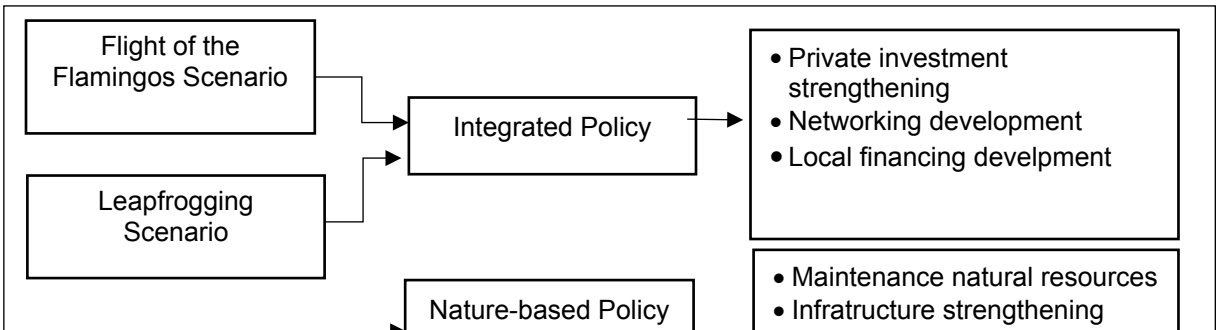



**Figure 8**. Map of policy adherence to scenarios.
(Source: MULTIPOL analysis result)

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs: strengthening private investment, developing networking, and developing local finance. Meanwhile, related to how to achieve successful development, policymakers can implement it through the flight of the flamingos or leapfroging scenarios. However, the risk of the leapfroging scenario is worth considering given the particular limitations in governance, as it requires speed and is often patternless. Thus, the flight of the flamingos scenario is the most appropriate scenario to apply in the area, as it involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, efficient and no corrupt), and sustainable economic growth [66].



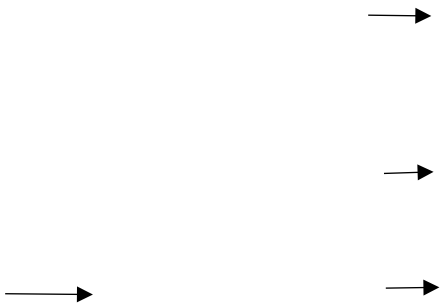


**Figure 9.** Potential policy pathways to achieving each future scenario of Kedung Ombo rural tourism
(Source: Extracted from MULTIPOL results)

## 5. Conclusions and Future Research Direction

### 5.1. Conclusion

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, a complex institutional setting, and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward the sustainable management of rural tourism is one of the strategies that could be delivered. By providing different pathways toward sustainable management, strategic transformation could reduce some obstacles associated with the complexity of rural tourism management. Such findings are supported by various research on rural tourism such as [21] and [22], whereby the strategic planning of rural tourism could be a catalyst for tourism recovery and improve the resilience of the local economy.

The study also acknowledges that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario (the flight of the flamingos) requires strong stakeholder engagement. Just as experienced in South Africa during the transformation toward a democratic country, the flight of the flamingos scenario is characterized by slow transformation, then flying high and flying together. In the case of rural tourism, sustainable transformation also needs to be taken slowly and involve all stakeholders. It is also recognized that the transformation might not run smoothly, therefore adjustments might be needed along the way once the decision toward sustainable transformation is reached.

The results of the analysis show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy option for sustainable transformation. An integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural, could be developed using an agro-cultural based policy by combining natural-based agricultural tourism with cultural assets owned by rural communities. This conclusion is supported by other studies such as Ćurčić et al. [23], whereby the diversification of natural and cultural assets could enhance the sustainability of rural tourism. Such a policy needs strong support from private investment as well as local financial sources. The effectiveness of the policy will also depend on strong network development, an appropriate entrepreneur development program, and strong capacity building in the communities. This is in line with other findings such as Khartishvili et al. [10] that the rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition, a lack of awareness and the limited of capacity of the local community could be obstacles for transformation toward sustainable tourism [34].

The results of this study can become a model for institutional-based rural tourism development in other regions, which often encounters problems related to coordination

due to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, the risks, and possible levels of success.

### 5.2. Future Research Direction

The contributions of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to the findings of this study and are relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenarios. In our study, each transformation pathway is assumed to be independent, yet the pathways might interconnect in space and time. Such a study, therefore, could provide a deeper insight into how policies and actions change over time and how they adapt to the dynamic of the rural institutional setting.

Second, further research that considers the risk and uncertainty related to the transformation toward sustainable tourism is needed due to the fact that stakeholders in rural areas might be risk-averse and avoid any structural changes in tourism management that they consider costly. Further examination of the risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge regarding the overall benefits and costs of managing rural tourism.

Third, this study employs mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination using MULTIPOL was carried out to reflect the interests of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further examination of such factors could provide more robust strategies for the transformation toward sustainable rural tourism.

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# Pathways toward transformation of sustainable rural tourism management: The Case Central Java Rural Tourism Indonesia

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, complexity of rural institution, and able to accommodate the dynamics of future changes. In addition, it must pay attention to the inclusivity aspect, especially in areas with many stakeholders and poverty problems. This paper presents transformation pathways toward sustainable rural tourism management in the context of developing countries, including determining policy options, programs, and scenarios. The general objective of this paper is to develop sustainable development strategies in the rural tourism context. Specifically, the objectives are to develop the policy pathways and the best scenarios for sustainable trasnformation in rural tourism. The study was conducted in the Kedung Ombo area in Central Java, Indonesia, a representative area involving several districts and other public organizations as stakeholders. Data analysis applying the MULTIPOL method. The results show that an integrated development policy that ~~combines various potentials, resources, and tourism plans from all stakeholders is the right appro~~ consider all stakeholders interest, rural resources potential, infrastructure , and human resources capacity would be the most preferable policy to be implemented. ~~ach to be implemented.~~ Priority programs that need to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the flight of the flamingo and the leapfrog scenarios can simultaneously be considered to achieve future tourism growth goals and objectives. This study is an essential input for the authorities in determining rural tourism development policies in research locations and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL Method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1] and is recognized as an essential means of economic development in rural areas [2]; [3]. Rural tourism is recognized both directly and indirectly as a catalyst for development progress in rural areas[4] and is capable of being a strategic lever in revitalizing the economy of the rural regions and supporting poverty alleviation [5];[6]. Although the development of rural tourism sometimes triggers conflicts between various parties, the perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of

generating employment and income creation, combating rural exodus, becoming a socio-economic networking proposal, becoming a vehicle for processing ~~a means of saving~~ and enhancing cultural and natural heritage, and improving the quality of life for local residents [8];[9]; [10]. During the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality, environmental degradation, and saving the community's culture [12]. Rural tourism is an endogenous alternative to developing tourism in less-developed areas, allowing local people to increase their income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism aiming to meet the needs of current residents and tourists without compromising the needs of future generations[14]; [15]; [16]. According to [17], rural tourism should not be understood only as a type of tourism but also as a tool for conserving and regenerating rural society and culture.

Indonesia is a ~~–~~endowed with rich material and cultural capital that could be developed for tourism activities. In addition, ~~beautiful country in tourism potential~~, ~~and~~ the tourism sector is a central issue playing a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages which since 2021 has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth, people's welfare, eradicate poverty, overcome unemployment, preserve nature, the environment, natural resources, and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage villages' social, cultural, and economic transformation. [19]. Even ~~-~~though some studies such as Hua [20] ~~(2022)~~ found that rural related factors are not contributing factors for rural development from tourism, this study might be special case in Malaysia during covid-19 pandemic. Most studies ([21][22] [23]~~Curcic et al 2021; Amir et al, 2015; Yang and Zhu, 2021~~) agree that t~~T~~he success of the tourism village will become a lever for the village and regional economy, ultimately driving national economic growth ~~[19].~~

According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1,831, and only 2.73% of them have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions community economy. However, this number is still tiny compared to the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as a pilot, developing, developed, and independent villages [24]. Many factors cause the low number of developed tourism villages. The lack of understanding of policymakers at the village government and regional government levels in comprehensively developing a tourism village, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects are the contributing factors.

As a complex system, tourism development requires careful planning, which is supported by all stakeholders [25]; [26]; [27]; [28]; [29] and should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate tourism tend to have a detrimental effect on social and natural conditions [31]. According to [32], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically and must be based on the potential of an area [33]. Therefore, the success of tourism development is highly dependent on the integration between policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and coordinated actions and policies. A different policy pathway might be needed for another type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

This general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by ~~paper aims to~~ developing transformation pathways toward sustainable management of rural tourism in an institutional context in the Kedung

Ombo reservoir area, Central Java Province, Indonesia. The general objective can be broke down into three specific objective based on three research questions, i.e.;

1. What strategies can be used to promote sustainable rural tourism in the nature based Central Java tourism?
2. What policies can be implemented to support transformation toward sustainabl rural tourism development
3. What are the potentials and best scenarios for sustainable rura tourism development.

Developing sustainable tourism is very important in the context of rural tourism as stated by Lane [34], ~~1994)~~ that sustainable strategies could reconcile conflicting demand, avoid wasteful investment and efforts, and seek out niche market where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for tourism recovery in the case of disturbances experienced by rural tourism [22] ~~( Yang and Zhu, 2021).~~ This study is extending the line of research in rural development strategies by enhancing various strategic options through developing pathways for policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing tourism potential in Indonesia related to the many parties involved in an area, but the coordination and synergy are weak. As a result, conflicts often arise, especially concerning land use rights and division of authority. The parties involved in the Kedung Ombo area are the local government, forest area managers, dam managers, and the community.

In the Kedung Ombo reservoir area, there are 8 (eight) tourist villages, namely Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari . However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area, are just at status developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods through several strategic analyses focusing on the in situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies that do not only implement the Kedung Ombo case but become bridges and can be scaled up at a broader level, especially tourist villages in several developing countries that have the same characteristics. This study is also the first to create a comprehensive policy strategy considering the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

As one of the natural resource-based economic sectors, rural tourism is highly dependent on goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development will be sustainable only if it is planned strategically to reach goals whose effects manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects, coordinating and balancing relationships between various stakeholders and emphasizing fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, the protection of local culture, and the promotion of local products [39].

The success of sustainable tourism development is highly dependent on appropriate [40] and comprehensive [30] policy ~~support~~framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis with the environment and social life [42]. Successful tourism development requires an in-depth study of systems, performance, budget constraints, implications for the economy, and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by coordinating all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' various motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and ensuring inclusive decision-making takes place [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]; researchers from various countries have developed their descriptions based on the unique experiences or contexts they encounter [47]. The World Tourism Organization (WTO) defines rural tourism as products that give visitors personal contact, experiencing the physical environment and rural life, and enable them to participate in local communities' activities, traditions, and lifestyles [14]. Most authors define rural tourism as tourism in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, ecotourism, and other related activities in rural areas [48]; [49]. Rural tourism is a new development model combining modern tourism with the traditional agricultural culture [50]. The three main attributes of rural tourism include culture, nature, and history [51].

There has been much debate about the definition of a tourist village in the literatur without reaching a firm consensus [52]. ~~Th~~e The diversity of literature and the different meanings of terminology in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts, with accommodation in traditionally furnished rooms, and traditional breakfasts are often based on homemade products. In Finland, rural tourism usually rents out cottages. In Netherlands, the product of rural tourism means camping on farms and bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a special meaning: the tourist village refers to tourism in villages, presenting village life plus traditions with the active participation of visitors [51]. ~~Nurhayati and Wiendu~~ Nuryanti, W., ~~-~~define tourism villages in Indonesia as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

From the various existing definitions, a tourist village can be interpreted as a rural area with particular characteristics to become a tourist destination through the local community's physical uniqueness, social life, and culture as an attraction. As for the crucial factors of rural tourism, namely: (1) takes place in rural areas and is functionally rural, (2) the purpose of visiting tourists is to study, be actively involved, experience or enjoy attractions, (3) tourism attributes in the form of culture, nature, history, and unique rural activities offered as attractions, (4) collaboration and involvement of key stakeholders, namely tourists, rural communities, businesses, and government agencies, (5) emphasizing sustainability in social, economic development, and environmental preservation [41 ]). In addition, the development of tourist villages can provide benefits in the form of (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood activities and lifestyle community traditional life, and (6) reduction of urban-ta-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for sustainability of rural tourism [50], for example, using a qualitative approach such as the Delphi Technique to

determine the priority ranking for rural tourism development in Russia. Meanwhile, [56] uses an event-based approach to integrate rural tourism in Hungary. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism in this study [57]. Meanwhile, [58] uses an Interpretative Structural Modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches above, one method commonly used in developing sustainability strategies is to use the SWOT approach and its variations, such as AWOT, ~~namely~~ which is the combination of AHP and SWOT, and TOWS such an approach was used ~~TOWS as~~ in the case of rural tourism in Iran ~~Turkey, which was carried out by~~ [58]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing strengthening the role and capacity of the community. A similar approach was also taken by Vipriyanti, et all [59] in the case of rural ecotourism in the Bali region of Indonesia.

Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] use a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, [60] uses artificial intelligence (machine learning) to develop a marketing strategy, one of rural tourism's sustainability strategies.

This study uses a different approach whereby the prospective method, which has rarely been used in rural tourism, is used to develop future strategies for rural tourism. This study is the first to use prospective analysis for rural tourism in Indonesia. Still, this method can be scaled up to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation in the Kedung Ombo area and reach future thinking. The Kedung Ombo Reservoir is the largest in Southeast Asia, with an area of 6,576 hectares consisting of 2,830 hectares of water and 3,746 hectares of plains. The dam's location crosses three districts: Grobogan Regency, Sragen Regency, and Boyolali Regency (Figure 1). From the aspect of accessibility, this area is easily accessible to reach. However, the infrastructure condition still needs improvement related to the quality and infrastructure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

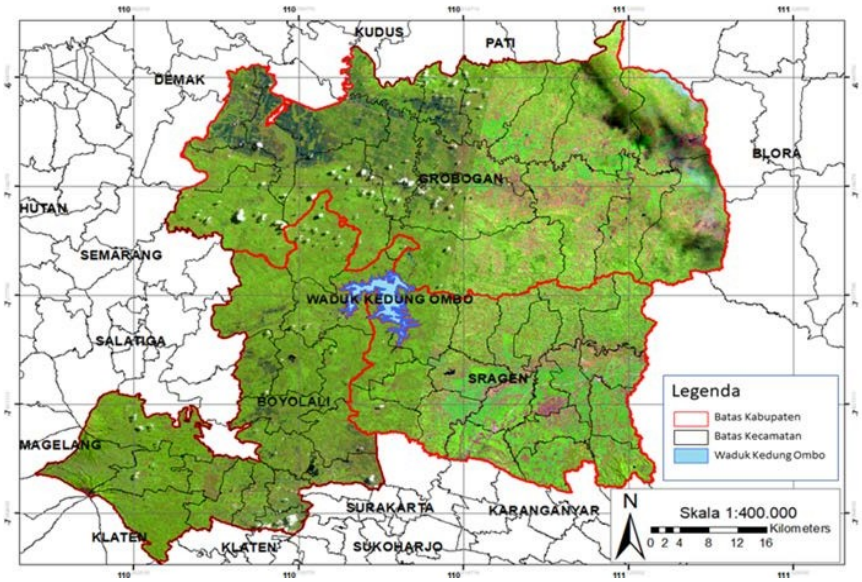


**Figure 1.** Map of Kedung Ombo Area

The Kedung Ombo area is in a hilly forest area. In addition to the dam landscape with beautiful natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in

1991, several community groups, forest managers, local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some of them are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development in the region. To strengthen this goal, the MULTIPOL prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that apply to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

~~This study uses a mix method approach. Data collection was carried out in a participatory manner using focus group discussion (FGD) methods and workshops involving district government officials, forest managers, dam managers, and the community. The Multipol Method (Multicriteria Policy) is applied to find a strategic framework for developing tourism villages.~~

The research data is processed with the MULTIPOL computer program software, developed by the LIPSOR organization, to choose which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages to achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [61], in an institutional context [62]. MULTIPOL facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus [63]. Experts assign weights to each policy, based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [64]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen understanding of causal relationships [65].

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshop methods. The FGD selected twenty people consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a way as to make it possible to present the opinions of each stakeholder equally. MULTIPOL combines two different types of evaluation, namely: 1) program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and: 2) evaluation of policies against scenarios to determine the most appropriate policies and become priority policies for specific scenarios [58].

~~MULTIPOL is a multicriteria analysis method to support an effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [56], in an institutional context [61]. Multipol combines two different types of evaluation, namely: 1) program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and: 2) evaluation of policies against scenarios to determine the most appropriate policies and become priority policies for specific scenarios [56].~~

Multipol method is developed to address the three problematic problems in decision making, i.e.

- Selecting the best actions
- Classifying the actions into sub group (sorting)
- Ranking the actions

By allowing a comparative evaluation to be made about the actions while taking account different context of policies and scenarios. In Multipol such comparative evaluation can be made in a simple way yet it encompasses complexity of decision problems. The advantages of Multipol method therefore lies in its simplicity and flexibility of utilization [66]. Another advantage of Multipol is that it's feature that integrate participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also enables to accommodate uncertainty and testing the effectiveness of different policies and actions at different scenarios ([67]; [68].

The structure of the Multipol method consists of four elements, namely [67]:

1. The evaluation criteria describe the fundamental aspects of assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects ~~Evaluation criteria. Namely the fundamental aspects of assessing the success of a decision that can be measured. Evaluation criteria form the basis of any evaluation process for evaluating the performance of alternative scenarios, programs, and policy measures. In this study, the criteria for assessing the success of rural tourism development in the Kedung Ombo area include economic, social, environmental, and institutional aspects~~ (Table 1).

**Table 1.** Criteria for the Success of Kedung Ombo Rural Tourism Development

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce ~~population~~pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |
| Accountability | Institution | 4 | Increase accountability |

Source: FGD results

2. Scenarios. Show a structured picture of the future in which the goals and objectives will be achieved. In this case, the scenarios are ways that can be done to achieve successful rural tourism development in the Kedung Ombo area. From the FGD, decide on four alternative scenarios to be evaluated (Table 2).

**Table 2.** Alternative Scenarios for Kedung Ombo Rural Tourism Development

| Scenario alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | ~~The way to achieve the success criteria for tourism development is fast, jumpy, not patterned, and has no relation to previous development strategies~~. The way to achieve the success criteria for tourism development is fast, unpatterned, skipping several stages of the traditional development process to go straight to new development, and has no link with previous development strategies |

| | | |
|---|---|---|
| | | [69] |
| Evolutionary | 4 | ~~The way to achieve the success of tourism development is slowly and gradually.~~ The way to achieve the success criteria for tourism development is slow and gradual, focusing on how tourism changes through a less dynamic process over time [70]. |
| Resilience | 3 | ~~The way to achieve the success criteria of tourism development is by using the existing method~~. The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [71]. |
| Flight of the flamingo | 6 | ~~The way to achieve the success criteria of tourism development is supported by consistent and efficient policies, and moral investment.~~The way to achieve the success criteria of tourism development is supported by consistent and efficient policies, and moral investment [72] |

Source: FGD results

~~3. Policy describes a strategy to achieve the goals and objectives of decisions related to the political, social, economic, and physical context. In this case, the policy in question is tourism policy which is defined as a set of rules that guide the direction and objectives of the development strategy. It provides a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of destination tourism [59]. By the Multipole method, this study proposes four alternative policies (Table 3).~~

3. Policy describe strategies for achieving goals and objectives related to the political, social, economic, and physical context. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [73]. This study proposes four alternative policies (Table 3).

**Table 3.** Alternative Kedung Ombo Rural Tourism Development Policies

| Policy alternatives | Weight | Description |
|---|---|---|
| Agro-based policy | 5 | ~~The tourism development policies are based on agro potential.~~ The tourism development policies are based on a agricultural and plantation products. The Kedung Ombo area is suitable for developing tropical fruits, including longan, tailings, guava, mango, “matoa,”, and durian, likewise for fishing. |
| Nature-based policy | 5 | Tourism development policies are based on natural potential. Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including panorama of the vast surface of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are also developing several regional arts that have the potential to be developed as tourist attractions. Some of them are "reog", a traditional dance performed in an open |

| | | |
|---|---|---|
| | | arena with magical elements, the main dancer being a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected |

Source: FGD results

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Development programs are proposed to develop rural tourism in the research location, as presented in Table 4.

**Table 4.** Alternatives Programs to the Kedung Ombo Rural Tourism Development ~~Development Program~~

| Program ~~Alternatif~~Alternative | Description |
|---|---|
| Infrastructure strengthening | ~~Addition and development of road infrastructure, lighting, and internet network~~ Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | ~~Addition and development of tourism facilities and infrastructure~~ Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, internet networks, and other similar things. |
| Private investment strengthening | ~~Increased involvement and investment of the private sector~~ Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |
| Information Communication Technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information |
| Capacity building | ~~Community capacity building and other institutions~~ Development of skills and capabilities community, such as leadership, management, finance and fundraising, marketing, programs, and evaluation, so that the development is effective and sustainable. |
| Entrepreneurship development | ~~Community entrepreneurship capacity development~~ Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics and tourism business development. |
| Network development | ~~Network development between tourism village managers, communities, and other institutions~~ Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions |

| | |
|---|---|
| | in various aspects that can support more successful development. |
| Local financial development | ~~Development of community financial institutions~~ Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |
| Maintenance natural resources | ~~Maintenance of potential natural resources~~Maintenance of potential natural resources. Resources included in this category include forests and fisheries. |

Source: FGD results

The programs, policies, and alternative scenarios are then evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

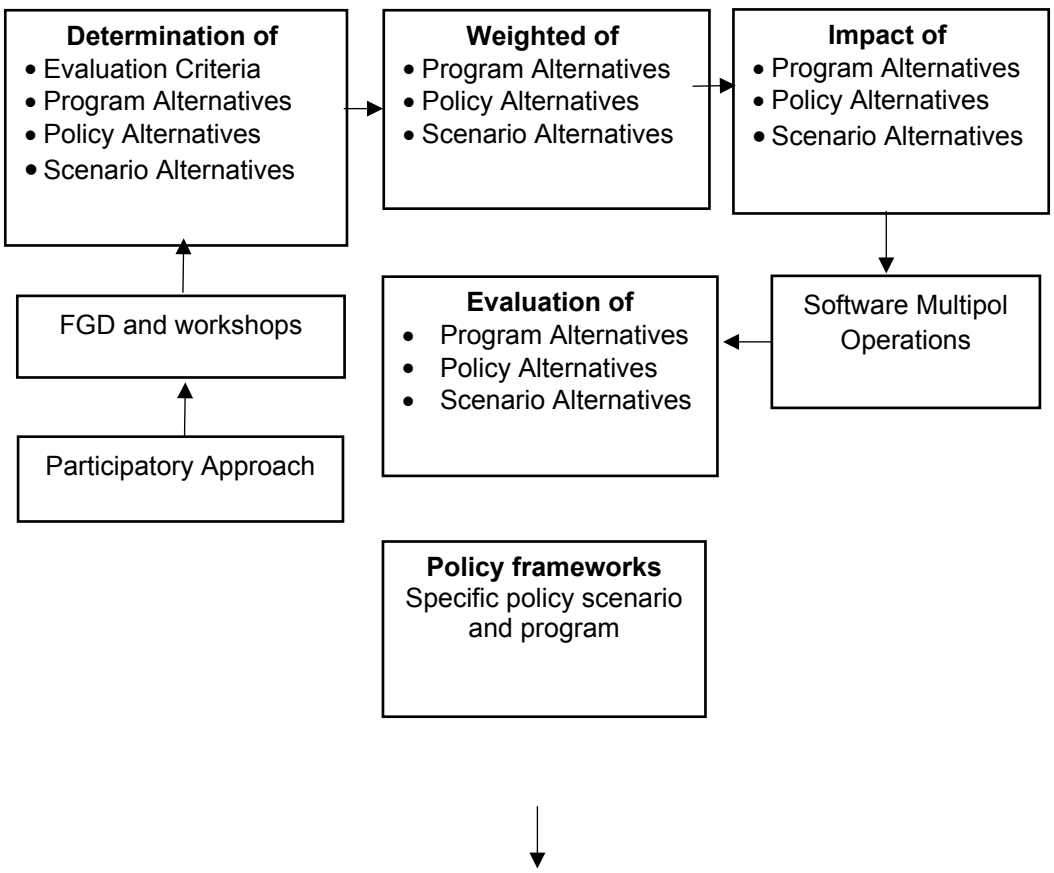


**Figure 2.** Stages of Determining the Best Strategy Based on MULTIPOL Method

## 4. Results

~~This session presents the results of evaluating the suitability between criteria, programs, policies, and scenarios shown in pictures and graphs.~~

This session presents the results of evaluating the suitability between criteria, programs, policies, and scenarios shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0-20).

### 4.1. Conformity Analysis between Programs and Policies

~~Table 5 shows the relationship and suitability between programs and policies. The mean (mean) and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [62] For example, Table 5 shows that the infrastructure strengthening program is the best, while the local funding strengthening program is poor.~~

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [67]. The three programs that were ranked as the highest position were: strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of Program Performance ~~Against~~ Related to Policies

| Program/Policy | Agrotourism | Natural tourism | Culture tourism | Integrated tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

Source: The Multipole Analysis Results

From the results of the program-policies evaluation, a graph called a Profile Map is obtained, which presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). On the other hand, Multipol also provides a graph known as a Sensitivity Classification Map, representing the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are most elevated on the graph.

~~As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and programs with the most significant relevance because they support the fulfillment of policies. At the same time, the most effective programs are infrastructure-strengthening programs, governance-strengthening programs, capacity strengthening, amenities strengthening, and entrepreneur strengthening.~~

~~Figure 5 shows the closeness of each program to each policy; the closer a program is to a policy, the more suitable and effective the program is in supporting the policy's success. For example, Figure 5 shows that governance development programs and ICT strengthening programs are appropriate for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and maintain natural resources are the most appropriate for developing nature-based tourism policies. Likewise, capacity building programs, amenities supporting programs, and entrepreneurial development programs are the most suitable for developing agro-based tourism policies. Meanwhile, local financial development programs, programs to strengthen private investment, and networking programs are most compatible with the integrated tourism policy development policy.~~

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and programs with the most significant relevance to support the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector are programs that can be managed to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the x-axis and the standard deviation on the y-axis, where the closer the distance of a program to a policy, the more appropriate and effective the program supports the success of the policy. From Figure 5, it is known that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private investment strengthening, and networking development are the most compatible programs with the integrated tourism development policy.

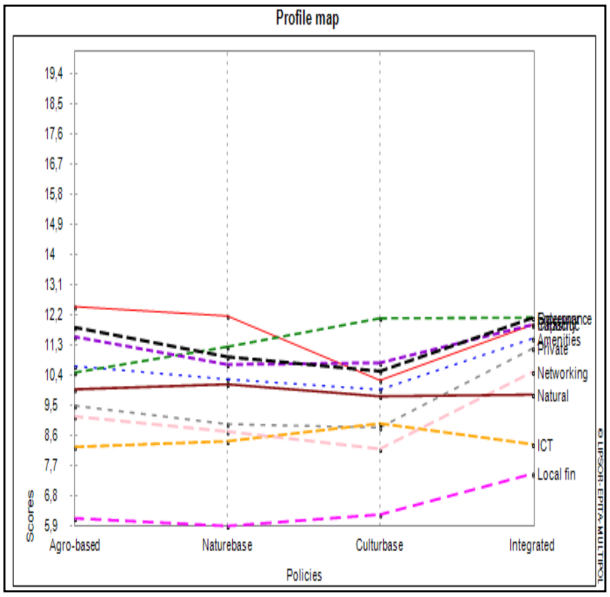


**Figure 3.** Program Profile Map
Source: The Multipol Analysis Results


**Figure 4.** Program Sensitivity Classification Map
Source: The Multipol Analysis Results

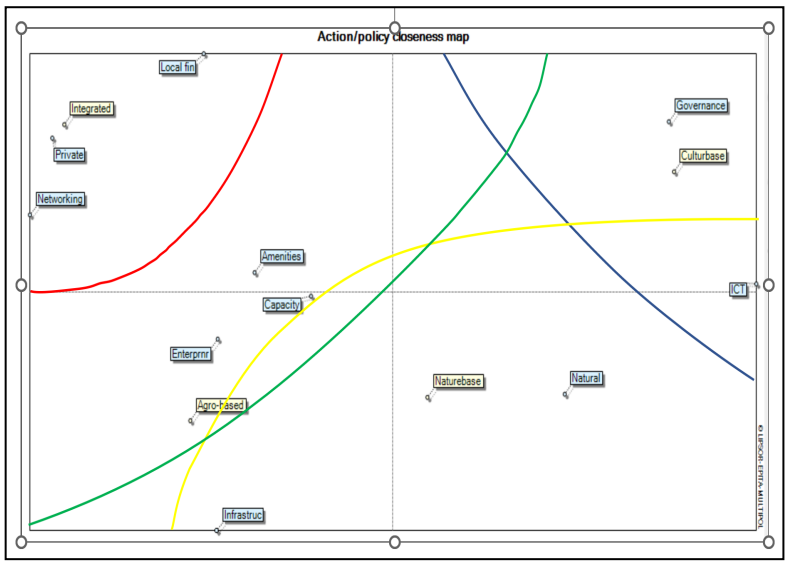


**Figure 5.** Map of the Program's Closeness to Policy

4.2. Conformity Analysis between Policy and Scenario

Next, the results of evaluating the relationship between policies and scenarios and performance ratings are presented (Table 6). Table 6 shows that an integrated policy is the best, while a culture-based policy is ~~terrible~~ the least best. An integrated policy is a policy that combines various tourism potentials and resources, and plans from all stakeholders. The results of this study follow research [74] which states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries.

**Table 6.** Policy Performance ~~Against~~ Related to Scenarios

| Policies/ | Leapfrog | Evolution | Resilience | Flamingo | Mea | Deviation | Rank |
|---|---|---|---|---|---|---|---|

| Scenario | | | | | n | Standard | |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: The Multipol Analysis Results

Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic), and the roles of related stakeholders, are part of a tourism development strategy that is considered capable of creating successful tourism destinations [75]. Integrated tourism policies are intended to develop integrated tourism destinations explicitly linked to the localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [73]. Furthermore, integrated tourism policies refer to developing alternatives that emphasize a bottom-up approach, centrally involve local stakeholders in their implementation, and are based on local physical, economic, social, and cultural resources [75].

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability and to empower local communities, thereby contributing to the sustainability of the wider region's development system. Specifically, integrated tourism destinations cover two aspects, namely: 1) bringing together various interests, requirements, and needs, in a unified strategic tourism plan, and 2) Unifying tourism with the social and economic life of an area and its community [73].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking maintaining programs are the best when viewed as a policy package. Strengthening private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public-private partnership (PPP), which will be an effective financing solution. The implementation of PPP will also have a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as creating jobs and increasing income for the population.

The networking development program is intended to develop reciprocity relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will encourage all parties' increased ability to optimize resource use, reducing conflicts and taking advantage of opportunities.

The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in under-resourced communities, offering clients financial education, business training, and low-interest loans to increase their economic potential and help build wealth. Public.

~~Figure 6 presents the behavior of the relationship between policies and scenarios. Figure 6 shows that integrated policies are the best in two scenarios: leapfrog and flight of the flamingo. In contrast, agro-based policies are the best policies in evolutionary scenarios and resilience policies. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.~~

Figure 6 presents the behavior of the relationship between policies and scenarios. All policies and each scenario are assessed with criteria by experts with a weight per interaction line of 100. The MULTIPOL application allows for the presentation of a graphical interpretation of the policies associated with the scenario matrix profile map, Figure 6. This presents the calculation of the set of policy evaluation matrix weights related to scenario matrix criteria. Figure 6 shows that integrated policies are the best in two scenarios: leapfrog and flight of the flamingo. In contrast, agro-based policies are the best policies in evolutionary scenarios and resilience policies.

As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

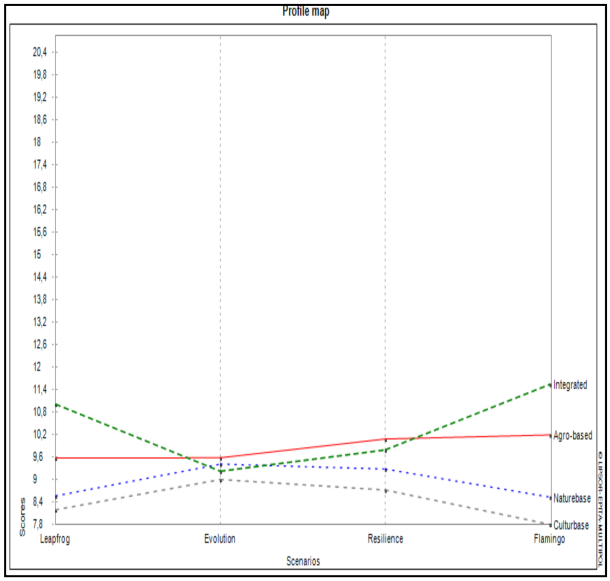


**Figure 6.** Policy Profile Map

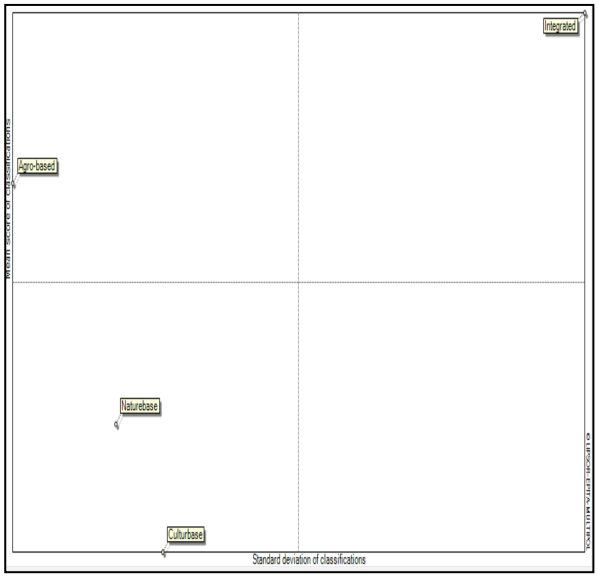


**Figure 7.** Policy Sensitivity Classification Map

Based on the evaluation of the relationship between the policy and the scenario, it is known that the integrated development policy is effective for the leapfrog and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

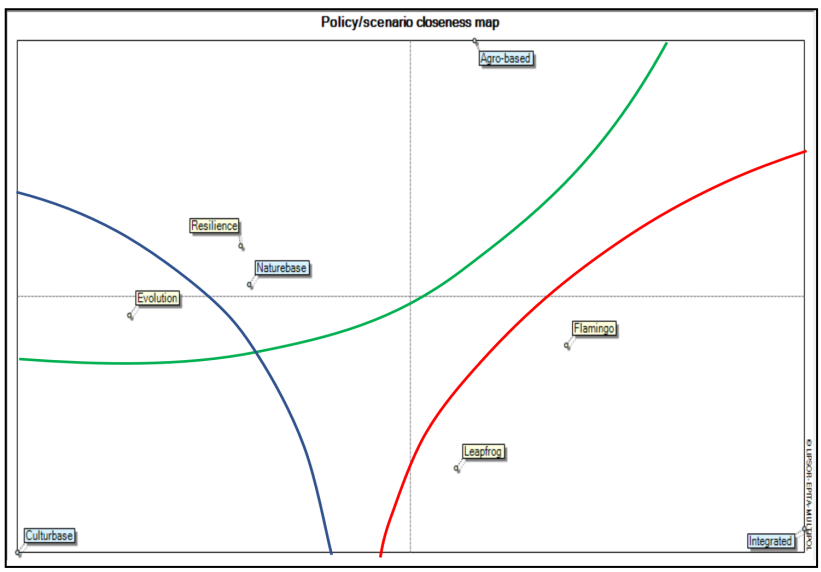


**Figure 8.** Map of Policy Adherence to Scenarios

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural

tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs: strengthening private investment, developing networking, and developing local finance. ~~To successfully carry out integrated policies, policymakers can run them through the flamingo and leapfrog scenarios. The risk from a leapfrog scenario that requires speed and is often patternless is worth considering, given the limitations in~~ Meanwhile, related to how to achieve successful development, policymakers can implement it through the flight of flamingo or leapfroging scenarios. However, the risk from the ~~a~~ leapfroging scenario that requires speed and is often patternless is worth considering, given the particular limitations in governance. Thus the flight of flamingo scenario has the following characteristics: involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, efficient and no corrupt), and sustainable economic growth is the most appropriate scenario to apply [66].

~~governance.~~

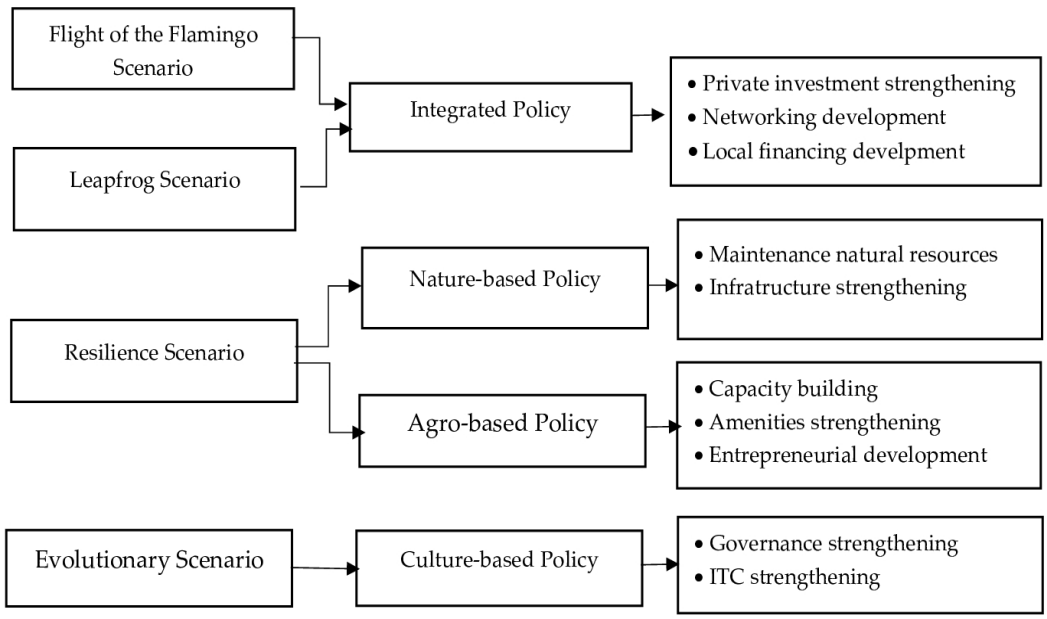


**Figure 9.** Potential Policy Pathways to Achieving Each Future Scenario of Kedung Ombo Rural Tourism

Source**:** Extracted ftom Multipol Result

## 5. Conclusions and Future Reseacrh Direction

~~Tourism plays a crucial role in rural development, especially in developing countries. However, lack of capacity, complex institutional settings and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward sustainable management of rural tourism is one of the strategies that could be delivered to achieve sustainable rural tourism. Strategic transformation by providing different pathways toward sustainable management could reduce some obstacles associated with managing the complexity of rural tourism management.~~

### 5.1. Conclusion

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, complex institutional setting, and poor planning might hinder

the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward sustainable management of rural tourism is one of the strategies that could be delivered to achieve sustainable rural tourism. Strategic transformation by providing different pathways toward sustainable management could reduce some obstacles associated with managing complexity of rural tourism management. Such findings are supported by various research on rural tourism such as [21] ~~Amir et al (2015)~~ and [22]Yang and Zhu (2021) whereby strategic planning of rural tourism could be a catalyst for tourism recovery as well as improving resilience of local economy.

The study also acknowledge that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario through "the flight of flamingo" requires strong stakeholder engagement. Just like it was experienced in South Africa during the transformation toward a democratic country, the "flight of flamingo" scenario is characterized by slow transformation, then fly high and fly together. In the case rural tourism, sustainable transformation also need to be taken slowly and involves all stakeholders. It is also recognized that the transformation might not be running smoothly, therefore some adjustment might be needed along the way once the decision toward sustainable transformation is reached.

~~This study emphasizes the discovery of transformation pathways which provide a policy framework in the development of rural tourism to develop a comprehensive policy strategy considering the interests of various stakeholders. The focus of research is on the sustainability of tourist villages in the Kedung Ombo reservoir area, Central Java, Indonesia. However, the results of this study can be a bridge or bridging and can be scaled up at a broader level, especially rural tourism in several developing countries which have the same characteristics.~~

~~The participatory approach used in data collection facilitated a variety of inputs from interested parties at the research sites. The Multipole method from La Prospective is used to evaluate a set of alternative programs, policies, and scenarios, in order to determine the best policy package as a policy direction for rural tourism development in the Kedung Ombo area. Both of these approaches are new approaches in research on rural tourism, especially in developing countries.~~

The results of the analysis show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy option for sustainable transformation. An Integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural resources, could be developed using an agro-cultural based policy, that is, combing natural based agricultural tourism with cultural assest owned by rural communities. This conclusion is supported by other studies such Curcic et al [23] ~~(2021)~~ whereby diversification of natural and cultural assets could enhanced the sustainability of rural tourism. –Such a policy needs strong support from private investment as well as local financial sources. The effectiveness of the policy will also depend on the strong network development, appropriate entrepreneur development program and strong capacity building of the communities. –This is in line with other findings such as Khartishvili et al [10]~~(2015)~~ that rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition lack of awareness and capacity of local community could be obstacles for transformation for sustainable tourism [34] ~~(Lane, 1994). ies allow~~

~~all tourism potential in an area to be developed in a coordinated manner so that the interests of all stakeholders are met. Integrated policies are also a combination of agro-based policies, nature-based policies, and culture-based policies which are quite prominent in the research locations. The programs that effectively support the success of integrated policies are: private investment strengthening programs, network development programs, and local financial development programs.~~

~~In order to increase the effectiveness of the implementation of the policy packages and superior programs found, the rural tourism development process must be carried out~~

~~in the right scenario. Based on the findings of the inclusive flight of the flamingo research scenario, this is the right scenario. This scenario guarantees the involvement of all parties in the rural tourism development process. In accordance with the Multipol method, this best scenario has considered the availability of resources, the risks and the probability of success.~~

The results of this study become a model for institutional-based rural tourism development in other regions, which often has problems with coordination factors related to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, risks and possible levels of success.

~~This study emphasizes the discovery of transformation pathways that provide a policy framework for developing rural tourism to develop a comprehensive policy strategy considering the interests of various stakeholders. The research focuses on the sustainability of tourist villages in the Kedung Ombo reservoir area, Central Java, Indonesia. However, the results of this study can be a bridge or bridging. They can be scaled up at a broader level, especially rural tourism in several developing countries with the same characteristics.~~

~~The participatory approach used in data collection facilitated a variety of inputs from interested parties at the research sites. In addition, the Multipol method from La Prospective is used to evaluate a set of alternative programs, policies, and scenarios, to determine the best policy package as a policy direction for rural tourism development in the Kedung Ombo area. Both are new approaches in research on rural tourism, especially in developing countries.~~

~~The analysis results show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy. The integrated policies allow all the tourism potential to be developed coordinated manner so that the interests of all stakeholders are met. Integrated policies are also a combination of agro-based, nature-based, and culture-based policies, which are prominent in the research locations. The programs that effectively support the success of integrated policies are: private investment strengthening programs, network development programs, and local financial development programs.~~

~~The exemplary scenario needs to increase the effectiveness of the policy packages and superior programs in the rural tourism development process. Based on the research findings, the inclusive flight of the flamingo and leapfrog scenario is the prominent scenario. This scenario guarantees the involvement of all parties in the rural tourism development process. Under the Multipol method, this best scenario has considered the availability of resources, the risks, and the probability of success.~~

~~The results of this study become a model for institutional-based rural tourism development in other regions, which often have problems with coordination factors related to the many parties involved. Finally, the results of this study can serve as a road map for policymakers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, risks, and possible levels of success.~~

### . **5.2. 6**. Future Research Direction

The contribution of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to findings of this study and relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenarios. In our study, each transformation pathways are assumed to be independent, yet they might interconnect in the space and time. Such a study, therefore, could provide a deeper insight how the policies and actions are changing over time and how they adapt to the dynamic of rural institutional setting.

Second, further research that considers the risk and uncertainty related to that transformation toward sustainable tourism is needed. This is due to the fact that stakeholders in rural areas might behave as risk-averse and avoid any structural

changes in tourism management that consider costly. Further examination of risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge on the overall benefits and costs of managing rural tourism.

Third, this study employed mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination using was carried out for filtering the interest of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further examination such factors could provide a more robust strategies for sustainable rural tourism transformation.

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sustainability

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*Type of the Paper (Article)*

# Pathways toward transformation of sustainable rural tourism management: The Case Central Java Rural Tourism Indonesia

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, complexity of rural institution, and able to accommodate the dynamics of future changes. In addition, it must pay attention to the inclusivity aspect, especially in areas with many stakeholders and poverty problems. This paper presents transformation pathways toward sustainable rural tourism management in the context of developing countries, including determining policy options, programs, and scenarios. The general objective of this paper is to develop sustainable development strategies in the rural tourism context. Specifically, the objectives are to develop the policy pathways and the best scenarios for sustainable trasnformation in rural tourism. The study was conducted in the Kedung Ombo area in Central Java, Indonesia, a representative area involving several districts and other public organizations as stakeholders. Data analysis applying the MULTIPOL method. The results show that an integrated development policy that ~~combines various potentials, resources, and tourism plans from all stakeholders is the right appro~~ consider all stakeholders interest, rural resources potential, infrastructure , and human resources capacity would be the most preferable policy to be implemented. ~~ach to be implemented.~~ Priority programs that need to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the flight of the flamingo and the leapfrog scenarios can simultaneously be considered to achieve future tourism growth goals and objectives. This study is an essential input for the authorities in determining rural tourism development policies in research locations and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL Method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1] and is recognized as an essential means of economic development in rural areas [2]; [3]. Rural tourism is recognized both directly and indirectly as a catalyst for development progress in rural areas[4] and is capable of being a strategic lever in revitalizing the economy of the rural regions and supporting poverty alleviation [5];[6]. Although the development of rural tourism sometimes triggers conflicts between various parties, the perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of generating

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employment and income creation, combating rural exodus, becoming a socio-economic networking proposal, becoming a vehicle for processing ~~a means of saving~~ and enhancing cultural and natural heritage, and improving the quality of life for local residents [8];[9]; [10]. During the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality, environmental degradation, and saving the community's culture [12]. Rural tourism is an endogenous alternative to developing tourism in less-developed areas, allowing local people to increase their income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism aiming to meet the needs of current residents and tourists without compromising the needs of future generations[14]; [15]; [16]. According to [17], rural tourism should not be understood only as a type of tourism but also as a tool for conserving and regenerating rural society and culture.

Indonesia is a ~~endowed with rich material and cultural capital that could be developed for tourism activities. In addition, beautiful country in tourism potential, and~~ the tourism sector is a central issue playing a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages which since 2021 has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth, people's welfare, eradicate poverty, overcome unemployment, preserve nature, the environment, natural resources, and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage villages' social, cultural, and economic transformation. [19]. Even ~~-~~though some studies such as Hua [20] ~~(2022)~~ found that rural related factors are not contributing factors for rural development from tourism, this study might be special case in Malaysia during covid-19 pandemic. Most studies ([21][22] [23]~~Curcic et al 2021; Amir et al, 2015; Yang and Zhu, 2021~~) agree that t~~T~~he success of the tourism village will become a lever for the village and regional economy, ultimately driving national economic growth ~~[19].~~

According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1,831, and only 2.73% of them have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions community economy. However, this number is still tiny compared to the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as a pilot, developing, developed, and independent villages [24]. Many factors cause the low number of developed tourism villages. The lack of understanding of policymakers at the village government and regional government levels in comprehensively developing a tourism village, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects are the contributing factors.

As a complex system, tourism development requires careful planning, which is supported by all stakeholders [25]; [26]; [27]; [28]; [29] and should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate tourism tend to have a detrimental effect on social and natural conditions [31]. According to [32], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically and must be based on the potential of an area [33]. Therefore, the success of tourism development is highly dependent on the integration between policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and

coordinated actions and policies. A different policy pathway might be needed for another type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

This general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by ~~paper aims to~~ developing transformation pathways toward sustainable management of rural tourism in an institutional context in the Kedung Ombo reservoir area, Central Java Province, Indonesia. The general objective can be broke down into three specific objective based on three research questions, i.e.;

1. What strategies can be used to promote sustainable rural tourism in the nature based Central Java tourism?
2. What policies can be implemented to support transformation toward sustainabl rural tourism development
3. What are the potentials and best scenarios for sustainable rura tourism development.

Developing sustainable tourism is very important in the context of rural tourism as stated by Lane [34], ~~1994)~~ that sustainable strategies could reconcile conflicting demand, avoid wasteful investment and efforts, and seek out niche market where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for tourism recovery in the case of disturbances experienced by rural tourism [22] ~~( Yang and Zhu, 2021).~~ This study is extending the line of research in rural development strategies by enhancing various strategic options through developing pathways for policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing tourism potential in Indonesia related to the many parties involved in an area, but the coordination and synergy are weak. As a result, conflicts often arise, especially concerning land use rights and division of authority. The parties involved in the Kedung Ombo area are the local government, forest area managers, dam managers, and the community.

In the Kedung Ombo reservoir area, there are 8 (eight) tourist villages, namely Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari . However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area, are just at status developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods through several strategic analyses focusing on the in situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies that do not only implement the Kedung Ombo case but become bridges and can be scaled up at a broader level, especially tourist villages in several developing countries that have the same characteristics. This study is also the first to create a comprehensive policy strategy considering the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

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As one of the natural resource-based economic sectors, rural tourism is highly dependent on goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development will be sustainable only if it is planned strategically to reach goals whose effects manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects, coordinating and balancing relationships between various stakeholders and emphasizing fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, the protection of local culture, and the promotion of local products [39].

The success of sustainable tourism development is highly dependent on appropriate [40] and comprehensive [30] policy ~~support~~framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis with the environment and social life [42]. Successful tourism development requires an in-depth study of systems, performance, budget constraints, implications for the economy, and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by coordinating all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' various motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and ensuring inclusive decision-making takes place [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]; researchers from various countries have developed their descriptions based on the unique experiences or contexts they encounter [47]. The World Tourism Organization (WTO) defines rural tourism as products that give visitors personal contact, experiencing the physical environment and rural life, and enable them to participate in local communities' activities, traditions, and lifestyles [14]. Most authors define rural tourism as tourism in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, ecotourism, and other related activities in rural areas [48]; [49]. Rural tourism is a new development model combining modern tourism with the traditional agricultural culture [50]. The three main attributes of rural tourism include culture, nature, and history [51].

There has been much debate about the definition of a tourist village in the literatur without reaching a firm consensus [52]. ~~Th~~e The diversity of literature and the different meanings of terminology in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts, with accommodation in traditionally furnished rooms, and traditional breakfasts are often based on homemade products. In Finland, rural tourism usually rents out cottages. In Netherlands, the product of rural tourism means camping on farms and bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a

special meaning: the tourist village refers to tourism in villages, presenting village life plus traditions with the active participation of visitors [51]. ~~Nurhayati and Wiendu~~ Nuryanti, W., ~~-~~define tourism villages in Indonesia as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

From the various existing definitions, a tourist village can be interpreted as a rural area with particular characteristics to become a tourist destination through the local community's physical uniqueness, social life, and culture as an attraction. As for the crucial factors of rural tourism, namely: (1) takes place in rural areas and is functionally rural, (2) the purpose of visiting tourists is to study, be actively involved, experience or enjoy attractions, (3) tourism attributes in the form of culture, nature, history, and unique rural activities offered as attractions, (4) collaboration and involvement of key stakeholders, namely tourists, rural communities, businesses, and government agencies, (5) emphasizing sustainability in social, economic development, and environmental preservation [41 ]). In addition, the development of tourist villages can provide benefits in the form of (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood activities and lifestyle community traditional life, and (6) reduction of urban-ta-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for sustainability of rural tourism [50], for example, using a qualitative approach such as the Delphi Technique to determine the priority ranking for rural tourism development in Russia. Meanwhile, [56] uses an event-based approach to integrate rural tourism in Hungary. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism in this study [57]. Meanwhile, [58] uses an Interpretative Structural Modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches above, one method commonly used in developing sustainability strategies is to use the SWOT approach and its variations, such as AWOT, ~~namely~~ which is the combination of AHP and SWOT, and TOWS such an approach was used ~~TOWS as~~ in the case of rural tourism in Iran ~~Turkey, which was carried out by~~ [58]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing strengthening the role and capacity of the community. A similar approach was also taken by Vipriyanti, et all [59] in the case of rural ecotourism in the Bali region of Indonesia.

Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] use a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, [60] uses artificial intelligence (machine learning) to develop a marketing strategy, one of rural tourism's sustainability strategies.

This study uses a different approach whereby the prospective method, which has rarely been used in rural tourism, is used to develop future strategies for rural tourism. This study is the first to use prospective analysis for rural tourism in Indonesia. Still, this method can be scaled up to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation in the Kedung Ombo area and reach future thinking. The Kedung Ombo Reservoir is the largest in Southeast Asia, with an area of 6,576 hectares consisting of 2,830 hectares of water and 3,746 hectares of plains. The dam's location crosses three districts: Grobogan Regency,

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Sragen Regency, and Boyolali Regency (Figure 1). From the aspect of accessibility, this area is easily accessible to reach. However, the infrastructure condition still needs improvement related to the quality and infrastructure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

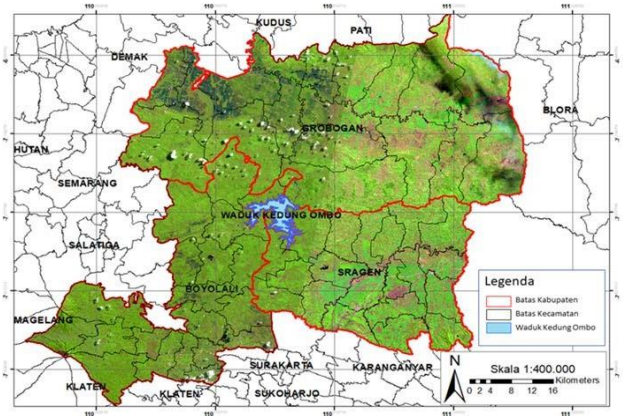


**Figure 1.** Map of Kedung Ombo Area

The Kedung Ombo area is in a hilly forest area. In addition to the dam landscape with beautiful natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in 1991, several community groups, forest managers, local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some of them are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development in the region. To strengthen this goal, the MULTIPOL prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that apply to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

~~This study uses a mix method approach. Data collection was carried out in a participatory manner using focus group discussion (FGD) methods and workshops involving district government officials, forest managers, dam managers, and the community. The Multipol Method (Multicriteria Policy) is applied to find a strategic framework for developing tourism villages.~~

The research data is processed with the MULTIPOL computer program software, developed by the LIPSOR organization, to choose which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages to achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [61], in an institutional context [62]. MULTIPOL facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus

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[63]. Experts assign weights to each policy, based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [64]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen understanding of causal relationships [65].

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshop methods. The FGD selected twenty people consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a way as to make it possible to present the opinions of each stakeholder equally. MULTIPOL combines two different types of evaluation, namely: 1) program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and: 2) evaluation of policies against scenarios to determine the most appropriate policies and become priority policies for specific scenarios [58].

~~MULTIPOL is a multicriteria analysis method to support an effective evaluation and decision making by determining scenarios, strategic or policy directions, and choices of actions or programs [56], in an institutional context [61]. Multipol combines two different types of evaluation, namely: 1) program evaluation of policies to determine which programs are most appropriate and prioritize specific policies; and: 2) evaluation of policies against scenarios to determine the most appropriate policies and become priority policies for specific scenarios [56].~~

Multipol method is developed to address the three problematic problems in decision making, i.e.

- Selecting the best actions
- Classifying the actions into sub group (sorting)
- Ranking the actions

By allowing a comparative evaluation to be made about the actions while taking account different context of policies and scenarios. In Multipol such comparative evaluation can be made in a simple way yet it encompasses complexity of decision problems. The advantages of Multipol method therefore lies in its simplicity and flexibility of utilization [66]. Another advantage of Multipol is that it's feature that integrate participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also enables to accommodate uncertainty and testing the effectiveness of different policies and actions at different scenarios ([67]; [68].

The structure of the Multipol method consists of four elements, namely [67]:

1. The evaluation criteria describe the fundamental aspects of assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects ~~Evaluation criteria. Namely the fundamental aspects of assessing the success of a decision that can be measured. Evaluation criteria form the basis~~

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~~of any evaluation process for evaluating the performance of alternative scenarios, programs, and policy measures. In this study, the criteria for assessing the success of rural tourism development in the Kedung Ombo area include economic, social, environmental, and institutional aspects~~ (Table 1).

**Table 1.** Criteria for the Success of Kedung Ombo Rural Tourism Development

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce ~~population~~pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |
| Accountability | Institution | 4 | Increase accountability |

Source: FGD results

2. Scenarios. Show a structured picture of the future in which the goals and objectives will be achieved. In this case, the scenarios are ways that can be done to achieve successful rural tourism development in the Kedung Ombo area. From the FGD, decide on four alternative scenarios to be evaluated (Table 2).

**Table 2.** Alternative Scenarios for Kedung Ombo Rural Tourism Development

| Scenario alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | ~~The way to achieve the success criteria for tourism development is fast, jumpy, not patterned, and has no relation to previous development strategies~~. The way to achieve the success criteria for tourism development is fast, unpatterned, skipping several stages of the traditional development process to go straight to new development, and has no link with previous development strategies [69]. |
| Evolutionary | 4 | ~~The way to achieve the success of tourism development is slowly and gradually.~~ The way to achieve the success criteria for tourism development is slow and gradual, focusing |

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| | | on how tourism changes through a less dynamic process over time [70]. |
| Resilience | 3 | ~~The way to achieve the success criteria of tourism development is by using the existing method~~. The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [71]. |
| Flight of the flamingo | 6 | ~~The way to achieve the success criteria of tourism development is supported by consistent and efficient policies, and moral investment.~~The way to achieve the success criteria of tourism development is supported by consistent and efficient policies, and moral investment [72] |

Source: FGD results

~~3. Policy describes a strategy to achieve the goals and objectives of decisions related to the political, social, economic, and physical context. In this case, the policy in question is tourism policy which is defined as a set of rules that guide the direction and objectives of the development strategy. It provides a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of destination tourism [59]. By the Multipole method, this study proposes four alternative policies (Table 3).~~

3. Policy describe strategies for achieving goals and objectives related to the political, social, economic, and physical context. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [73]. This study proposes four alternative policies (Table 3).

**Table 3.** Alternative Kedung Ombo Rural Tourism Development Policies

| Policy alternatives | Weight | Description |
|---|---|---|
| Agro-based policy | 5 | ~~The tourism development policies are based on agro potential.~~ The tourism development policies are based on a agricultural and plantation products. The Kedung Ombo area is suitable for developing tropical fruits, including longan, tailings, guava, mango, "matoa,", and durian, likewise for fishing. |
| Nature-based policy | 5 | Tourism development policies are based on natural potential, Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including panorama of the vast surface |

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| | | of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are also developing several regional arts that have the potential to be developed as tourist attractions. Some of them are "reog", a traditional dance performed in an open arena with magical elements, the main dancer being a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected |

Source: FGD results

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Development programs are proposed to develop rural tourism in the research location, as presented in Table 4.

**Table 4.** Alternatives Programs ~~–~~to the Kedung Ombo Rural Tourism Development ~~Development Program~~

| **Program** ~~Alternatif~~Alternative | **Description** |
|---|---|
| Infrastructure strengthening | ~~Addition and development of road infrastructure, lighting, and internet network~~ Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | ~~Addition and development of tourism facilities and infrastructure~~ Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, internet networks, and other similar things. |
| Private investment strengthening | ~~Increased involvement and investment of the private sector~~ |

| | |
|---|---|
| | Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |
| Information Communication Technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information |
| Capacity building | ~~Community capacity building and other institutions~~ Development of skills and capabilities community, such as leadership, management, finance and fundraising, marketing, programs, and evaluation, so that the development is effective and sustainable. |
| Entrepreneurship development | ~~Community entrepreneurship capacity development~~ Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics and tourism business development. |
| Network development | ~~Network development between tourism village managers, communities, and other institutions~~ Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions in various aspects that can support more successful development. |
| Local financial development | ~~Development of community financial institutions~~ Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |

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| | |
|---|---|
| Maintenance natural resources | ~~Maintenance of potential natural resources.~~ Maintenance of potential natural resources. Resources included in this category include forests and fisheries. |

Source: FGD results

The programs, policies, and alternative scenarios are then evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

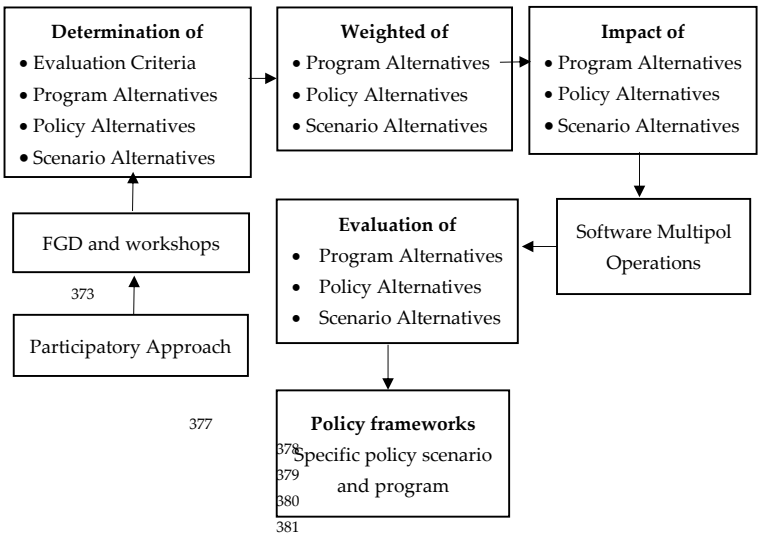


**Figure 2.** Stages of Determining the Best Strategy Based on MULTIPOL Method

## 4. Results

~~This session presents the results of evaluating the suitability between criteria, programs, policies, and scenarios shown in pictures and graphs.~~

This session presents the results of evaluating the suitability between criteria, programs, policies, and scenarios shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0-20).

### 4.1. Conformity Analysis between Programs and Policies

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~~Table 5 shows the relationship and suitability between programs and policies. The mean (mean) and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [62] For example, Table 5 shows that the infrastructure strengthening program is the best, while the local funding strengthening program is poor.~~

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [67]. The three programs that were ranked as the highest position were: strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of Program Performance ~~Against~~ Related to Policies

| Program/Policy | Agrotourism | Natural tourism | Culture tourism | Integrated tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

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Source: The Multipole Analysis Results

From the results of the program-policies evaluation, a graph called a Profile Map is obtained, which presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). On the other hand, Multipol also provides a graph known as a Sensitivity Classification Map, representing the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are most elevated on the graph.

~~As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and programs with the most significant relevance because they support the fulfillment of policies. At the same time, the most effective programs are infrastructure-strengthening programs, governance-strengthening programs, capacity-strengthening, amenities strengthening, and entrepreneur strengthening.~~

~~Figure 5 shows the closeness of each program to each policy; the closer a program is to a policy, the more suitable and effective the program is in supporting the policy's success. For example, Figure 5 shows that governance development programs and ICT strengthening programs are appropriate for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and maintain natural resources are the most appropriate for developing nature-based tourism policies. Likewise, capacity building programs, amenities supporting programs, and entrepreneurial development programs are the most suitable for developing agro-based tourism policies. Meanwhile, local financial development programs, programs to strengthen private investment, and networking programs are most compatible with the integrated tourism policy development policy.~~

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and programs with the most significant relevance to support the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector are programs that can be managed to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the x-axis and the standard deviation on the y-axis, where the closer the distance of a program to a policy, the more appropriate and effective the program supports the success of the policy. From Figure 5, it is known that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private

investment strengthening, and networking development are the most compatible programs with the integrated tourism development policy.

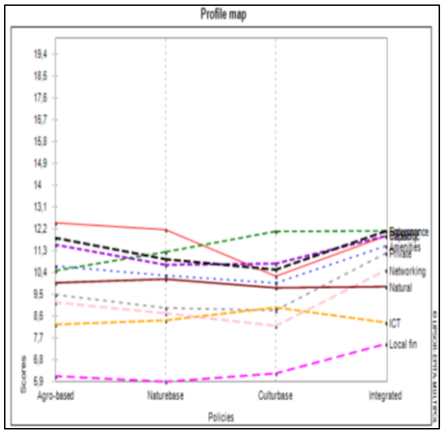


**Figure 3.** Program Profile Map
Source: The Multipol Analysis Results


**Figure 4.** Program Sensitivity Classification Map
Source: The Multipol Analysis Results

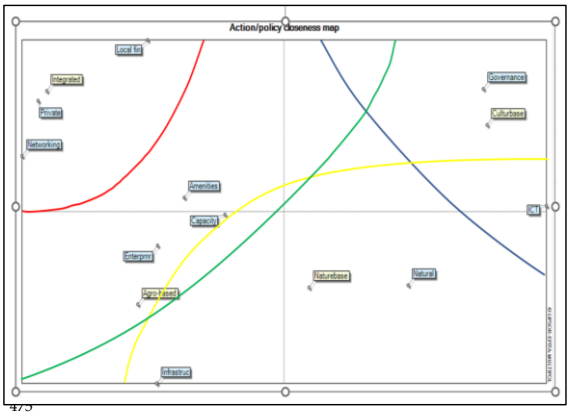


**Figure 5.** Map of the Program's Closeness to Policy

4.2. Conformity Analysis between Policy and Scenario

Next, the results of evaluating the relationship between policies and scenarios and performance ratings are presented (Table 6). Table 6 shows that an integrated policy is the

best, while a culture-based policy is ~~terrible~~ the least best. An integrated policy is a policy that combines various tourism potentials and resources, and plans from all stakeholders. The results of this study follow research [74] which states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries.

**Table 6.** Policy Performance ~~Against~~ Related to Scenarios

| Policies/ Scenario | Leapfrog | Evolution | Resilience | Flamingo | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: The Multipol Analysis Results

Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic), and the roles of related stakeholders, are part of a tourism development strategy that is considered capable of creating successful tourism destinations [75]. Integrated tourism policies are intended to develop integrated tourism destinations explicitly linked to the localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [73]. Furthermore, integrated tourism policies refer to developing alternatives that emphasize a bottom-up approach, centrally involve local stakeholders in their implementation, and are based on local physical, economic, social, and cultural resources [75].

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability and to empower local communities, thereby contributing to the sustainability of the wider region's development system. Specifically, integrated tourism destinations cover two aspects, namely: 1) bringing together various interests, requirements, and needs, in a unified strategic tourism plan, and 2) Unifying tourism with the social and economic life of an area and its community [73].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking maintaining programs are the best when viewed as a policy package. Strengthening private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public-private partnership (PPP), which will be an effective financing solution. The implementation of PPP will also have a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as creating jobs and increasing income for the population.

The networking development program is intended to develop reciprocity relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will encourage all parties' increased ability to optimize resource use, reducing conflicts and taking advantage of opportunities.

The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in under-resourced communities, offering clients financial education, business training, and low-interest loans to increase their economic potential and help build wealth. Public.

~~Figure 6 presents the behavior of the relationship between policies and scenarios. Figure 6 shows that integrated policies are the best in two scenarios: leapfrog and flight of the flamingo. In contrast, agro based policies are the best policies in evolutionary scenarios and resilience policies. Figure 7 shows that agro based policies have the highest probability of success, while integrated policies are the most effective.~~

Figure 6 presents the behavior of the relationship between policies and scenarios. All policies and each scenario are assessed with criteria by experts with a weight per interaction line of 100. The MULTIPOL application allows for the presentation of a graphical interpretation of the policies associated with the scenario matrix profile map, Figure 6. This presents the calculation of the set of policy evaluation matrix weights related to scenario matrix criteria. Figure 6 shows that integrated policies are the best in two scenarios: leapfrog and flight of the flamingo. In contrast, agro-based policies are the best policies in evolutionary scenarios and resilience policies.

As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

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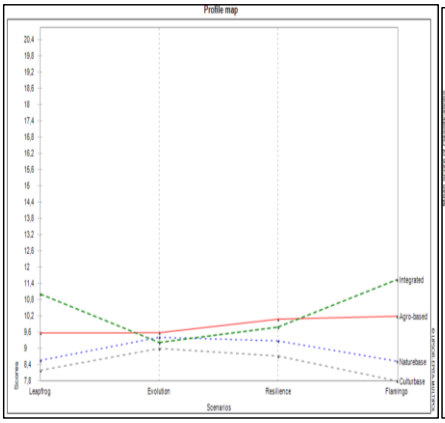


**Figure 6.** Policy Profile Map

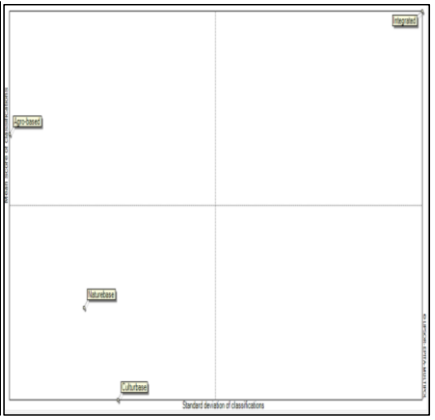


**Figure 7.** Policy Sensitivity Classification Map

Based on the evaluation of the relationship between the policy and the scenario, it is known that the integrated development policy is effective for the leapfrog and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

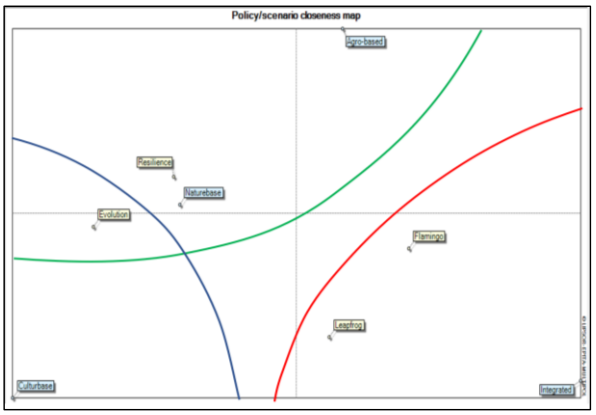


**Figure 8.** Map of Policy Adherence to Scenarios

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs: strengthening private investment, developing networking, and developing

local finance. ~~To successfully carry out integrated policies, policymakers can run them through the flamingo and leapfrog scenarios. The risk from a leapfrog scenario that requires speed and is often patternless is worth considering, given the limitations in~~ Meanwhile, related to how to achieve successful development, policymakers can implement it through the flight of flamingo or leapfroging scenarios. However, the risk from the ~~a~~ leapfroging scenario that requires speed and is often patternless is worth considering, given the particular limitations in governance. Thus the flight of flamingo scenario has the following characteristics: involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, efficient and no corrupt), and sustainable economic growth is the most appropriate scenario to apply [66].

~~governance.~~

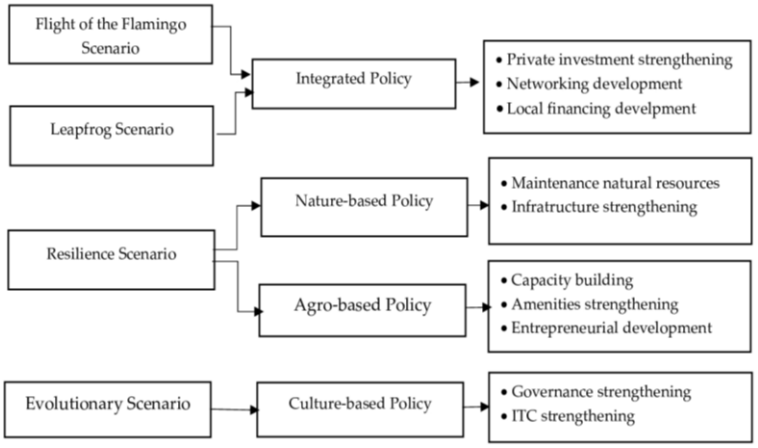


**Figure 9.** Potential Policy Pathways to Achieving Each Future Scenario of Kedung Ombo Rural Tourism

Source: Extracted ftom Multipol Result

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## 5. Conclusions and Future Reseacrh Direction

~~Tourism plays a crucial role in rural development, especially in developing countries. However, lack of capacity, complex institutional settings and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward sustainable management of rural tourism is one of the strategies that could be delivered to achieve sustainable rural tourism. Strategic transformation by providing different pathways toward sustainable management could reduce some obstacles associated with managing the complexity of rural tourism management.~~

### 5.1. Conclusion

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, complex institutional setting, and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward sustainable management of rural tourism is one of the strategies that could be delivered to achieve sustainable rural tourism. Strategic transformation

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by providing different pathways toward sustainable management could reduce some obstacles associated with managing complexity of rural tourism management. Such findings are supported by various research on rural tourism such as [21] ~~Amir et al (2015)~~ and [22] ~~Yang and Zhu (2021)~~ whereby strategic planning of rural tourism could be a catalyst for tourism recovery as well as improving resilience of local economy.

The study also acknowledge that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario through "the flight of flamingo" requires strong stakeholder engagement. Just like it was experienced in South Africa during the transformation toward a democratic country, the "flight of flamingo" scenario is characterized by slow transformation, then fly high and fly together. In the case rural tourism, sustainable transformation also need to be taken slowly and involves all stakeholders. It is also recognized that the transformation might not be running smoothly, therefore some adjustment might be needed along the way once the decision toward sustainable transformation is reached.

~~This study emphasizes the discovery of transformation pathways which provide a policy framework in the development of rural tourism to develop a comprehensive policy strategy considering the interests of various stakeholders. The focus of research is on the sustainability of tourist villages in the Kedung Ombo reservoir area, Central Java, Indonesia. However, the results of this study can be a bridge or bridging and can be scaled up at a broader level, especially rural tourism in several developing countries which have the same characteristics.~~

~~The participatory approach used in data collection facilitated a variety of inputs from interested parties at the research sites. The Multipole method from La Prospective is used to evaluate a set of alternative programs, policies, and scenarios, in order to determine the best policy package as a policy direction for rural tourism development in the Kedung Ombo area. Both of these approaches are new approaches in research on rural tourism, especially in developing countries.~~

The results of the analysis show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy option for sustainable transformation. An Integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural resources, could be developed using an agro-cultural based policy, that is, combing natural based agricultural tourism with cultural assest owned by rural communities. This conclusion is supported by other studies such Curcic et al [23] ~~(2021)~~ whereby diversification of natural and cultural assets could enhanced the sustainability of rural tourism. Such a policy needs strong support from private investment as well as local financial sources. The effectiveness of the policy will also depend on the strong network development, appropriate entrepreneur development program and strong capacity building of the communities. This is in line with other findings such as Khartishvili et al [10] ~~(2015)~~ that rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition lack of awareness and capacity of local community could be obstacles for transformation for sustainable tourism [34] ~~(Lane, 1994).~~ ~~ies allow~~

~~all tourism potential in an area to be developed in a coordinated manner so that the interests of all stakeholders are met. Integrated policies are also a combination of agro-based policies, nature-based policies, and culture-based policies which are quite promi-~~

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nent in the research locations. The programs that effectively support the success of integrated policies are: private investment strengthening programs, network development programs, and local financial development programs.

In order to increase the effectiveness of the implementation of the policy packages and superior programs found, the rural tourism development process must be carried out in the right scenario. Based on the findings of the inclusive flight of the flamingo research scenario, this is the right scenario. This scenario guarantees the involvement of all parties in the rural tourism development process. In accordance with the Multipol method, this best scenario has considered the availability of resources, the risks and the probability of success.

The results of this study become a model for institutional-based rural tourism development in other regions, which often has problems with coordination factors related to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, risks and possible levels of success.

This study emphasizes the discovery of transformation pathways that provide a policy framework for developing rural tourism to develop a comprehensive policy strategy considering the interests of various stakeholders. The research focuses on the sustainability of tourist villages in the Kedung Ombo reservoir area, Central Java, Indonesia. However, the results of this study can be a bridge or bridging. They can be scaled up at a broader level, especially rural tourism in several developing countries with the same characteristics.

The participatory approach used in data collection facilitated a variety of inputs from interested parties at the research sites. In addition, the Multipol method from La Prospective is used to evaluate a set of alternative programs, policies, and scenarios, to determine the best policy package as a policy direction for rural tourism development in the Kedung Ombo area. Both are new approaches in research on rural tourism, especially in developing countries.

The analysis results show that an integrated development policy involving all stakeholders, facilitating cross-regional cooperation, and the support or participation of all stakeholders is the best policy. The integrated policies allow all the tourism potential to be developed coordinated manner so that the interests of all stakeholders are met. Integrated policies are also a combination of agro-based, nature-based, and culture-based policies, which are prominent in the research locations. The programs that effectively support the success of integrated policies are: private investment strengthening programs, network development programs, and local financial development programs.

The exemplary scenario needs to increase the effectiveness of the policy packages and superior programs in the rural tourism development process. Based on the research findings, the inclusive flight of the flamingo and leapfrog scenario is the prominent scenario. This scenario guarantees the involvement of all parties in the rural tourism development process. Under the Multipol method, this best scenario has considered the availability of resources, the risks, and the probability of success.

The results of this study become a model for institutional-based rural tourism development in other regions, which often have problems with coordination factors related to the many parties involved. Finally, the results of this study can serve as a road map for policymakers in various regions in developing integrated nature-based rural tourism by considering the availability of resources, risks, and possible levels of success.

## 5.2. 6. Future Research Direction

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The contribution of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to findings of this study and relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenarios. In our study, each transformation pathways are assumed to be independent, yet they might interconnect in the space and time. Such a study, therefore, could provide a deeper insight how the policies and actions are changing over time and how they adapt to the dynamic of rural institutional setting.

Second, further research that considers the risk and uncertainty related to that transformation toward sustainable tourism is needed. This is due to the fact that stakeholders in rural areas might behave as risk-averse and avoid any structural changes in tourism management that consider costly. Further examination of risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge on the overall benefits and costs of managing rural tourism.

Third, this study employed mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination using was carried out for filtering the interest of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further examination such factors could provide a more robust strategies for sustainable rural tourism transformation.

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# Pathways toward the Transformation of Sustainable Rural Tourism Management in Central Java, Indonesia

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, the complexity of rural institutions, and the dynamics of future changes. In addition, it must be inclusive. This paper presents transformation pathways toward sustainable rural tourism management in developing countries. The general objective is to develop sustainable development strategies in the context of rural tourism. The specific objectives are to develop policy pathways and the best scenarios in this context. The study was conducted in the Kedung Ombo area in Central Java, Indonesia: a representative area involving several districts and other public organizations as stakeholders. Data analysis was performed using the MULTIPOL method. The results show that an integrated development policy that considers the interests of all stakeholders, the potential of rural resources, the infrastructure, and human resources capacity would be the optimal policy. Priority programs to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the "flight of the flamingos" and "leapfrogging" scenarios can be considered to achieve future tourism growth goals and objectives. This study is an essential resource for authorities in determining rural tourism development policies in the research location and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1], and has been ~~it is~~ recognized as an essential means of economic development in rural areas [2,3]. It ~~is~~has been recognized both directly and indirectly as a catalyst for development ~~progress~~ in rural areas [4], and ~~it~~ is capable of ~~being~~becoming a strategic lever in revitalizing the economy of rural regions and of supporting the alleviation of poverty ~~alleviation~~ [5,6]. Although the development of rural tourism sometimes triggers conflicts between various parties, its perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of generating employment and income, combating rural exodus, and facilitating socio-economic networking, and it is capable of becoming a vehicle for processing and enhancing cultural and natural heritage and improving the quality of life for local residents [8–10]. For example, during the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality, environmental degradation, and saving the community's culture [12]. It is an endogenous alternative to developing tourism in less-developed areas, as it allows ~~the~~ local people to increase their

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income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism that aims to meet the needs of current residents and tourists without compromising the needs of future generations [14–16]. According to Gao and Wu [17], rural tourism should not be understood only as solely a type of tourism, but also as a tool for conserving and regenerating rural society and culture.

Indonesia is endowed with rich material and cultural capital that could be developed for tourism activities. In addition, the tourism sector plays a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages. Since 2021, this has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth and people's welfare; eradicate poverty; overcome unemployment; preserve nature, the environment, and natural resources; and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage the villages' social, cultural, and economic transformation. [19]. Even though some studies, such as Hua [20], have found that rural related factors are not contributing factors for rural development from tourism, most studies [21–23] have shown that the success of the tourism village will become a lever for both the village and the regional economy: ultimately driving national economic growth.

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According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1831. YetHowever, only 2.73% of thesem have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions in the community economy. This number is tiny compared towith the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as pilot, developing, developed, and independent villages [24]. Many factors causecontribute to the low number of developed tourism villages~~. Contributing factors are~~, including a lack of understanding ofon the part of policymakers at the village government and regional government levels inregarding the comprehensively developmenting a of tourism villages, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects.

As a complex system, tourism development requires careful planning~~, which~~ that is supported by all stakeholders [25–29]~~,~~ and it should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate a form of tourism that tends to have a detrimental effect on social and natural conditions [31]. According to An and Alarcón [32], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically, and it must be based on the potential of an area [33]. Therefore, the success of tourism development is highly dependent on the integration of policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and coordinated actions and policies. A different policy pathway might be needed for another type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

The general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by developing transformation pathways toward the sustainable management of rural tourism in an institutional context in the Kedung Ombo reservoir area, Central Java Province, Indonesia. Thise objective can be broken down into three specific objectives based on three research questions:

1. What strategies can be used to promote sustainable rural tourism in the nature-based Central Java area?
2. What policies can be implemented to support transformation toward sustainable rural tourism development?

3. What are the potentials and best scenarios for sustainable rural tourism development?

Developing sustainable tourism is very important in the context of rural tourism, as stated by Lane [34], as sustainable strategies couldcan reconcile conflicting demand, avoid wasteful investment and efforts, and ~~seek out~~identify niche markets where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for tourism recovery in the case of disturbances experienced by rural tourism [22]. This study extends the line of research in rural development strategies by enhancing strategic options through the development of~~ing~~ pathways for policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing the ~~tourism potential in~~ Indonesia's tourism potential, as the parties involved in tourism in the area (the local government, forest area managers, dam managers, and the community) have weak coordination and synergy. As a result of this, conflicts often arise, especially concerning land use rights and the division of authority.

In the Kedung Ombo reservoir area, there are eight (8) tourist villages: Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari. However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, according to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area arehave been categorized as developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods, through several strategic analyses focused on the in-situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies that arehave been not only implemented in the Kedung Ombo case but have become bridges andthat can be scaled up at a broader level, especially tourist villages in developing countries that have the sameshare similar characteristics. The study is also the first to create a comprehensive policy strategy that considersing the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

As one of thea natural resource-based economic sector~~s~~, rural tourism is highly dependent on the goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development is sustainable only if it is planned strategically to reach goals whose effects are manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects~~:~~, and where there is a coordination of~~ing and~~ balanced~~ing~~ relationships between various stakeholders thatand emphasizes~~ing~~ fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, protect the local culture, and promote local products [39].

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The success of sustainable tourism development is highly dependent on an appropriate [40] and comprehensive [30] policy framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis between the environment and social life [42]. Successful tourism development requires an in-depth study of systems; their performance, budget constraints, and implications for the economy; and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by the coordination of all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and inclusive decision-making [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]. Researchers from various countries have developed their descriptions based on the unique experiences or contexts they have encountered [47]. The World Tourism Organization (WTO) defines rural tourism as products that which gives visitors personal contact and experiences with the physical environment and rural life and enables them to participate in the activities, traditions, and lifestyles of the local community [14]. Most authors define rural tourism as tourist activities in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, and ecotourism [48,49]. Rural tourism is a new development model combining modern tourism with the traditional agricultural culture [50]. The three main attributes of rural tourism are culture, nature, and history [51].

There has been much debate about the definition of a tourist village in the literature, but it has yet to without reach~~ing~~ a firm consensus [52]. The diversity of literature and the different meanings of the terminology involved in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts with accommodation in traditionally furnished rooms and traditional breakfasts based on homemade products. In Finland, rural tourism usually involves the rental of cottages. In Netherlands, the product of rural tourism means camping on farms and engaging in bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a special meaning: it refers to tourism in villages and presents village life plus traditions with the active participation of visitors [51]. W. Nuryanti defines the tourism villages in Indonesia as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

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From the various definitions, a tourist village can be interpreted as a rural area with particular characteristics that make it a tourist destination and the local community's physical uniqueness, social life, and culture serving as attractions. The crucial factors of sustainable rural tourism are: (1) that it takes place in rural areas and is functionally rural,~~;~~ (2) that the purpose of visiting tourists is to study, be actively involved, experience, or enjoy the attractions,~~;~~ (3) that tourism attributes in the form of culture, nature, history, and unique rural activities are offered as attractions,~~;~~ (4) that it requires the collaboration and involvement of key stakeholders (i.e., tourists, rural communities, businesses, and government agencies),~~;~~ and (5) that sustainability, in both social~~,~~ and economic development~~,~~ and in environmental preservation, is emphasized [41]. In addition, the development of tourist villages can provide benefits ~~in the form of~~ by (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood

activities and ~~lifestyle~~ communities'~~y~~ traditional lifestyles, (6) reducing urban-to~~a~~-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for the sustainability of rural tourism [50]. For example, a qualitative approach, such as the Delphi technique, can be used to determine the priority ranking for rural tourism development in Russia. In Hungary, Trukhachev [56] used an event-based approach to integrate rural tourism. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism [57]. Meanwhile, Kumar et al. [58] used an interpretative structural modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches listed above, one method commonly used in developing sustainability strategies is the SWOT approach and its variations, such as AWOT (the combination of AHP and SWOT) and TOWS. Such an approach was used in the case of rural tourism in Iran [58]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing the need to strengthen~~ing~~ the role and capacity of the community. A similar approach was taken by Vipriyanti et al. [59] in the case of rural ecotourism in the Bali region of Indonesia.

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Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] have used a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, Xie and He [60] used artificial intelligence (machine learning) to develop a marketing strategy: one of rural tourism's sustainability strategies.

This study uses the prospective method, which has rarely been used in rural tourism, to develop future strategies for rural tourism. It is the first to use prospective analysis for rural tourism in Indonesia. Nevertheless, this method can be scaled up and applied to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation in the Kedung Ombo area and to develop a basis for future research ~~reach future thinking~~. The Kedung Ombo Rreservoir is the largest in ~~S~~southeast Asia, with an area of 6576 hectares consisting of 2830 hectares of water and 3746 hectares of plains. The dam's location crosses three districts: Grobogan Rregency, Sragen Rregency, and Boyolali Rregency (Figure 1). From the aspect of accessibility, this area is easily accessible. However, the condition of the infrastructure still needs improvement in terms of related to the quality and structure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

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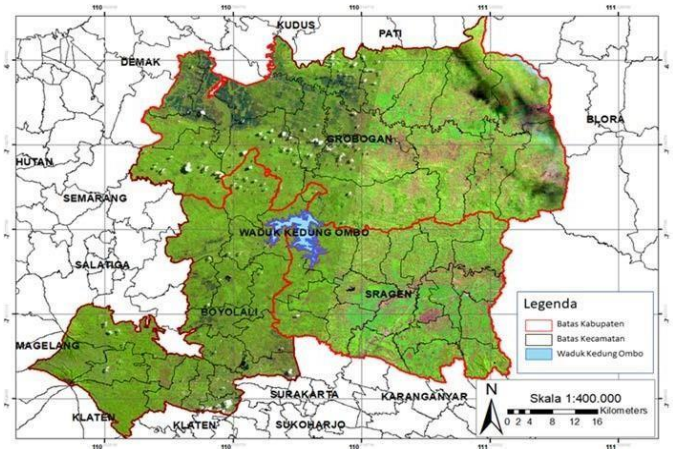


**Figure 1.** Map of the Kedung Ombo aArea.

The Kedung Ombo area is ~~in~~ a hilly, forested area. In addition to the dam landscape, with beautiful and natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in 1991, several community groups, forest managers, the local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some of these have beenm are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development inacross the region. To strengthen this goal, the multicriteria and policy (MULTIPOL) prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that can be appliedy ~~to~~ to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

The research data isare processed with the MULTIPOL computer program software developed by the LIPSOR organization. The goal is to identify which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages toand achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [61]~~,~~ in an institutional context [62]. It facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus [63]. Experts assign weights to each policy based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [64]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen the understanding of causal relationships [65].

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshop methods. The FGD selected comprised twenty people consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a

**Commented [RE13]:** Is the intended meaning here "For the FGD, twenty people were selected"?

way as to make it possible to present the opinions of each stakeholder equally. MULTIPOL combines two different types of evaluation: (1) the program evaluation of policies to determine which programs are most appropriate and to prioritize specific policies; and (2) the evaluation of policies against scenarios to determine the most appropriate policies to become priority policies for specific scenarios [58].

The MULTIPOL method ~~is~~has been developed to address three problems in decision making:

- Selecting the best actions
- Classifying the actions into sub group (sorting)
- Ranking the actions

~~It~~This allows a comparative evaluation to be made about the actions while taking into account different contexts of policies and scenarios. In MULTIPOL, a comparative evaluation can be made in a simple way even as it~~, yet it~~ encompasses the complexity of decision problems. The advantages of the MULTIPOL method therefore lies in its simplicity and flexibility of utilization [66]. Another advantage of MULTIPOL is that it is a feature that integrates a participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also accommodates uncertainty and enables a testing of the effectiveness of different policies and actions in different scenarios [67,68].

The structure of the MULTIPOL method consists of four elements [67]:

1. The evaluation criteria describe the fundamental aspects for~~of~~ assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects (Table 1).

**Table 1.** Criteria for the ~~S~~success of Kedung Ombo ~~R~~rural ~~T~~tourism ~~D~~development.

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |
| Accountability | Institution | 4 | Increase accountability |

Source: Focus group discussion results.

2. Scenarios show a structured picture of the future in which the goals and objectives will be achieved. In this case, scenarios are ways that can achieve successful rural tourism development in the Kedung Ombo area. The FGD decided on four alternative scenarios to be evaluated (Table 2): (1) the leapfrogging scenario, (2) the evolutionary scenario, (3) the resilience scenario, and (4) the flight of the flamingos scenario.

**Table 2.** Alternative ~~S~~scenarios for Kedung Ombo ~~R~~rural ~~T~~tourism ~~D~~development.

| Scenario Alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | The way to achieve the success criteria for tourism development is fast and unpatterned, skipping several stages of the traditional development process to go straight to new development, and it has no link with previous development strategies [69]. |
| Evolutionary | 4 | The way to achieve the success criteria for tourism development is slow and gradual, focusing on how tourism changes through a less dynamic process over time [70]. |
| Resilience | 3 | The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [71]. |
| Flight of the flamingos | 6 | The way to achieve the success criteria of tourism development is supported by consistent and efficient policies and moral investment [72]. |

Source: Focus group discussion results.

**Commented [RE14]:** Consider adding another sentence to describe this scenario more here (e.g., why is it called the flight of the flamingos?) as it is key to the study.

3. Policy describes strategies for achieving goals and objectives related to the political, social, economic, and physical contexts. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [73]. This study proposes four alternative policies (Table 3): (1) ~~the~~an agro-based policy~~,~~; (2) ~~the~~a nature-based policy~~,~~; (3) ~~the~~a culture-based policy~~,~~; and (4) ~~the~~an integrated policy.

**Table 3.** Alternative Kedung Ombo ~~R~~rural ~~T~~tourism ~~D~~development ~~P~~policies.

| Policy Alternatives | Weight | Description |
|---|---|---|
| Agro-based policy | 5 | The tourism development policies are based on agricultural and plantation products. The Kedung Ombo area is suitable for developing tropical fruits, including longan, tailings, guava, mango, "matoa," and durian, and for fishing. |
| Nature-based policy | 5 | Tourism development policies are based on natural potential. Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including the panorama of the vast surface of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are several regional arts that have the potential to be developed as tourist attractions. Some of these~~m~~ are "reog", a traditional dance performed in an open arena with magical elements in which the main dancer is a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a |

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| | | |
|---|---|---|
| | | cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected. |

Source: Focus group discussion results.

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Several development programs are proposed to develop rural tourism in the Kedung Ombo area, as presented in Table 4.

**Table 4.** Alternative~~s~~ ~~P~~programs ~~to~~for Kedung Ombo ~~R~~rural ~~T~~tourism ~~D~~development.

| Program Alternative | Description |
|---|---|
| Infrastructure strengthening | Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, and internet networks. |
| Private investment strengthening | Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |
| Information ~~C~~communication ~~T~~technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information. |
| Capacity building | Development of the skills and capabilities, such as leadership, management, finance and fundraising, marketing, programs, and evaluation, of a community ~~, such as leadership, management, finance and fundraising, marketing, programs, and evaluation,~~ so that the development is effective and sustainable. |
| Entrepreneurship development | Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics, and tourism business development. |
| Network development | Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions in various aspects that can support more successful development. |
| Local financial development | Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |

| | |
|---|---|
| Maintenance of natural resources | Maintain potential natural resources. Resources included in this category include forests and fisheries. |

Source: Focus group discussion results.

Next, the programs, policies, and alternative scenarios ~~a~~were evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

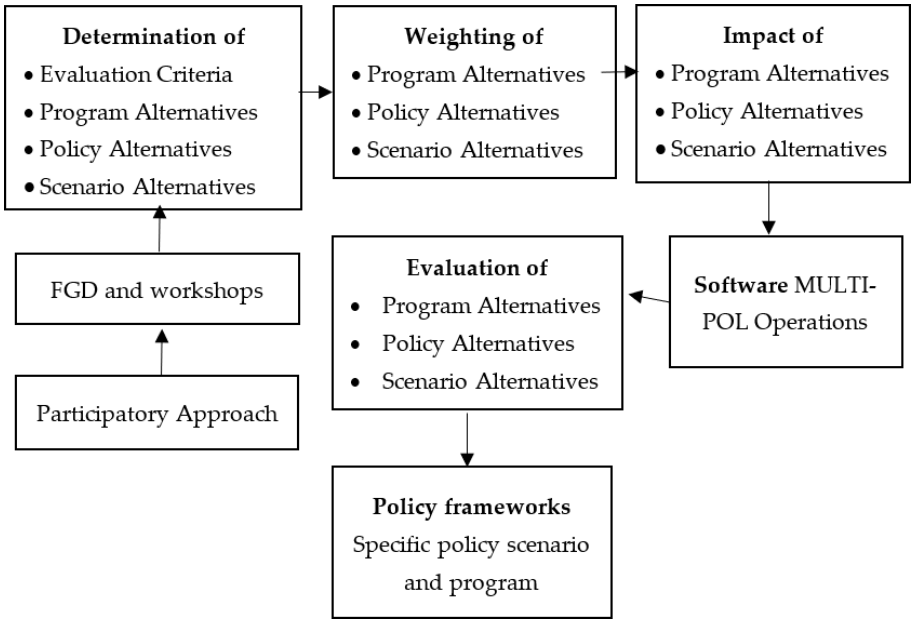


**Figure 2.** Stages of determining the best strategy based on the MULTIPOL method.

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## 4. Results

This section presents the results of the evaluation of the suitability between criteria, programs, policies, and scenarios. The results are shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0–20).

### *4.1. Conformity Analysis between Programs and Policies*

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending

on the average value [67]. The three programs ranked in the highest position were strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of ~~P~~program ~~P~~performance ~~R~~related to ~~P~~policies.

| Program/Policy | Agrotourism | Natural Tourism | Culture Tourism | Integrated Tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance of natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

Source: MULTIPOL analysis results.

From the results of the evaluation of programs and- policies ~~evaluation~~, a graph called a profile map was obtained from MULTIPOL~~,~~. This graph ~~which~~ presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). MULTIPOL also provides a graph known as a sensitivity classification map, which represents the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are elevated the most on the graph.

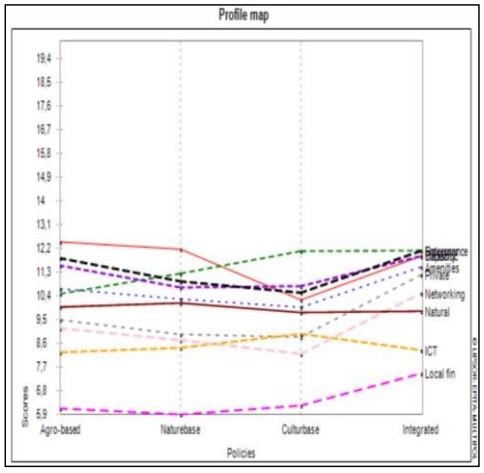


**Figure 3.** Program profile map (Source: MULTIPOL analysis results).

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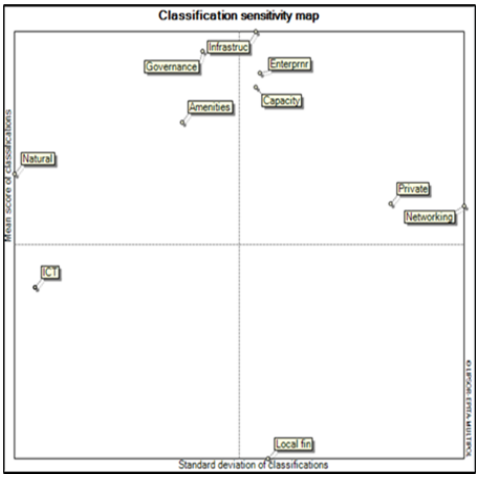


**Figure 4.** Program sensitivity classification map (Source: MULTIPOL analysis results).

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and are programs with the most significant relevance to supporting the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector can be managed so as to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the X-axis and the standard deviation on the Y-axis. The closer the distance of a program to a policy, the more appropriate and effective the program is in terms of supporting the success of the policy. Figure 5 shows that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private investment strengthening, and networking development are programs that are the most compatible with the integrated tourism development policy.

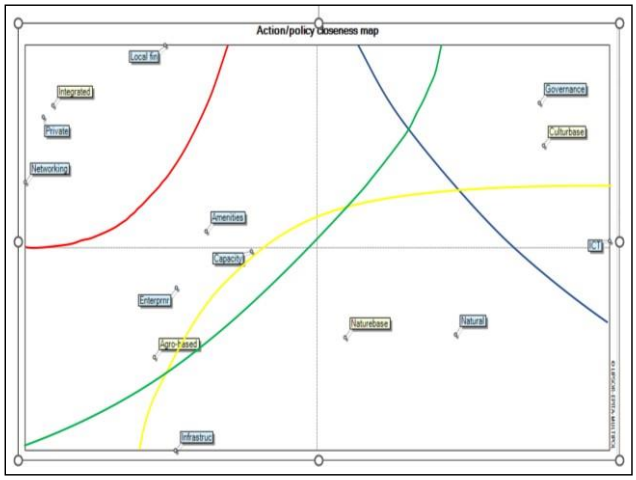


***Figure 5.*** Map of the program's closeness to policy.

*4.2. Conformity Analysis between Policy and Scenario*

Next, the results of the evaluation of~~ing~~ the relationship between policies, ~~and~~ scenarios and performance ratings are presented (Table 6). Table 6 shows that an integrated policy is the best, while a culture-based policy is the least ~~best~~effective. An integrated policy is a policy that combines various tourism potentials, ~~and~~ resources and plans from all stakeholders. The results of this study follow ~~research~~ [74], which ~~that~~ states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries.

**Table 6.** Policy ~~P~~performance ~~R~~related to ~~S~~scenarios.

| Policies/Scenario | Leapfrogging | Evolution | Resilience | Flamingos | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: MULTIPOL analysis results.

Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic) and the roles of related stakeholders are part of a tourism development strategy that is considered capable of creating successful tourism destinations [75]. Integrated tourism policies are intended to develop integrated tourism destinations explicitly linked to localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [73]. Furthermore, integrated tourism policies refer to the development of~~ing~~ alternatives that emphasize a bottom-up approach, centrally involve local stakeholders in their implementation, and are based on local physical, economic, social, and cultural resources [75].

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability, ~~and~~ to empower local communities; and to thereby contribute~~ing~~ to the sustainability of the wider region's development system.

Specifically, integrated tourism destinations cover two aspects: (1) a bringing together of various interests, requirements, and needs in a unified strategic tourism plan,; and (2) a unification ofying tourism with the social and economic life of an area and its community [73].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking development programs are best when viewed as a policy package. The Sstrengthening of private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public–private partnership (PPP), which is an effective financing solution. The implementation of PPP has a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as job creation and increased income for the population.

The networking development program is intended to develop reciprocal relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will thus encourage all parties to optimize resource use, reduce conflicts, and take advantage of opportunities.

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The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in under-resourced communities. They offer financial education, business training, and low-interest loans to clients to increase their economic potential and to help build wealth.

Figure 6 presents the behavior of the relationship between policies and scenarios. All policies and each scenario are assessed with criteria by experts with a weight-per- interaction line of 100. The MULTIPOL application allows for the presentation of a graphical interpretation of the policies associated with the scenario matrix profile map in Figure 6. This presents the calculation of the set of policy evaluation matrix weights related to scenario matrix criteria. Figure 6 shows that integrated policies are the best policies in two scenarios: the leapfrogging scenario and the flight of the flamingos scenario. In contrast, agro-based policies are the best policies in the evolutionary scenario and culture-based policies are the best in the resilience scenario.

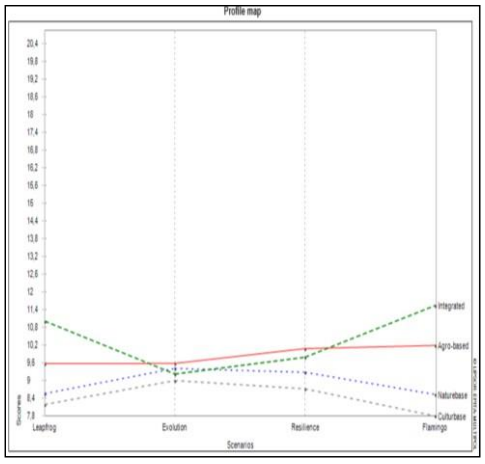

**Figure 6.** Policy profile map.

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As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

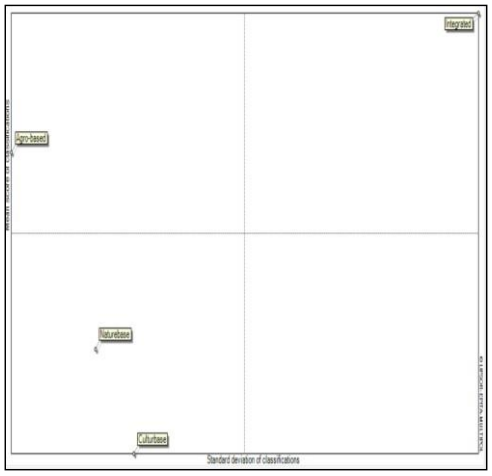


**Figure 7.** Policy sensitivity classification map.

Based on the evaluation of the relationship between the policy and the scenario, it can be seen that the integrated development policy is effective for the leapfrogging and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

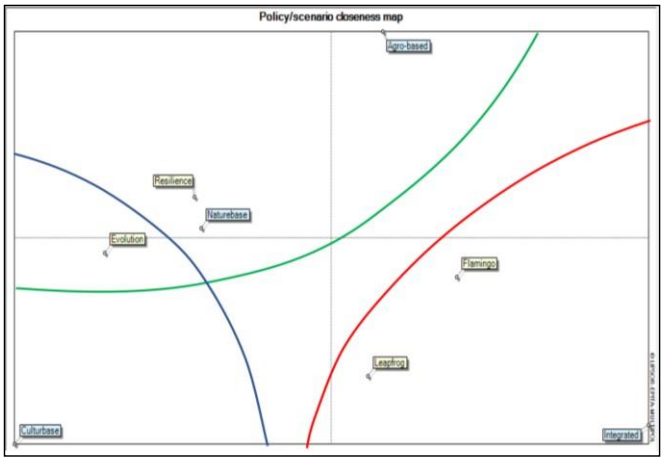

**Figure 8.** Map of policy adherence to scenarios.

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

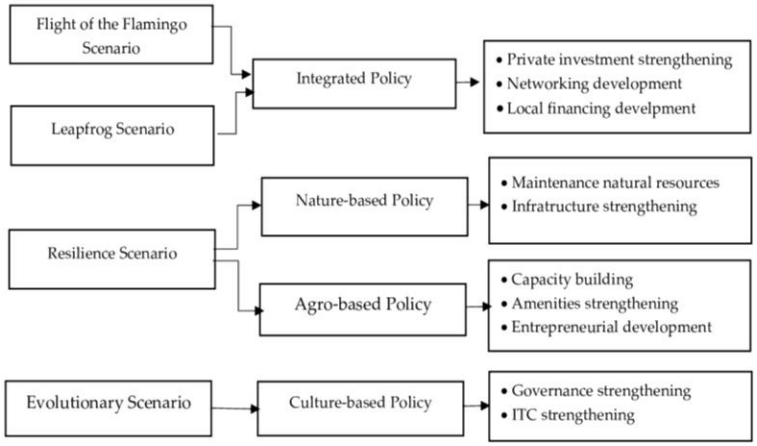


**Figure 9.** Potential policy pathways to the achievement of~~ing~~ each future scenario of Kedung Ombo rural tourism (Source**:** Extracted from MULTIPOL results).

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As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs~~:~~ that include strengthening private investment, developing networking, and developing local finance. Meanwhile, related to question of how to achieve successful development, policymakers can implement this~~it~~ through the flight of the flamingos or leapfrogging scenarios. However, the risks of the leapfrogging scenario ~~is~~are worth considering, given the particular limitations ~~in~~of governance, as it requires speed and is often patternless. Thus, the flight of the flamingos scenario is the most appropriate scenario to apply in the area, as it involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, that is efficient and not corrupt), and sustainable economic growth [66].

## 5. Conclusions and Future Research Direction

### *5.1. Conclusions*

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, a complex institutional setting, and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward the sustainable management of rural tourism is one of the strategies that could be delivered. By providing different pathways toward sustainable management, strategic transformation could reduce some obstacles associated with the complexity of rural tourism management. Such findings are supported by various ~~research~~ studies on rural tourism, such as [21,22], whereby the

strategic planning of rural tourism could be a catalyst for tourism recovery and an improvement in the resilience of the local economy.

The study also acknowledges that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario (the flight of the flamingos) requires strong stakeholder engagement. Just as was experienced in South Africa during the transformation toward a democratic country, the flight of the flamingos scenario is characterized by slow transformation, then flying high and flying together. In the case of rural tourism, sustainable transformation also needs to be taken slowly and involve all stakeholders. It is also recognized that the transformation might not run smoothly, therefore adjustments might be needed along the way once the decision toward sustainable transformation is reached.

The results of the analysis show that an integrated development policy ~~involving all~~ stakeholders,that ~~facilitating~~ facilitates cross-regional cooperation,~~-~~ and that has the support or participation of all stakeholders is the best policy option for sustainable transformation. An integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural, could be developed using an agro-cultural based policy by combining natural-based agricultural tourism with cultural assets owned by rural communities. This conclusion is supported by other studies, such as that of Ćurčić et al. [23], whereby the diversification of natural and cultural assets could enhance the sustainability of rural tourism. Such a policy needs strong support from private investment as well as from local financial sources. The effectiveness of the policy will also depend on strong network development, an appropriate entrepreneur development program, and strong capacity building in the communities. This is in line with other findings, such as those of Khartishvili et al. [10]~~-~~, wherein~~that~~ the rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition, a lack of awareness and ~~the~~ capacity on the part of the local community could be obstacles for transformation toward sustainable tourism [34].

The results of this study can may become a model for institutional-based rural tourism development in other regions, which often encounters problems related to coordination due to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in the developing development of integrated nature-based rural tourism by considering the availability of resources, the risks, and possible levels of success.

### *5.2. Future Research Direction*

The contributions of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to the findings of this study and are relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenario~~s~~. In our study, each transformation pathway is assumed to be independent, yet the pathways might interconnect in space and time. Such a study, therefore, could provide a deeper insight into how policies and actions change over time and how they adapt to the dynamic of the rural institutional setting.

Secondly, further research that considers the risk and uncertainty that is related to the transformation toward sustainable tourism is needed due to the fact that stakeholders in rural areas might be risk-averse and avoid any structural changes in tourism management that they consider costly. Further examination of the risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge regarding the overall benefits and costs of managing rural tourism.

Thirdly, this study employs mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination ~~using~~ was carried out to filter the interests of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further

**Commented [RE22]:** Is the intended meaning here "the reluctance of" or "the lack of participation of"?

**Commented [RE23]:** Is the intended meaning here "using FGD" or "using MULTIPOL"?

**Commented [RE24]:** Is the intended meaning here "incorporate" or "reflect"?

examination of such factors could provide more robust strategies for the transformation toward sustainable rural tourism.

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**Conflicts of Interest:**

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# Pathways Toward the Transformation of Sustainable Rural Tourism Management in Central Java, Indonesia

**Nafiah Ariyani[1*], Akhma Fauzi [2]**

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**Abstract:** Managing sustainable rural tourism requires a strategic transformation adapted to local conditions, the complexity of rural institutions, and the dynamics of future changes. In addition, it must be inclusive. This paper presents transformation pathways toward sustainable rural tourism management in developing countries. The general objective is to develop strategies to promote sustainable rural tourism, as well as to develop policy pathways, and the best scenarios in the rural tourism development context as the specific objectives. The study was conducted in the Kedung Ombo area in Central Java, Indonesia: a representative area involving several districts and other public organizations as stakeholders. Data analysis was performed using the MULTIPOL method. The results show that an integrated development policy that considers the interests of all stakeholders, the potential of rural resources, the infrastructure, and human resources capacity would be the optimal policy. Priority programs to be implemented are infrastructure development, strengthening private investment, strengthening governance, developing amenities, and developing information and communication technology. Furthermore, the "flight of the flamingos" and "leapfrogging" scenarios can be considered to achieve future tourism growth goals and objectives. This study is an essential resource for authorities in determining rural tourism development policies in the research location and can be applied in other areas with similar characteristics.

**Keywords:** transformation pathways; sustainable rural development; sustainable rural tourism strategies; multi policies (MULTIPOL method); multicriteria analysis; tourism planning

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## 1. Introduction

Rural tourism has shown significant growth in recent decades [1], and has been recognized as an essential means of economic development in rural areas [2, 3]. It has been recognized both directly and indirectly as a catalyst for progress in rural areas [4], and is capable of becoming a strategic lever in revitalizing the economy of rural regions and supporting of the alleviation of poverty [5, 6]. Although the development of rural tourism sometimes triggers conflicts between various parties, its perceived social and economic benefits have encouraged the development of rural tourism in multiple countries [7]. Rural tourism exists as a vector of sustainable development capable of generating employment and income, combating rural exodus, and facilitating socio-economic networking, and it is capable of becoming a vehicle for processing and enhancing cultural and natural heritage and improving the quality of life for local residents [8, 9, 10]. For example, during

the Covid-19 pandemic in China, rural tourism became the main driving force for rural revival and the fight against poverty [11].

Rural tourism is an embodiment of community-based tourism, which is believed to counteract the negative impacts of mass tourism related to social equality, environmental degradation, and saving the community's culture [12]. It is an endogenous alternative to developing tourism in less-developed areas, as it allows of the local people to increase their income through new economic activities without replacing the dominant traditional activities [13]. Rural tourism is a form of sustainable tourism that aims to meet the needs of current residents and tourists without compromising the needs of future generations [14], 15, 16]. According to Gao and Wu [17], rural tourism should not be understood as solely as a type of tourism, but also as a tool for conserving and regenerating rural society and culture.

Indonesia is endowed with rich material and cultural capital that could be developed for tourism activities. In addition, the tourism sector plays a paramount role in the Indonesian economy [18]. In Indonesia, rural tourism is manifested in the form of developing tourist villages. Since 2021, this has been determined by the Coordinating Ministry for Economic Affairs to be the direction of tourism development in rural areas. The goal is to increase economic growth and people's welfare; eradicate poverty; overcome unemployment; preserve nature, the environment, and natural resources; and promote culture. The development of tourist villages is expected to accelerate village development in an integrated manner to encourage the villages' social, cultural, and economic transformation. [19]. Even though some studies such as Chin [20], have found that rural related factors are not contributing factors for rural development from tourism, most studies [21, 22, 23] have shown that the success of the tourism village will become a lever both for the village and the regional economy: ultimately driving national economic growth.

According to the Central Bureau of Statistics, in 2021, tourism villages in Indonesia totaled 1,831. However, 2.73% of these have become advanced tourist villages, which is indicated by the increasing variety of occupations of the population, the development of public facilities and infrastructure, and the improving social conditions in the community economy. This number is tiny compared with the number of tourist villages, which continues to increase yearly. In Indonesia, tourist villages are categorized as pilot, developing, developed, and independent villages [24]. Many factors contribute to the low number of developed tourism villages, including a lack of understanding on the part of policymakers at the village and regional government levels are regarding the comperehensive development of tourism villages, the absence of planning involving stakeholders, overlapping policies, and planning that emphasizes technical aspects.

As a complex system, tourism development requires careful planning, that is supported by all stakeholders [25 – 29,] and it should be based on a strategic approach that is goal-oriented and comprehensive [30]. The absence of proper planning will generate a form of tourism that tends to have a detrimental effect on social and natural conditions [31]. According to An and Alarcón [31], tourism development requires a planning and management process that brings together the interests and concerns of various stakeholder groups sustainably and strategically, and it must be based on the potential of an area [33, 34]. Therefore, the success of tourism development is highly dependent on the integration of policies, planning, and management tools [19]. However, sustainable rural tourism development cannot be achieved instantly because it involves complex institutional arrangements and coordinated actions and policies. A different policy pathway might be needed for another type of action and under different scenarios. Therefore, a framework of analysis that provides such a pathway needs to be developed.

The general objective of this paper is to develop sustainable tourism strategies in the context of rural tourism by developing transformation pathways toward the sustainable

management of rural tourism in an institutional context in the Kedung Ombo reservoir area, Central Java Province, Indonesia. This objective can be broken down into three specific objectives based on three research questions:

1. What strategies can be used to promote sustainable rural tourism in the nature based Central Java area?
2. What policies can be implemented to support transformation toward sustainable rural tourism development?
3. What are the potentials and best scenarios for sustainable rural tourism development?

Developing sustainable tourism is very important in the context of rural tourism as stated by Lane [34], as sustainable strategies can reconcile conflicting demand, avoid wasteful investment and efforts, and identify niche markets where tourism success can be achieved. Finding the best policies and scenarios could also be useful vehicles for tourism recovery in the case of disturbances experienced by rural tourism [22]. This study extends the line of research in rural development strategies by enhancing strategic options through the development pathways of policies and actions toward sustainable rural tourism.

The Kedung Ombo area represents the complexity of the problem of developing Indonesia's the tourism potential, as the parties involved in tourism in the area (the local government, forest area managers, dam managers, and the community) have weak coordination and synergy. As a result of this, conflicts often arise, especially concerning land use rights and the division of authority.

In the Kedung Ombo reservoir area, there are eight (8) tourist villages: Boyolayar, Agro Wisata Sejahtera Mandiri, Batu Putih, Asoka, Kedung Grujug, Wana Wisata, Bulu Serang, and Wonosari. However, tourism development in this area, which started in 1999, has not shown significant progress. As a result, according to the criteria for improving tourism villages from the Ministry of Tourism and Creative Economy, the tourism villages in the Kedung Ombo area have been categorized as developing tourism villages [19].

So far, the approach to developing tourism villages in the Kedung Ombo area has been based more on conventional methods through several strategic analyses focused on the in-situ characteristics of tourist villages. However, the absence of development planning and policy directions, as well as weak coordination among stakeholders, has resulted in the development process being slow and almost unsustainable [19], and impacts on people's welfare have not been realized [35]. This condition requires strategic management to recognize tourism villages in this region as advanced tourism villages that can benefit all parties economically, socially, and environmentally.

This study provides alternative directions for the development of policy strategies have been not only implemented in the Kedung Ombo case but have become bridges that can be scaled up at a broader level, especially tourist villages in developing countries that share similiar characteristics. The study is also the first to create a comprehensive policy strategy that considers the interests of various stakeholders and possible scenarios that can be developed through multiple combinations of scenarios, policies, and programs according to the desired target criteria.

## 2. Literature Review

As a natural resource-based economic sector, rural tourism is highly dependent on the goods and services generated from natural capital. Therefore, one crucial aspect of managing natural capital-based tourism is the sustainability of the tourism sector itself.

Sustainable tourism is defined as all forms of tourism management and development activities that maintain natural, economic, and social integrity and ensure the maintenance of natural and cultural resources [36]. Tourism development is sustainable only if it is

planned strategically to reach goals whose effects are manifest in the long term [37]. Sustainable tourism is a model of tourism development in which human resources and the environment are unified and well-coordinated with economic, social, resource, and environmental aspects and were there is a coordination of balanced relationships between various stakeholders that emphasizes fairness of development opportunities between generations [38]. Sustainable tourism development will impact job creation, protect the local culture, and promote local products [39].

The success of sustainable tourism development is highly dependent on an appropriate [40] and comprehensive [30] policy framework, supported by all stakeholders [41], as well as ensuring a harmonious symbiosis between the environment and social life [42]. Successful tourism development requires an in-depth study of systems; their performance, budget constraints, and implications for the economy; and their impact on the local environment, cultural heritage, social acceptability, and local blessings [43]. Furthermore, sustainable tourism requires a sustainable development process supported by the coordination of all parties concerned in regional tourism development [36].

In this context, the policy environment becomes a strategic element for maintaining the integration of stakeholders' motives, interests, and objectives in realizing a sustainable tourism future [26]. Tourism policy is a set of discourses, decisions, and practices driven by the government to achieve various objectives in collaboration with private or social actors [44]. Effective tourism planning is a prerequisite for sustainable resource management and inclusive decision-making [33]. Sustainable rural tourism aims to increase sustainability regarding the long-term improvement of living standards by maintaining a balance between protecting the environment, promoting economic benefits, establishing social justice, and preserving cultural integrity [45].

There is no single definition of rural tourism [46]. Researchers from various countries have developed their descriptions based on the unique experiences or contexts they have encountered [47]. The World Tourism Organization (WTO) defines rural tourism that which give visitors personal contact and experiences with the physical environment and rural life and enables them to participate in the activities, traditions, and lifestyles of the local community [48]. Most authors define rural tourism as tourist activities in rural areas such as agriculture-based tourism, nature tourism, adventure tourism, health tourism, spiritual tourism, nostalgia tourism, heritage tourism, cultural tourism, agro-tourism, and ecotourism [48, 49]. Rural tourism is a new development model combining modern tourism with traditional agricultural culture [50]. The three main attributes of rural tourism are culture, nature, and history [51].

There has been much debate about the definition of a rural tourism in the literature, but is has yet to reach a firm consensus [52]. The diversity of literature and the different meanings of the terminology involved in defining rural tourism make the definition of a tourism village complex [53]. In Greece, the product of country tourism is often based on bed and breakfasts with accommodation in traditionally furnished rooms and traditional breakfasts based on homemade products. In Finland, rural tourism usually involves the rental of cottages. In Netherlands, the product of rural tourism means camping on farms and engaging in bonded activities such as walking, cycling, or horseback riding. In Hungary, the tourist village has a special meaning: it refers to tourism in villages and presents village life plus traditions with the active participation of visitors [51]. In Indonesia the tourism villages was defined as a form of integration between attractions, accommodations, and supporting facilities presented in a structure of community life integrated with prevailing procedures and traditions [54].

From the various definitions, a tourist village can be interpreted as a rural area with particular characteristics that make it a tourist destination and the local community's phys-

ical uniqueness, social life, and culture serving as attractions. The crucial factors of sustainable rural tourism are: (1) that it takes place in rural areas and is functionally rural; (2) that the purpose of visiting tourists is to study, be actively involved, experience, or enjoy the attractions; (3) that tourism attributes in the form of culture, nature, history, and unique rural activities are offered as attractions; (4) that it requires the collaboration and involvement of key stakeholders (i.e., tourists, rural communities, businesses, and government agencies); and (5) that sustainability, in both social, and economic development, and in environmental preservation, is emphasized [47]. In addition, the development of tourist villages can provide benefits (1) increasing the rural collective economy, (2) beautifying the appearance of the countryside, (3) strengthening the construction of rural civilization, (4) increasing people's income, (5) changing livelihood activities and communities' traditional lifestyle, (6) reducing urban-village disparities, and (7) building a harmonious society [55].

There are various methods for analyzing the potential for the sustainability of rural tourism [50]. For example, a qualitative approach such as the Delphi technique can be used to determine the priority ranking for rural tourism development in Russia. In Hungary, Trukhachev [56] used an event-based approach to integrate rural tourism. Furthermore, in several studies related to the impact of rural tourism in rural areas, surveys were used to obtain public perceptions of rural tourism [57]. Meanwhile, Kumar et al. [52] used an interpretative structural modeling (ISM) approach to develop a strategy for developing rural tourism in India.

Apart from the several approaches listed above, one method commonly used in developing sustainability strategies is the SWOT approach and its variations, such as AWOT (the combination of AHP and SWOT) and TOWS (Threats, Opportunities, Weaks, and Strength). Such an approach was used in the case of rural tourism in Iran [58]. This study focuses on the reassessment of rural sustainability tourism after Covid-19 by emphasizing the need to strengthen the role and capacity of the community. A similar approach was taken by Vipriyanti et al. [59] in the case of rural ecotourism in the Bali region of Indonesia.

Recently, machine learning-based approaches have also been widely applied in cases of developing rural tourism. For example, recent studies [19] have used a machine learning approach to forecast the sustainability and development of rural tourism in Indonesia. Likewise, Xie and He [60] used artificial intelligence (machine learning) to develop a marketing strategy: one of rural tourism's sustainability strategies.

This study uses the prospective method, which has rarely been used in rural tourism, to develop future strategies for rural tourism. It is the first to use prospective analysis for rural tourism in Indonesia. Nevertheless, this method can be scaled up and applied to other contexts of rural tourism in different spatial and temporal dimensions.

## 3. Materials and Methods

This research is designed as a prospective study to explain the current situation in the Kedung Ombo area, and to develop a basis for future research. The Kedung Ombo reservoir is the largest in southeast Asia, with an area of 6,576 hectares consisting of 2,830 hectares of water and 3,746 hectares of plains. The dam's location crosses three districts: Grobogan regency, Sragen regency, and Boyolali regency (Figure 1). From the aspect of accessibility, this area is easily accessible. However, the condition of the infrastructure still needs improvement in term of the quality and structure of roads, lighting, and communication networks. Most of the population work as farmers and fishermen, and a few are self-employed.

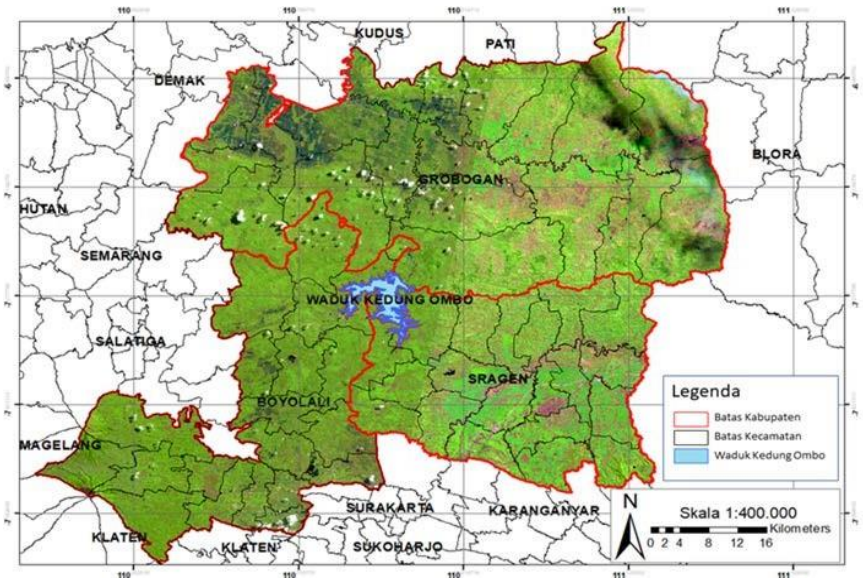


**Figure 1.** Map of Kedung Ombo Area.

The Kedung Ombo area is a hilly forested area. In addition to the dam landscape with beautiful and natural panoramas, there are various tourist attractions in this area: water tourism, nature tourism, culinary tourism, and cultural tourism. Since its inauguration in 1991, several community groups, forest managers, the local government, and the private sector have developed tourist attractions (tourism sites) around the reservoir. Some that has been are designated by the local government as tourist villages.

This study aims to propose a method for selecting strategic policies in developing tourism villages in Indonesia by exemplifying the case of the Kedung Ombo area to achieve sustainable development a cross the region. To strengthen this goal, the multicriteria and policy (MULTIPOL) prospective analysis technique is used to identify and evaluate alternative actions, criteria, and policies that can be applied to a scenario to encourage structured changes in decision-making in an effective tourism village development system.

The research data are processed with the MULTIPOL computer program software developed by the LIPSOR organization. The goal is to identify which actions and policies should be implemented to achieve the most likely scenario to increase the success of the development of tourism villages and achieve progress and sustainability. MULTIPOL is a multi-criteria analysis method to support effective evaluation and decision-making by determining scenarios, strategic or policy directions, and choices of actions or programs [61], in an institutional context [62]. It facilitates the evaluation of alternative actions, policies, programs, and scenarios against success criteria based on expert (specialist) consensus [63]. Experts assign weights to each policy based on criteria that may involve different value systems for decision-makers, strategic options, multiple scenarios, and evaluations [64]. For each policy, MULTIPOL helps establish an average score for the action, which allows the creation of a classification profile table for comparison between the action and the policy. MULTIPOL uses mixed methods, especially in determining the weight of alternative policies, analyzing results, and interpreting future trends to strengthen the understanding of causal relationships [65]. MULTIPOL combines two different types of evaluation: 1) the program evaluation of policies to determine which programs are most appropriate and to prioritize specific policies; and 2) the evaluation of policies against scenarios to determine the most appropriate policies to become priority policies for specific scenarios [52].

The MULTIPOL method has been developed to address three problems in decision making:

- Selecting the best actions
- Classifying the actions into subgroup (sorting)
- Ranking the actions

This allows a comparative evaluation to be made about the actions while taking into account different contexts of policies and scenarios. In MULTIPOL, a comparative evaluation can be made in a simple way, even as it encompasses the complexity of decision problems. The advantages of the MULTIPOL method therefore lies in its simplicity and flexibility of utilization [66]. Another advantage of MULTIPOL is that it is a feature that integrates a participatory approach into multicriteria analysis through the involvement of experts and other stakeholders on the case being studied. In addition, it also accommodates uncertainty and enables a testing of the effectiveness of different policies and actions in different scenarios [67, 68].

The structure of the MULTIPOL method consists of four elements, namely evaluation criteria, and scenarios, policy, and actions [67]. In this study, the FGD has determined the four elements and weights by consensus. The weight determination is based on the level of importance and relevance to the conditions of the Kedung Ombo area, covers the availability of resources, the characteristics, and patterns of coordination between institutions, the work of the population, and the cultural values of the local community life, as well as considering the possible future conditions of the Kedung Ombo area. Following the nature of MULTIPOL, the weight values range from 3-6 according to the degree of importance.

Data collection was carried out in a participatory manner using focus group discussion (FGD) and workshops method. the FGD comprised twenty people consisting of three district government officials, two forest management representatives, two dam management representatives, two academic representatives, eight tourism village managers, and three tourism village observers. The expert group was selected in such a way as to make it possible to present the opinions of each stakeholder equally. FGD was held on August 15, 2022 in Sumber Lawang district, Sragen regency.

1. The evaluation criteria describe the fundamental aspects for assessing the measurable success of a decision. In this case, the evaluation criteria form the basis of any evaluation process in determining the performance of alternative scenarios, programs, and policy measures. The evaluation criteria for the successful development of rural tourism in the Kedung Ombo area defined in the FGD forum include economic, social, environmental, and institutional aspects (Table 1).

**Table 1.** Criteria for the Success of Kedung Ombo Rural Tourism Development.

| Criteria | Aspect | Weight | Description |
|---|---|---|---|
| Community income | Economy | 6 | Increase people's income |
| Regional income | Economy | 6 | Increase regional income |
| Investment | Economy | 6 | Increase investment in the area |
| Employment | Social | 6 | Increase job opportunities |
| Conflict | Social | 5 | Reduce conflict |
| Community competency | Social | 4 | Improving community competence |
| Pollution | Environment | 4 | Reduce pollution |
| Environment degradation | Environment | 6 | Reducing environmental damage |
| Compliance | Institution | 5 | Increase obedience |
| Transparency | Institution | 4 | Increase transparency |

| | | | |
|---|---|---|---|
| Accountability | Institution | 4 | Increase accountability |

Source: Focus group discussion results.

2. Scenarios show a structured picture of the future in which the goals and objectives will be achieved. In this case, scenarios are ways that can achieve successful rural tourism development in the Kedung Ombo area. The FGD decided on four alternative scenarios to be evaluated (Table 2): (1) the leapfrogging scenario, (2) the evolutionary scenario, (3) the resilience scenario, and (4) the flight of the flamingos scenario.

**Table 2.** Alternative Scenarios for Kedung Ombo Rural Tourism Development.

| Scenario Alternatives | Weight | Description |
|---|---|---|
| Leapfrogging | 5 | The way to achieve the success criteria for tourism development is fast and unpatterned, skipping several stages of the traditional development process to go straight to new development, and it has no link with previous development strategies [69]. |
| Evolutionary | 4 | The way to achieve the success criteria for tourism development is slow and gradual, focusing on how tourism changes through a less dynamic process over time [70]. |
| Resilience | 3 | The way to success in tourism development focuses on efforts to survive internal and external shocks through increased adaptability, innovation, and transformation [71]. |
| Flight of the flamingos | 6 | The comprehensive way to achieve the goals of tourism development success criteria includes social reconstruction, broad participation, good government, and sustainable economic growth. [72]. |

Source: Focus group discussion results.

3. Policy describes strategies for achieving goals and objectives related to the political, social, economic, and physical contexts. In this case, tourism policy is defined as a set of regulations that guide the direction and objectives of development strategies, as well as a framework for collective and individual decisions that directly affect long-term tourism development and the daily activities of a tourist destination [73]. This study proposes four alternative policies (Table 3): (1) an agro-based policy; (2) a nature-based policy; (3) a culture-based policy; and (4) an integrated policy.

**Table 3.** Alternative Kedung Ombo Rural Tourism Development Policies.

| Policy Alternatives | Weight | Description |
|---|---|---|

| | | |
|---|---|---|
| Agro-based policy | 5 | The tourism development policies are based on agricultural and plantation products. The Kedung Ombo area is suitable for cultivating tropical fruits, including longan, tailings, guava, mango, "matoa," and durian, and for fishing. |
| Nature-based policy | 5 | Tourism development policies are based on natural potential. Many natural potentials in the Kedung Ombo area can be developed as tourist attractions, including the panorama of the vast surface of the reservoir, sunset views, jogging tracks, hills between forests, and camping areas. |
| Culture-based policy | 4 | Tourism development policies are based on cultural potential. In this area, there are several regional arts that have the potential to be developed as tourist attractions. Some of these are "reog", a traditional dance performed in an open arena with magical elements in which the main dancer is a lion-headed person adorned with peacock feathers, and "campursari," a musical performance featuring a cross between several genres of contemporary Indonesian music. |
| Integrated policy | 6 | Policies that combine various tourism potentials, resources, and plans from all stakeholders and allow all tourist attractions to be connected. |

Source: Focus group discussion results.

4. Actions or programs are a series of actions to be carried out and potential interventions to support policy implementation. Several development programs are proposed to develop rural tourism in the Kedung Ombo area, as presented in Table 4.

**Table 4.** Alternatives Programs to Kedung Ombo Rural Tourism Development.

| Program Alternative | Description |
|---|---|
| Infrastructure strengthening | Integrated tourism infrastructure development includes area planning, roads, lighting, raw and clean water supply, waste management, sanitation, and residential repairs. |
| Amenities strengthening | Repair and develop tourism facilities such as clinics, halfway houses, places of worship, parking lots, and internet networks. |

| | |
|---|---|
| Private investment strengthening | Strengthening involvement and the role of the private sector in developing infrastructure and managing higher-quality tourist destinations. |
| Governance strengthening | Governance strengthening, including coordination, communication, and cooperation between various institutions. |
| Information Communication Technology (ICT) strengthening | Strengthening technical equipment to process and convey various important information. |
| Capacity building | Development of the skills and capabilities such as leadership, management, finance and fundraising, marketing, programs, and evaluation, of a community so that the development is effective and sustainable. |
| Entrepreneurship development | Increase entrepreneurial knowledge and skills in the community through structured training programs related to entrepreneurial behavior, dynamics, and tourism business development. |
| Network development | Increase network and cooperation between tourism village managers, communities, educational institutions, and other institutions in various aspects that can support more successful development. |
| Local financial development | Generate financial sources and community financial institutions to establish tourism village self-sufficiency and its development and avoid dependence on government subsidies and other institutions. |
| Maintenance of natural resources | Maintain potential natural resources. Resources included in this category include forests and fisheries. |

Source: Focus group discussion results.

Next, the programs, policies, and alternative scenarios were evaluated for their performance according to the stages of the MULTIPOL method (Figure 2). This process produces tables and graphs showing the relationship between programs and policies, and between policies and scenarios, their compatibility, and their probability of success.

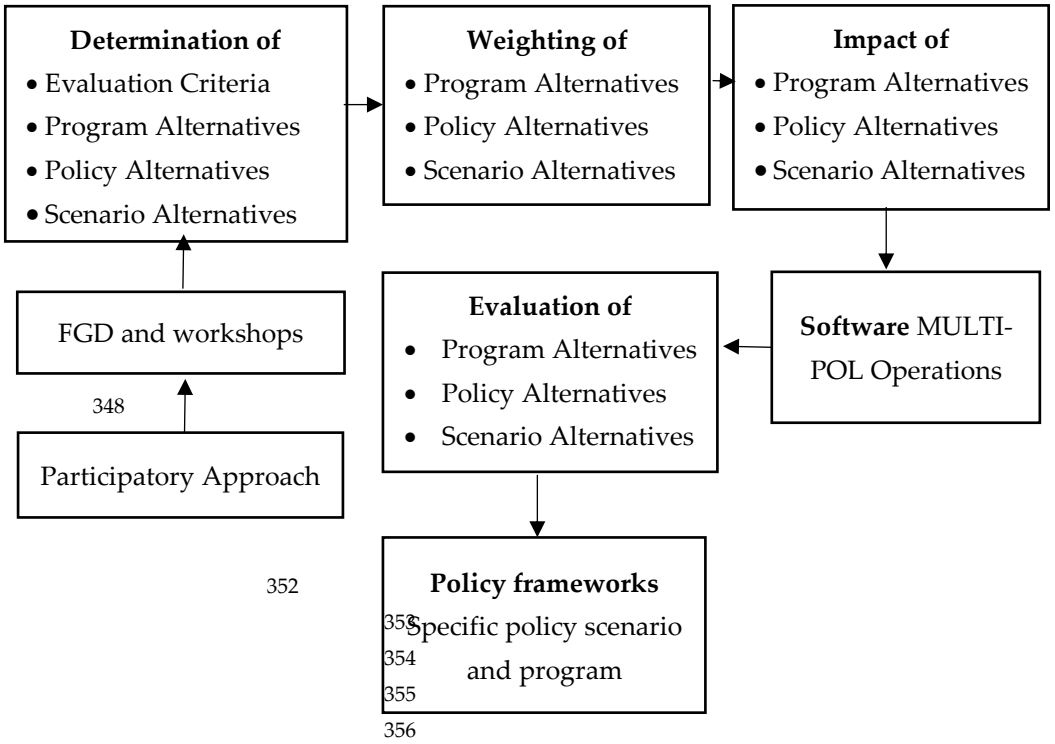


**Figure 2.** Stages of determining the best strategy based on the MULTIPOL method

## 4. Results

This section presents the results of the evaluation of the suitability between criteria, programs, policies, and scenarios. The results are shown in pictures and graphs. Three matrices for evaluating policies, actions (programs), and scenarios against each measurement criterion were presented through brainstorming and final consensus among specialists at the FGD forum. The specialists were asked to jointly rate, by consensus, each measure against each criterion using a simple notated scale (0-20).

### 4.1. Conformity Analysis between Programs and Policies

The results of the MULTIPOL analysis for the scores for each program related to the policy and the average score, as well as the standard deviation obtained, are shown in Table 5. The higher the position number, the better the program's performance in relation to development policies. The mean and standard deviation values obtained for each program show the impact of its implementation on policy. Programs with low standard deviations and high mean values perform well for more than one policy. Conversely, programs with high standard deviations are only appropriate for specific policies, depending on the average value [68]. The three programs ranked in the highest position were strengthening infrastructure, strengthening amenities, and strengthening private investment.

**Table 5.** Evaluation of Program Performance Related to Policies.

| Program/Policy | Agrotourism | Natural Tourism | Culture Tourism | Integrated Tourism | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Infrastructure strengthening | 12.4 | 12.2 | 10.2 | 11.9 | 11.8 | 0.8 | 10 |
| Amenities strengthening | 10.6 | 10.1 | 9.9 | 11.5 | 10.6 | 0.6 | 6 |
| Private investment strengthening | 9.5 | 8.3 | 8.8 | 11.2 | 9.6 | 1.1 | 4 |
| Governance strengthening | 10.4 | 11.4 | 12.1 | 12.1 | 11.5 | 0.7 | 9 |
| ICT strengthening | 8.2 | 8.6 | 8.9 | 8.3 | 8.5 | 0.3 | 2 |
| Capacity building | 11.5 | 9.8 | 10.7 | 11.9 | 11.1 | 0.8 | 7 |
| Entrepreneurship development | 11.8 | 10.2 | 10.5 | 12.1 | 11.2 | 0.8 | 8 |
| Network development | 9.1 | 7.5 | 8.2 | 10.5 | 8.9 | 1.1 | 3 |
| Local financial development | 9.1 | 5.2 | 8.2 | 7.4 | 6.3 | 1.6 | 1 |
| Maintenance of natural resources | 9.9 | 10.3 | 9.7 | 9.6 | 9.9 | 0.2 | 5 |

Source: MULTIPOL analysis results.

From the results of the evaluation of program and policies, a graph called a profile map was obtained from MULTIPOL. This graph presents the behavior of the relationship between programs and policies to show programs that are more closely related to specific policies (Figure 3). MULTIPOL also provides a graph known as a sensitivity classification map, which represents the probability of program success based on the effectiveness of its implementation (Figure 4). Again, the upper left quadrant is programmed with the most significant likelihood of success, while projects with high significance are elevated the most on the graph.

As shown in Figure 4, natural resource-based development programs, amenities strengthening programs, and governance strengthening programs have the highest probability of success and are programs with the most significant relevance supporting the fulfillment of sustainable development policies. The most effective program is a governance-strengthening program. Meanwhile, programs to strengthen infrastructure, strengthen capacity, strengthen networks, strengthen entrepreneurs, and strengthen the private sector can be managed so as to achieve the best development results.

Figure 5 presents the results of MULTIPOL in a map of proximity or closeness between programs (actions) and policies (policies) obtained from correspondence analysis. Correspondence analysis on the matrix is evaluated from the actions related to the policy, with the action score on the X-axis and the standard deviation on the Y-axis. The closer the distance of a program to a policy, the more appropriate and effective the program is

in terms of supporting the success of the policy. Figure 5 shows that the governance development program and the ICT strengthening program are appropriate programs for culture-based tourism policies. Meanwhile, programs to strengthen infrastructure and programs to strengthen the maintenance of natural resources are the most appropriate programs for policies to develop nature-based tourism policies. Capacity building, amenities strengthening, and entrepreneurial development are the most suitable programs for developing agro-based tourism policies. Meanwhile, local financial development, private investment strengthening, and networking development are programs that are the most compatible with the integrated tourism development policy.

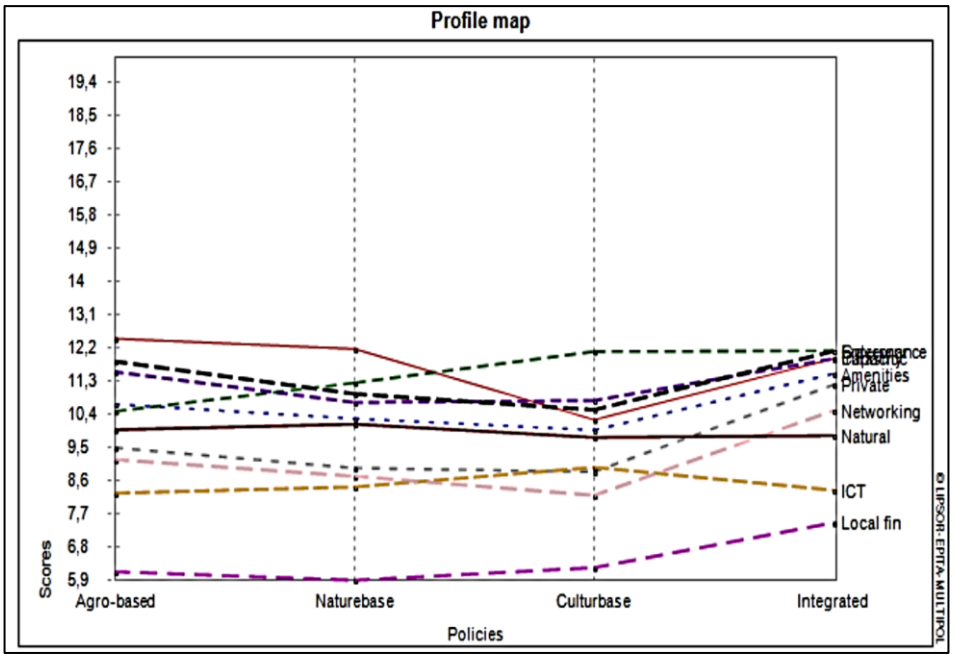


**Figure 3.** Program profile map ((Source: MULTIPOL analysis results).

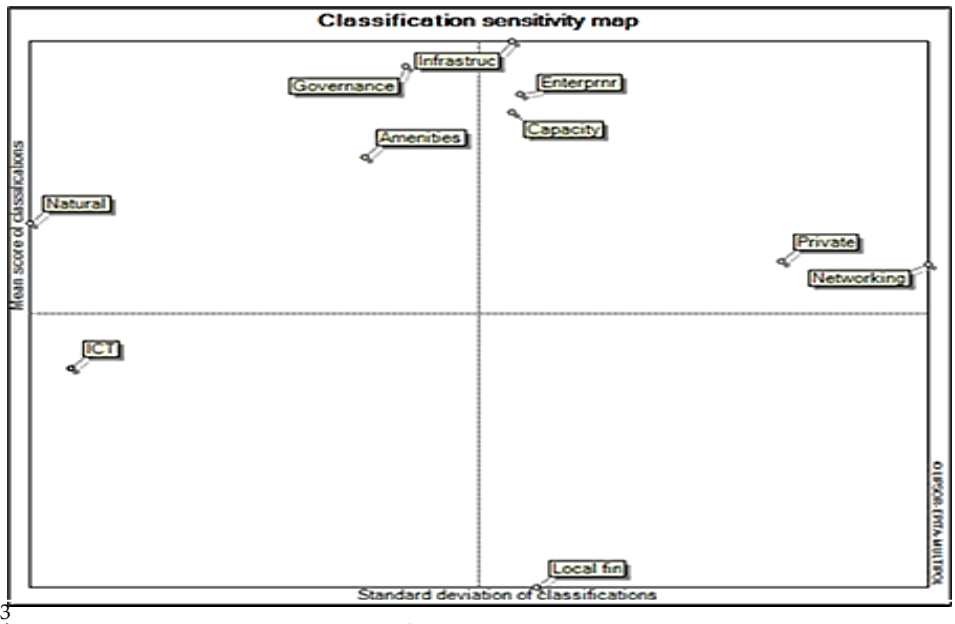


**Figure 4.** Program sensitivity classification map (Source: MULTIPOL analysis results).

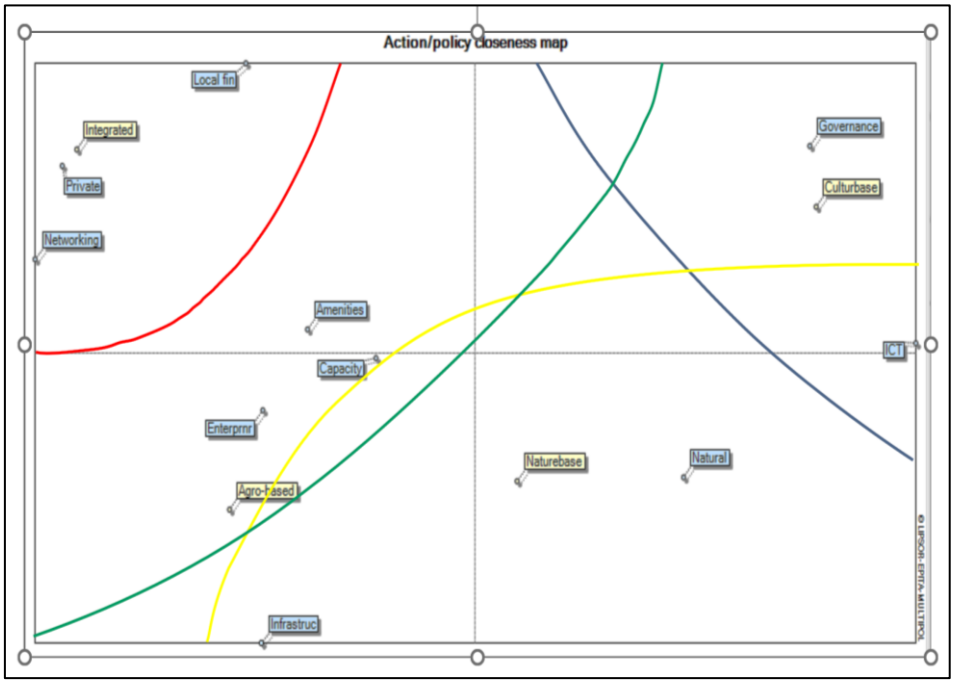


**Figure 5.** Map of the program's closeness to policy (Source: MULTIPOL analysis results)

### 4.2. Conformity Analysis between Policy and Scenario

Next, the results of the evaluation of the relationship between policies, scenarios and performance ratings are presented (Table 6). Each scenario by FGD participants was assessed to the criteria with a weight per interaction of 100. Table 6 shows that an integrated policy is the best, while a culture-based policy is the least effective. An integrated policy is a policy that combines various tourism potentials resources and plans from all stakeholders. The results of this study follow [74], which states that integrated policies are standard policies on sustainable development in the agricultural, cultural, and tourism industries.

**Table 6.** Policy Performance Related to Scenarios.

| Policies/ Scenario | Leapfrog-ging | Evolution | Resilience | Flamin-gos | Mean | Deviation Standard | Rank |
|---|---|---|---|---|---|---|---|
| Agro-based | 9.6 | 9.6 | 10.1 | 10.2 | 9.9 | 0.3 | 3 |
| Nature-based | 8.6 | 9.4 | 9.3 | 8.6 | 8.9 | 0.4 | 2 |
| Culture-based | 8.2 | 9 | 8.8 | 7.8 | 8.4 | 0.4 | 1 |
| Integrated | 11.1 | 9.3 | 9.8 | 11.6 | 10.6 | 0.9 | 4 |

Source: MULTIPOL analysis results.

Integrated tourism policies that consider the use of various resources (cultural, social, environmental, economic) and the roles of related stakeholders are part of a tourism development strategy that is considered capable of creating successful tourism destinations [75]. Integrated tourism policies are intended to develop integrated tourism

destinations explicitly linked to localities where tourism occurs and have clear links with local resources, activities, products, production and service industries, and participatory local communities [73]. Furthermore, integrated tourism policies refer the development of alternatives that emphasize a bottom-up approach, centrally involve local stakeholdernt s in their implementation, and are based on local physical, economic, social, and cultural resources [75].

The fundamental objective of integrated tourism is to promote environmental, economic, and socio-cultural sustainability to empower local communities: and to thereby contribute to the sustainability of the wider region's development system. Specifically, integrated tourism destinations cover two aspects: 1) a bringing together of various interests, requirements, and needs in a unified strategic tourism plan, and 2) unification of tourism with the social and economic life of an area and its community [73].

Thus, integrated policies supported by local financial development programs, private investment strengthening programs, and networking development programs are best when viewed as a policy package. The strengthening of private investment is a breakthrough for increasing personal involvement in development through mutually beneficial creative financing schemes. One such scheme is a public - private partnership (PPP), which is an effective financing solution. The implementation of PPP has a positive impact in the form of cost savings for local governments, accelerated service level improvements, and the emergence of a multiplier effect in the form of broader economic benefits such as job creation and increased income for the population.

The networking development program is intended to develop reciprocal relationships between all stakeholders based on mutual trust. This program is needed in the Kedung Ombo area because it is geographically located in a different district. Networking will thus encourage all parties to optimize resource use, reduce conflicts, and take advantage of opportunities.

The local financial development program is intended to encourage the growth of community financial institutions driven by the mission of creating economic opportunities for individuals and small businesses in rural communities, which are not reached by the services of formal financial institutions. Unlike traditional banks, community finance institutions specialize in providing loans to individuals, organizations, and businesses in under-resourced communities. They offer financial education, business training, and low-interest loans to clients to increase their economic potential and to help build wealth.

The MULTIPOL application allows for the prestantion of a graphical interpretation of the policies associated with the scenario matrix profil map. Figure 6 shows that integrated policies are the best policies in two scenarios: the leapfrogging scenario and the flight of the flamingos scenario. In contrast, agro-based policies are the best policies in the evolutionary scenario and culture-based policies are the best in the resilience scenario.

As in the analysis of the relationship between programs and policies, in the behavior of the relationship between policies and scenarios, MULTIPOL produces policies that have the most probability of success and are the most effective policies to be implemented. Figure 7 shows that agro-based policies have the highest probability of success, while integrated policies are the most effective.

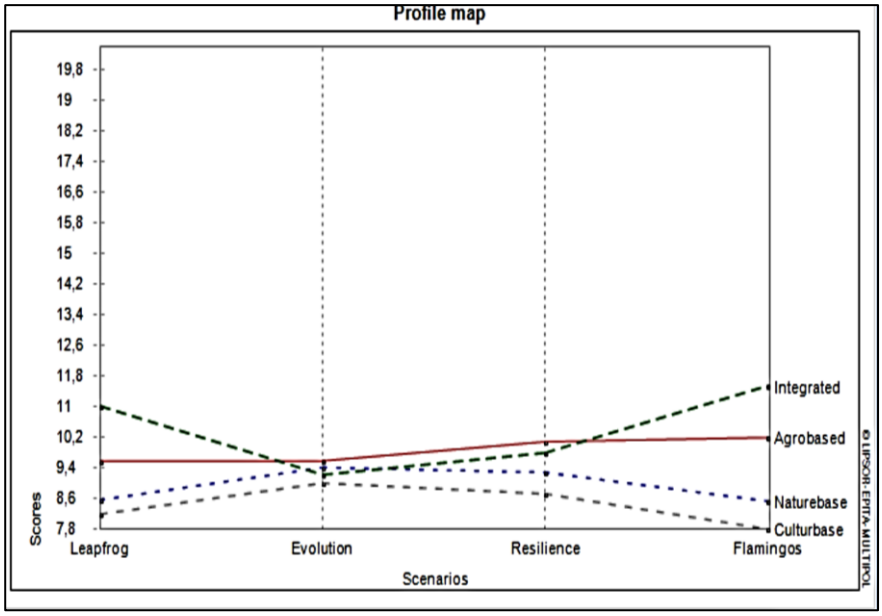


**Figure 6.** Policy profile map.

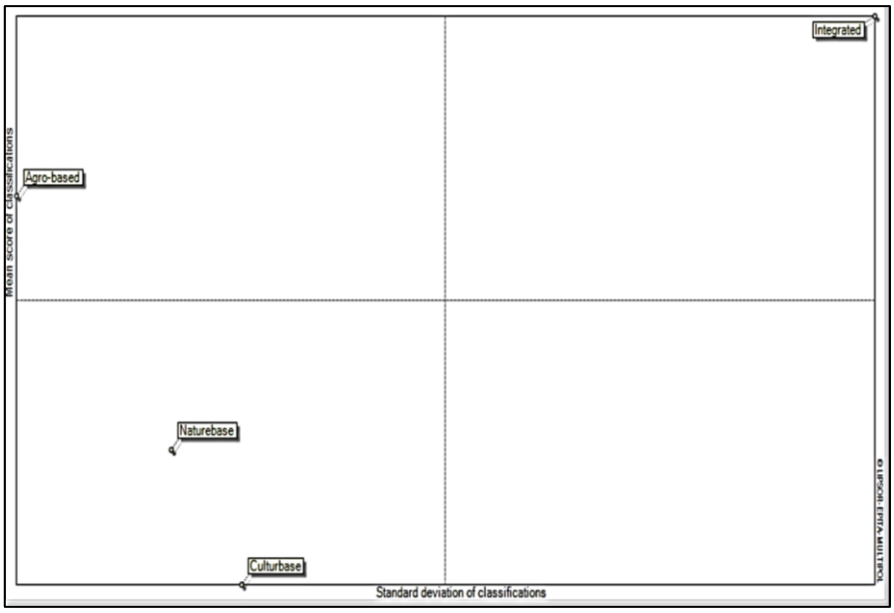


**Figure 7.** Policy sensitivity classification map

Based on the evaluation of the relationship between the policy and the scenario, it can be seen that the integrated development policy is effective for the leapfrogging and flamingo scenarios. On the other hand, agro-based policies and nature-based policies are the best policies in the resilience scenario. Meanwhile, culture-based policies are the best for evolutionary scenarios (Figure 8).

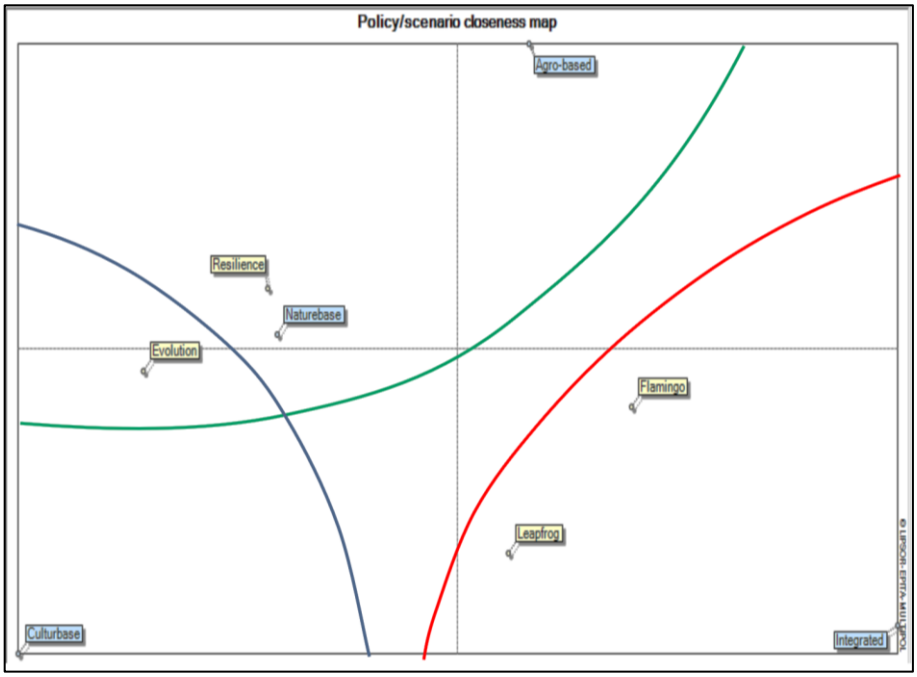


**Figure 8**. Map of policy adherence to scenarios.

From the results of the overall evaluation of performance and the relationship between programs, policies, and scenarios, a strategic framework for developing rural tourism in the Kedung Ombo area can be described (Figure 9). This strategic framework shows the development strategy policy packages and their priority programs in each alternative scenario.

As previously explained, the integration policy is the best for developing rural tourism in the Kedung Ombo area. The policy will be effective if it is supported by priority programs: that include strengthening private investment, developing networking, and developing local finance. Meanwhile, related to question of how to achieve successful development, policymakers can implement this through the flight of the flamingos or leapfrogging scenarios. However, the risk of the leapfroging scenario are worth considering given the particular limitations of governance, as it requires speed and is often patternless. Thus, the flight of the flamingos scenario is the most appropriate scenario to apply in the area, as it involves social reconstruction (more social investment, decrease in violence), broad participation, good government (clear and consistent policy, that is efficient and not corrupt), and sustainable economic growth [66].

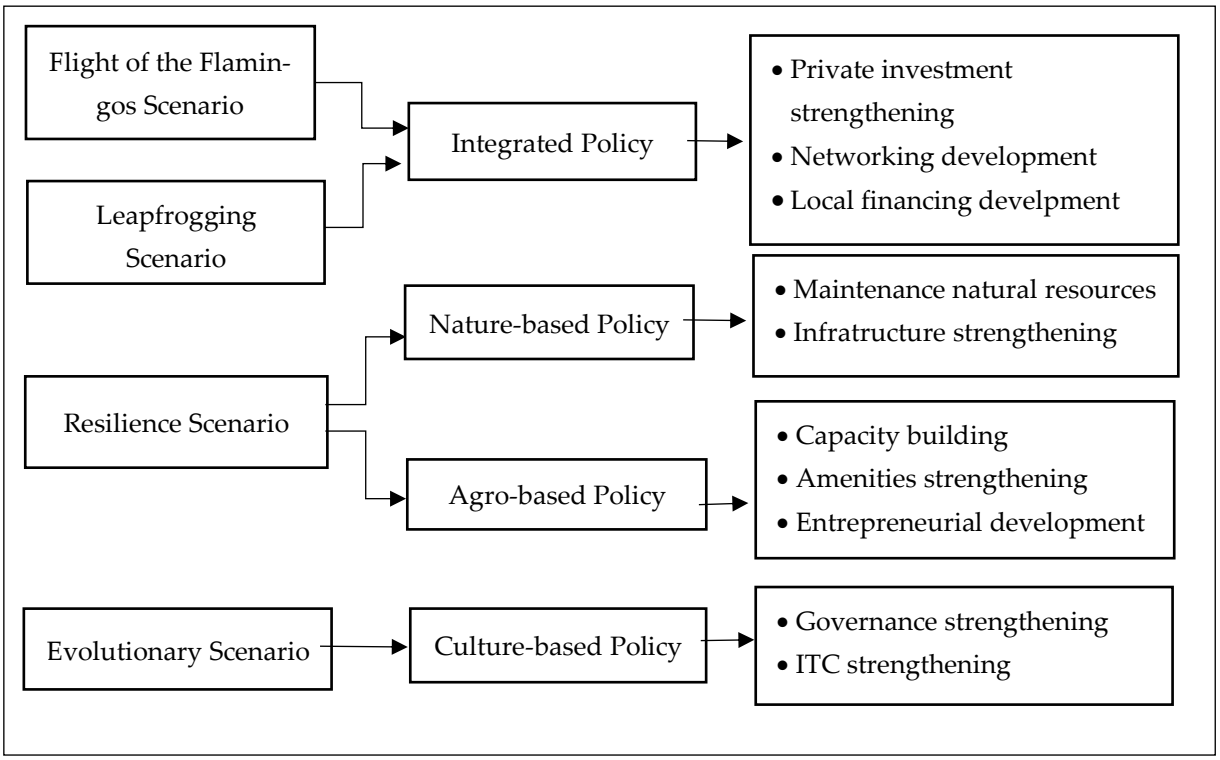


**Figure 9.** Potential policy pathways the achieviement of each future scenario of Kedung Ombo rural tourism (Source: Extracted from MULTIPOL results)

## 5. Conclusions and Future Research Direction

### 5.1. Conclusion

Rural tourism plays a crucial role in rural development, especially in developing countries. Lack of capacity, a complex institutional setting, and poor planning might hinder the effectiveness of rural tourism as a leverage and a catalyst for rural development. A strategic transformation toward the sustainable management of rural tourism is one of the strategies that could be delivered. By providing different pathways toward sustainable management, strategic transformation could reduce some obstacles associated with the complexity of rural tourism management. Such findings are supported by various studies on rural tourism such as [21] and [22], whereby the strategic planning of rural tourism could be a catalyst for tourism recovery and an improvement in the resilience of the local economy.

The study also acknowledges that transformation toward sustainable rural tourism cannot be achieved without stakeholder engagement. The best transformation scenario (the flight of the flamingos) requires strong stakeholder engagement. Just as experienced in South Africa during the transformation toward a democratic country, the flight of the flamingos scenario is characterized by slow transformation, then flying high and flying together. In the case of rural tourism, sustainable transformation also needs to be taken slowly and involve all stakeholders. It is also recognized that the transformation might not run smoothly, therefore adjustments might be needed along the way once the decision toward sustainable transformation is reached.

The results of the analysis show that an integrated development policy, that facilitaties cross-regional cooperation, and that has the support or participation of all stakeholders is the best policy option for sustainable transformation. An integrated policy calls for comprehensive planning for rural tourism development. All resource potentials, both natural and cultural, could be developed using an agro-cultural based policy by combining natural-based agricultural tourism with cultural assets owned by rural communities. This conclusion is supported by other studies such as that of Ćurčić et al. [23], whereby the diversification of natural and cultural assets could enhance the sustainability of rural tourism. Such a policy needs strong support from private investment as well as from local financial sources. The effectiveness of the policy will also depend on strong network development, an appropriate entrepreneur development program, and strong capacity building in the communities. This is in line with other findings such as, those of Khartishvili et al. [10], wherein that the rural tourism entrepreneur is one of the main drivers for sustainable rural tourism. In addition, a lack of awareness and capacity on the part of local community could be obstacles for transformation toward sustainable tourism [34].

The results of this study may become a model for institutional-based rural tourism development in other regions, which often encounters problems related to coordination due to the many parties involved. Finally, the results of this study as a whole can serve as a road map for policy makers in various regions in the development of integrated nature-based rural tourism by considering the availability of resources, the risks, and possible levels of success.

### 5.2. Future Research Direction

The contributions of this study could lead to a new line of inquiry in the area of rural tourism, especially in developing countries. Some research topics are suggested that relate to the findings of this study and are relevant to rural tourism transformation. First, future research could investigate the dynamic of transformation pathways for sustainable rural tourism for each policy scenario. In our study, each transformation pathway is assumed to be independent, yet the pathways might interconnect in space and time. Such a study, therefore, could provide a deeper insight into how policies and actions change over time and how they adapt to the dynamic of the rural institutional setting.

Secondly, further research that considers the risk and uncertainty that is related to the transformation toward sustainable tourism is needed due to the fact that stakeholders in rural areas might be risk-averse and avoid any structural changes in tourism management that they consider costly. Further examination of the risk and uncertainty associated with transformation toward sustainable tourism could enrich our knowledge regarding the overall benefits and costs of managing rural tourism.

Thirdly, this study employs mixed qualitative and quantitative information to design the appropriate strategies for sustainable rural tourism transformation. Even though careful examination was carried out to filter the interests of different stakeholders, it is reasonable to expect that some policies, criteria, or actions were overlooked. Further examination of such factors could provide more robust strategies for the transformation toward sustainable rural tourism.

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Cc: Akhmad Fauzi <akhmadfauzi@apps.ipb.ac.id>, Sustainability Editorial Office <sustainability@mdpi.com>, Lesliee Chen <lesliee.chen@mdpi.com>

Dear Dr. Ariyani,

Congratulations on the acceptance of your manuscript, and thank you for submitting your work to Sustainability:

Manuscript ID: sustainability-2137861
Type of manuscript: Article
Title: Pathways toward the transformation of sustainable rural tour-ism management in Central Java, Indonesia
Authors: Nafiah Ariyani *, Akhmad Fauzi
Received: 19 December 2022
E-mails: arienafiah@gmail.com, akhmadfauzi@apps.ipb.ac.id
Submitted to section: Tourism, Culture, and Heritage,
https://www.mdpi.com/journal/sustainability/sections/culture_and_heritage
Tourism Management and Sustainable Development: Transformations, Challenges and Opportunities in a Changing World
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Kind regards,
Yani Li
E-Mail: yani.li@mdpi.com

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MDPI Tianjin Office 170 North Road, Room 1804, Block A, Lujiazui Financial Plaza, Hongqiao District, China

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**ariyani nafiah** <arienafiah@gmail.com> Fri, Jan 27, 2023 at 4:51 PM
To: Lesliee Chen <lesliee.chen@mdpi.com>, Sustainability Editorial Office <sustainability@mdpi.com>

Dear Yan Li

Thank your very much for you email. I am delighted that my manuscript has been accepted for publication in Sustainability journal. I will follow up the next step for paying APC and other necessaries actions that need to be done for publishing our manuscript.

Looking forward to hearing from you

Sincerfely

Dr. Nafiah Ariyani
[Quoted text hidden]

# 7. Bukti Konfirmasi Artikel Published Online (11 FEBRUARI 2023)

Gmail ariyani nafiah <arienafiah@gmail.com>

# [Sustainability] Manuscript ID: sustainability-2137861; doi: 10.3390/su15032592. Paper has been published.

1 message

**sustainability@mdpi.com** <sustainability@mdpi.com> Wed, Feb 1, 2023 at 2:23 PM
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Cc: billing@mdpi.com, website@mdpi.com, sustainability@mdpi.com, isa.ye@mdpi.com, abby.zhang@mdpi.com, lesliee.chen@mdpi.com

Dear Authors,

We are pleased to inform you that your article "Pathways toward the Transformation of Sustainable Rural Tourism Management in Central Java, Indonesia" has been published in Sustainability as part of the Special Issue Tourism Management and Sustainable Development: Transformations, Challenges and Opportunities in a Changing World and is available online:

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Thank you for choosing Sustainability to publish your work, we look forward to receiving further contributions from your research group in the future.

Kind regards,

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