

Unlocking sustainable ecotourism through multifacets: exploring efforts to address overtourism for economic justice

Desbloqueando o ecoturismo sustentável por meio de multifacetadas: explorando esforços para combater o overturismo em busca da justiça econômica

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How to cite: Purnamawati, I. G. A., Yuniarta, G. A., Diatmika, I. P. G., & Be, E. (2025). Unlocking sustainable ecotourism through multifacets: exploring efforts to address overtourism for economic justice. *Gestão & Produção*, 32, e10724. <https://doi.org/10.1590/1806-9649-2025v32e10724>

Abstract: Overtourism has had a domino effect on Bali's environment in several ways. The influx of foreign businesses and investors, coupled with the commodification of local culture, has led to the displacement and marginalization of local communities. Improving sustainable tourism measures in Bali requires a multifaceted approach that creates a more sustainable and inclusive ecotourism model. In addition, tourism businesses must also provide equitable economic benefits to local communities and involve them in tourism-related decision-making. This study aims to analyze a multifaceted approach model to address the impacts of over-tourism on tourism sustainability, Bali's environment, socio-cultural integrity, livelihoods, and the well-being of local communities. This type of research is quantitative descriptive research. The sample was determined using a purposive sampling method. Interviews were conducted with key informants (Village Head, Traditional Village Head, Community Leaders, Tourism Potential Management Foundation, Tourism Industry, and visiting tourists). Data was collected using a questionnaire measured using a Likert scale of 1-5. The analysis model uses Structural Equation Modeling. The governance role showed an effect in overcoming over-tourism, while the multifaceted role variable showed different results, where it had no impact in overcoming over-tourism. Finally, the conservation variable affects overcoming over-tourism.

Keywords: Ecotourism; Economy; Justice; Multifaceted; Over-tourism.

Resumo: O overturismo teve um efeito dominó no meio ambiente de Bali de diversas maneiras. O fluxo de empresas e investidores estrangeiros, aliado à mercantilização da cultura local, levou ao deslocamento e à marginalização das comunidades locais. Aprimorar as medidas de turismo sustentável em Bali requer uma abordagem multifacetada que crie um modelo de ecoturismo mais sustentável e inclusivo. Além disso, as empresas de turismo também devem proporcionar benefícios econômicos equitativos às comunidades locais e envolvê-las na tomada de decisões relacionadas ao turismo. Este estudo visa analisar um modelo de abordagem multifacetada para

Received Mar. 23, 2025 - Accepted Apr. 21, 2025

Financial support: This research has been funded by the Center of Research and Community Service-Universitas Pendidikan Ganesha with grant number: 889/UN48.16/LT/2024.



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abordar os impactos do overturismo na sustentabilidade do turismo, no meio ambiente de Bali, na integridade sociocultural, nos meios de subsistência e no bem-estar das comunidades locais. Este tipo de pesquisa é uma pesquisa quantitativa descritiva. A amostra foi determinada por meio de um método de amostragem intencional. Foram realizadas entrevistas com informantes-chave (Chefe de Vila, Chefe de Vila Tradicional, Líderes Comunitários, Fundação de Gestão do Potencial Turístico, Indústria do Turismo e turistas visitantes). Os dados foram coletados por meio de um questionário, avaliado em uma escala Likert de 1 a 5. O modelo de análise utiliza a Modelagem de Equações Estruturais. O papel da governança apresentou efeito na superação do turismo excessivo, enquanto a variável papel multifacetado apresentou resultados diferentes, não tendo impacto na superação do turismo excessivo. Por fim, a variável conservação afeta a superação do turismo excessivo.

Palavras-chave: Ecoturismo; Economia; Justiça; Multifacetado; Turismo excessivo.

1 Introduction

Based on data from the Central Statistics Agency of Bali Province, the number of foreign tourists visiting throughout 2023 will be more than 5 million people. It exceeds the provincial government's target of 4.5 million (BPS, 2024). Although the influx of tourists has significantly contributed to economic development in Bali Province, overtourism has had a significant impact in recent years (Surya & Nugraha, 2022). The exponential growth in the number of tourists to Bali initially generated substantial business revenue. It helped support the growth of various industries and employment opportunities, especially in the hospitality and service sectors. However, such a rapid surge has also created significant pressure, as indicated by crowds at major tourist attractions, congestion in various areas densely populated by tourists, depletion of natural resources, and deteriorating quality of public space and services (Hutama & Suliswanto, 2023). The development of hotels and resorts has directly caused the loss of agricultural land and ecosystem degradation (Suyadnya, 2021). The decline in soil fertility in more fertile areas, exacerbated by excessive water extraction and extensive use of chemical fertilizers, has exacerbated the disintegration of agricultural productivity (Neubauer, 2019). The heterogeneity and volume of urban solid waste result in difficulties in its management, which ultimately threaten the environment, health, and public safety (Ferrão & Moraes, 2021).

Lack of synergy in cooperation between tourism service providers and traditional villages. Therefore, the critical role of local village community organizations is needed in realizing the sustainability of tourist villages, such as developing green tourism that is friendly and environmentally friendly (Adnyana, 2020). One is through educational tourism with a green tour concept, a new alternative for urban people. Another emphasis is also on the commitment shown by the local government (Le Tan et al., 2021). In Bali Province, the "Bali Clean and Green" campaign has attempted to increase public awareness of the importance of maintaining cleanliness and environmental sustainability (Jaskolski, 2016). The Community-Based Tourism approach will later be able to refer to the values of local wisdom in each region, so that tourist villages that are to be developed by implementing the CBT concept offer tourism that has become a culture in the area (Nursetiawan & Apriliani, 2021). In addition, efforts to develop tourist villages should also align with the community empowerment process (Yulianto et al., 2022). Collaboration and linkage between developing tourism villages and community empowerment efforts can be attempted in three synergistic stages: awareness stage, capacity-building efforts, and empowerment (Setyawati, 2022). Legal protection can also help prevent negative impacts. Several countries have

adopted legal frameworks protecting local communities and wisdom from these impacts (Purworini & Chasana, 2023; Normelani et al., 2023).

The influx of foreign businesses and investors, coupled with the commodification of local culture, has led to the displacement and marginalization of local communities. The soaring cost of living has also pushed some Balinese to rely on exploitative or unsustainable practices to supplement their income (Sutanto & Setiadi, 2020). Simultaneously, traditional practices and customs are often commercialized to serve the interests of tourists, so their original meaning needs to be restored or repaired. Improving sustainable tourism measures in Bali requires a multifaceted approach that creates a more sustainable and economically equitable tourism model (Bali's environmental sustainability, socio-cultural integrity, local community livelihoods, and well-being) (Novianti, 2020).

Tourist destinations need promotion, but it must be followed by a conservation campaign that educates visitors. Lack of conservation of the tourist environment causes obstacles to environmental rescue that can damage tourist attractions, such as garbage, water pollution, ecosystem damage, and uncontrolled development caused by too many tourists. Nature or environmental conservation activities are mandatory in implementing the ecotourism concept.

Sustainability is a long-term concept that needs to be considered. Economic impacts on the community need to be realized through tourism activities. On the other hand, maintaining the authenticity of the environment in tourism management is evidence of implementation that does not conflict with natural and environmental conditions. Various sustainability strategies in the tourism sector will protect needs and increase opportunities in the future. This research was conducted in Bali Province, considering that Bali is one of the most popular tourist destinations for domestic and foreign tourists, so there are often too many tourist visits, especially during long holidays. Overcoming over-tourism for the sustainability of tourism, the Balinese environment, socio-cultural integrity, livelihoods, and welfare of local communities is also interesting to study, as it affects governance transformation, multifaceted nature conservation, considering that there have been many studies on the influence on sustainability, but the results obtained are still diverse. This is likely evidenced in analysis techniques and direct or indirect relationships related to these variables.

2 Literature review

2.1 Over-tourism

Over-tourism is a condition with more visitors than residents, which hurts both visitors and residents. Over-tourism describes the condition of a destination that is densely filled with tourists and exceeds the number of residents (Aris Anuar et al., 2019). Excess visitor capacity in an area that is a tourist destination is experienced by several cities worldwide, and even in natural tourist destinations. Research by Jiricka-Pürren et al. (2020), shows that tourist visits in several European cities have exceeded capacity. The phenomenon of overtourism usually occurs in specific tourist destinations, especially during holidays or weekends. Some of these destinations are usually in the city center, where various attractions and facilities can attract tourists, such as museums, monuments, amusement parks, or historical sites. So many destinations often experience the impact of over-tourism. Uncontrolled tourism

marketing programs, such as discounts on accommodation prices, transportation, or tour packages at certain times, simultaneously trigger tourist density. Tourist density at a destination reduces the level of tourist satisfaction and the quality of the destination (Papadopoulou et al., 2023).

2.2 Governance

Governance uses institutions, authority structures, and collaboration to allocate data sources and coordinate or control activities in society or the economy (Amsler, 2016; Kapucu & Hu, 2020). Governance is a form or process of organizing political, economic, and administrative authority in managing problems faced by society or the nation by involving all sectors, including the public, private, and third sectors, namely civil society. Good governance is defined as a governance system that includes reasonable procedures, mechanisms, and procedures in organizing political, economic, and administrative power based on the principles and measures of accountability, transparency, efficiency, effectiveness, and integrity (Khanna, 2017). Governance is related to three perspectives, namely: (i) the process by which a government is selected, organized, held accountable, supervised, and replaced; (ii) the government's capacity to manage resources efficiently, formulate and implement policies and regulations; and (iii) public space to access services and participate in the implementation of development.

2.3 Multifaceted

Tourism has a multifaceted nature, with several stages in its development process and social, cultural, economic, and political challenges related to tourism development (Kachniewska, 2015). Tourism is all activities related to tourism, which are multifaceted and interdisciplinary, as a manifestation of the country's needs, as well as the interaction of tourists and the community, fellow tourists, government, city government, and entrepreneurs. Tourism destinations refer to the 4A framework: attractions, amenities, accessibility, and additional services (Salam et al., 2018). As a result, previously undeveloped tourist attractions and places can suddenly become very popular. Therefore, tourism promotion must be developed to be more focused and organized (Amiruddin, 2020). With the promotion above, tourists can speak directly with local or tour guides. Even in remote tourist locations, tourists can easily receive information about tourist attractions. A multifaceted approach to data collection involves using various methods and strategies to collect and analyze data from different perspectives.

2.4 Nature conservation

Nature conservation is an effort to protect and preserve natural resources, be it plants, animals, ecosystems, or natural habitats. The main goal of nature conservation is to maintain the sustainability of ecosystems and ecological balance (Rawat & Agarwal, 2015). Nature conservation is an effort to protect, restore, and preserve biodiversity and natural resources on Earth (Wang et al., 2020). This management is carried out by regulating resource exploitation, implementing sustainability principles, and paying attention to the social and economic impacts of human activities. It is

important to increase public understanding of the importance of nature conservation. Through education and increased awareness, the community can play an active role in nature conservation, such as reducing waste, saving energy, and supporting sustainable practices (Zain et al., 2022). Nature conservation involves various parties, including the government, NGOs, communities, and the private sector. Good cooperation between all parties is needed to achieve nature conservation goals. In some cases, cross-border collaboration is also required, considering that nature does not recognize national boundaries. Nature conservation is vital in maintaining the Earth's sustainability and preventing further environmental damage.

3 Hypothesis development

3.1 The influence of governance transformation in overcoming over-tourism for sustainable tourism

This study is a development of research (Renou et al., 2023; Purnamawati et al., 2022), which uses a collaborative governance model in researching sustainable ecotourism development. Institutional theory describes social structures with relationships and impacts; tourism development is closely related to the quality of culture and the community environment in an area. Tourism activity increases directly proportional to environmental damage and socio-cultural aspects. Various methods are used to overcome the degradation of the socio-cultural environment. This hurts the lives of local people (Pratama & Mandaasari, 2020). Therefore, technical, educational, and persuasive efforts are needed so that tourism activities have a long-term positive impact on local communities and socio-cultural institutions. Overtourism is not only caused by excessive tourism but also by the use of infrastructure, excessive exploitation of tourist areas, and not being managed sustainably (UNWTO, 2018; Koens et al., 2018). For this reason, collaboration between relevant stakeholders is needed to involve local communities in developing sustainable tourism areas (Hulu et al., 2021).

H₁: Governance transformation has a positive and significant effect on overcoming over-tourism for the sustainability of tourism, the Balinese environment, socio-cultural integrity, livelihoods, and the welfare of local communities.

3.2 Multifaceted influence in overcoming over-tourism for sustainable tourism

The study's results (Yi et al., 2022) show that the involvement of local communities and the business world (private sector) in the management and development of ecotourism is quite significant. Meanwhile, local governments need to strengthen their involvement in ecotourism development. So far, the response has been relatively slow, and the community is waiting for the development of independent destinations. There is a need to strengthen collaboration to ensure the effectiveness of natural resource management in ecotourism, which can be achieved through the support and cooperation of all stakeholders (Yang et al., 2023). Tourism activities form destination governance in the form of ecotourism that examines the principles of governance at the institutional level, is integrative and innovative, and has economic, social, and

environmental performance (Kia, 2021; Bichler & Lösch, 2019). The Multifaceted approach is critical in promoting tourism destinations that combine online and offline strategies to attract visitors (de la Maza, 2024; Neal & Gursoy, 2018). Implementing the visa-free policy issued through Presidential Regulation No. 21 of 2016 has had several negative impacts, which have caused Bali to be in a state of overtourism.

H₂: The multifaceted approach model has a positive and significant effect on overcoming overtourism, which benefits tourism sustainability, Bali's environment, socio-cultural integrity, livelihoods, and the welfare of local communities.

3.3 The influence of nature conservation in overcoming over-tourism for sustainable tourism

UNWTO (2018) noted that several impacts caused by over-tourism are damage to tourist locations, air pollution, waste, and social problems around tourist destinations. Tourism positively impacts the local economy and must be followed by innovative and sustainable management, which is achieved through research (Eide et al., 2017; Streimikiene et al., 2021). Tourism is a new industry that can increase state and regional income, depending on the level of beauty and environmental sustainability (Voronkova et al., 2021). The preservation of a clean environment and beautiful views can be polluted instantly and leave a smell; if its use is not managed properly, waste or garbage produced by visitors can negatively impact the growth of the ecosystem in the local area. Therefore, tourism managers and the government must partner with all other stakeholders to maintain environmental sustainability and ensure ecosystem balance.

H₃: Conservation has a positive and significant influence on overcoming over-tourism, which is beneficial for the sustainability of tourism, Bali's environment, socio-cultural integrity, livelihoods, and the welfare of local communities.

4 Methodology

4.1 Research design

The research was conducted in three tourist areas: Sanur, Kuta, and Ubud. These locations were chosen because they show areas experiencing gentrification. The three locations provide interesting tensions regarding the role of tourism in attracting the expansion of capitalism through capital investment and corporate actions, as well as opposing interests fighting to control the production, representation, and image of tourism in Bali.

This study uses a quantitative descriptive approach. The research was conducted in the tourist destination areas of Bali (Sanur, Kuta, and Ubud) in 2024. Data were collected using observation, interview, and questionnaire methods (using a Likert scale of 1-5). One hundred fifty respondents were selected for the questionnaire (Ubud 50, Kuta 50, and Sanur 50). The data analysis model in this study uses SEM-PLS. Primary data was analyzed using WarpPLS Ver 7 software. Research reports from the Central Statistics Agency (BPS) and policy documents from the Bali Provincial Tourism Office were used for secondary data. In-depth interviews were conducted with local community leaders (customary village head-*kelihan*, village head-*pekaseh*), farmers, tourism sector owners and workers, artists, permanent residents (immigrants),

government representatives, and property developers. The identities of informants in this study were kept confidential to ensure their peace of mind when providing information regarding the study.

4.2 Research model

This research analyzes (1) The role of governance transformation in overcoming over-tourism towards tourism sustainability, Bali environment, socio-cultural integrity, livelihood, and welfare of local communities; (2) The role of multifaceted approach model in overcoming over-tourism towards tourism sustainability, Bali environment, socio-cultural integrity, livelihood and welfare of local communities; (3) The role of conservation in overcoming over-tourism towards tourism sustainability, the Bali environment, socio-cultural integrity, livelihood, and welfare of local communities. Further analysis will be conducted on strengthening governance transformation, multifaceted strategy, and nature conservation to overcome gentrification and realize sustainable ecotourism and socio-cultural integrity (Tables 1 and 2).

Table 1. Sample presentation summary.

Criteria of Questionnaires	Observations Number
Distributed	150
Not returned	0
Returned	150
Could not be processed	0
Could be processed	150

Table 2. Variable definition.

Variable	Definition	Indicator
Overtourism	Generally occurs when the number of tourists is greater than the number of residents in a destination, and residents begin to feel uncomfortable due to the number and behavior of tourists, such as crowding in certain areas and destruction of public facilities (González-Reverté, 2022)	1. Tourist density
		2. Accommodation density
		3. Tourist intensity
		4. A portion of waste from tourists
Governance	An activity carried out in a structured and systematic manner in compiling, planning, analyzing, and establishing planning to achieve the stated goals (Locatelli et al., 2014)	1. Transparency
		2. Accountability
		3. Responsibility
		4. Independent
		5. Fairness
Multifaceted	Tourism activities that utilize many aspects or sides (Alsahafi et al., 2023)	1. Attractions
		2. Amenities
		3. Accessibility
		4. Additional Services
Conservation	Method or effort to utilize available resources to ensure their sustainability in the future (Jacobson et al., 2015)	1. Utilization of resources
		2. Conservation of resources
		3. Community participation
		4. Education and socialization

Research model (Equation 1):

$$\eta = \eta\beta + \xi\Gamma + \beta_1\xi_1 + \beta_2\xi_2 + \beta_3\xi_3 + \sum$$

(1)

Information

- η = Overcoming over-tourism for economic justice
- ηβ = Coefficient matrix of endogenous variables
- ξΓ = Coefficient matrix of exogenous variables
- β₁ξ₁ = Role of governance
- β₂ξ₂ = Multifaceted role
- β₃ξ₃ = Conservation
- ε = error disturbance (confounding variable)

5 Analysis results

5.1 Panel data regression

The WarpPLS 5.0 structural equation model is used as a data analysis technique in research. The outer and inner model tests prove the large or small influence of the path coefficient of an exogenous variable on an endogenous variable (Kock, 2020). The following is a WarpPLS test from a study that obtained results from outer and inner model information.

The outer model tests the validity and reliability of a research instrument. The validity test in the outer model is measured using the convergent validity and discriminant validity instruments (Wong, 2013). Convergent validity determines the correlation between the reflective indicator score and the latent variable score. If the loading value is ≥ 0.6, this validity meets the criteria.

Table 3. Convergent and discriminant validity.

Variables	Indicator	X1	X2	X3	Z	Y	P Value	Correlations among I.vs. With sq. rts. of AVEs			
								X1	X2	X3	Y
Governance (X1)	X1.1	0.823						0.705			
	X1.2	0.862									
	X1.3	0.798									
	X1.4	0.723									
Multifacet (X2)	X2.1		0.907					0.758			
	X2.2		0.981								
	X2.3		0.861								
	X2.4		0.786								
	X2.5		0.845				< 0.001*				
Conservation (X3)	X3.1			0.831					0.762		
	X3.2			0.862							
	X3.3			0.949							
Overtourism (Y)	Y1				0.786					0.752	
	Y2				0.799						
	Y3				0.981						
	Y4				0.826						
	Y5				0.840						

* P Value < 0.001 = Valid. Source: Processed data.

Table 3 shows that the combined loadings and cross-loadings in the concurrent validity test have a loading value of ≥ 0.6 , meaning that it has met the criteria, so validity is met. Discriminant validity measures reflective indicators based on cross-loading with their latent variables (Roldán & Sánchez-Franco, 2012). Validity is met if the cross-loading value of each indicator on the relevant variable is greater than the cross-loadings of other latent variables. The Table 4 shows that the AVE value of each variable from 150 respondents is greater than the correlation between latent variables in the same column. This indicates that discriminant validity is acceptable.

The validity and reliability are also measured using composite reliability and Cronbach's alpha (Mohajan, 2017). Composite reliability measures the stability and consistency of combined reliability measurements, and the questionnaire has high composite reliability if the composite reliability value is ≥ 0.8 . At the same time, Cronbach's alpha on each variable must be above 0.6 to accept the internal consistency reliability. In Table 5, the composite reliability value of each variable is above 0.7, and the Cronbach's alpha value of each variable is above 0.6, so it is concluded that all variables have met the reliability criteria.

Table 4. Latent variable coefficients.

	X1	X2	X3	Y
R-squared coefficients				0.716
Adjusted R-squared coefficients				0.704
Composite reliability coefficients	0.770	0.779	0.806	0.764
Cronbach's alpha coefficients	0.782	0.747	0.738	0.715
Average variances extracted	0.766	0.733	0.780	0.725
Full collinearity VIFs	1.512	1.362	1.215	1.601
Q-squared coefficients				0.419

Source: Processed data.

Furthermore, in Table 4, information is obtained in the form of an R-square in the study of 0.716, which means that 71% of the overcoming of over-tourism can be explained by three variables, including the role of governance, multifaceted roles, and conservation. In comparison, other variables influence the remaining 29%. In the full collinearity VIFs value as a result of the full collinearity test, which includes vertical and lateral multicollinearity, the criteria must be small from (<3.3) so that the model can be stated as free from vertical collinearity problems and standard method bias occurs, the output results show a value smaller than (<3.3) then the full collinearity VIFs value is accepted and in the measurement of Q-square coefficients used as an assessment of predictive validity which can be negative and greater than (> 0), the results of the study showed a value greater than (> 0) so that it was declared valid.

Evaluation of the inner model test or structural model is used as an index and measure to determine the relationship between latent constructs and other latent constructs. The research is declared good if the structural model meets the required standards (Kock, 2015). Table 5 contains test items and standard inner model test values used in measuring the model's strength.

Table 5. Model Fit and Quality Indices.

Model Fit and Quality Indices	Fit Criteria	Index
Average path coefficient	p < 0.05	0.281*
Average R-squared		0.416*
Average adjusted R-squared		0.404*
Average block VIF	acceptable if <= 5, ideally <= 3.3	1.230*
Average full collinearity VIF		1.373*
Tenenhaus GoF	small >= 0.1, medium >= 0.25, large >= 0.36	0.433**
Sympson's paradox ratio	acceptable if >= 0.7, ideally = 1	1.0*
R-squared contribution ratio	acceptable if >= 0.9, ideally = 1	1.0*
Statistical suppression ratio	acceptable if >= 0.7	1.0*
Nonlinear bivariate causality direction ratio		1.0*

*Fulfilled; **Fulfilled in large category. Source: Processed data.

The structural model can be accepted and can be used as an analysis

5.2 Hypothesis and research results

Figure 1 shows a direct relationship between the variables studied, where the output results are in the form of a model and the results of the path analysis test. At the same time, table 6 output results in the form of path coefficient values are used to determine the magnitude of the influence of the direct relationship. The output results of WarpPLS 5.0 are stated as the analysis results whose data have been standardized. The results of the direct influence test in this study, shown in Figure 1 and Table 6, are interpreted as follows: 1. The path coefficient value of the role of governance towards overcoming over-tourism is 0.410, and the p-value is 0.001 <0.05 significance level, so it is stated that the role of governance has a significant effect on overcoming over-tourism. 2. The path coefficient value of the multifaceted role towards overcoming over-tourism is 0.129, and the p-value is 0.058 > significance level 0.05. It is stated that the multifaceted role has no significant effect in overcoming over-tourism. 3. The path coefficient value of the conservation role towards overcoming over-tourism is 0.305, and the p-value is 0.001 < significance level of 0.05, indicating that the conservation role significantly affects over-tourism.

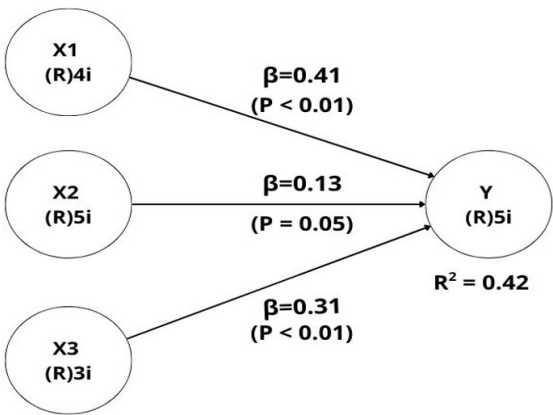


Figure 1. Results of the direct effect analysis test.

Table 6. Model Fit and Quality Indices.

Variable	Criteria	P Values	Description
	Path coefficients		
Governance Role (X1)	0.410	< 0.001	Highly Significant
Multifacet Role (X2)	0.129	< 0.058	Not Significant
Conservation Role (X3)	0.305	< 0.001	Highly Significant

Hypothesis testing decision: obtained p-value ≤ 0.10 then weakly significant, p-value ≤ 0.05 then significant, and p-value ≤ 0.01 then highly significant

6 Discussion

Based on the results of the study, the first hypothesis is accepted, which means that the role of governance influences overcoming over-tourism on the sustainability of tourism, the Balinese environment, socio-cultural integrity, livelihoods, and welfare of local communities, which is in line with research conducted by Agyeiwaah (2019), Joppe (2019), Volgger (2019), and Petrić & Mandić (2021). Given the important role of the government, private sector, and community in sustainable tourism development, the implementation of development is no longer the domain of the government alone, but also the active role of other stakeholders. As is known, the development of tourist destinations, especially in the regions, must focus on the actual conditions of the region, both in terms of potential and natural tourism (Guaita Martínez et al., 2019). For this development, in addition to the local government, non-governmental institutions and surrounding human resources must be directly involved in it so that tourism programs can be implemented according to expectations, such as utilizing natural resources optimally, reducing environmental damage, and respecting local socio-culture. Tourism governance will impact the environment controlled by stakeholders together so they can ensure sustainable economic benefits. In addition, the governance that is implemented, the policy regarding visitors can be applied, such as targeting the number of visitors according to capacity to be able to maintain the capacity in each tourism visit; this means that stakeholders in tourism do not only provide greater benefits than the local community. The results of this hypothesis are strengthened by interviews with key informants, namely, I Made Wirawan, as Ubud Tourism Manager:

The role of governance in overcoming over-tourism is significant. In Ubud, we try to regulate the flow of tourists by limiting the number of visits to several sensitive tourist attractions. This aims to ensure that tourism management remains sustainable in terms of the environment, society, and economy. We work with local governments and communities to ensure that all parties can feel the benefits of tourism without damaging the existing culture and environment.

In addition, some information was also obtained from interviews with informants, namely: Ni Luh Sari Dewi (Home stay Entrepreneur and Sanur Tourist Community)

We in Sanur implement the concept of sustainable tourism through the involvement of local communities. Good governance helps us balance preserving Balinese cultural heritage and welcoming tourists. We also educate tourists about the importance of maintaining cleanliness and not damaging nature, because we know that environmental damage will directly impact our economy. The local government is very supportive by implementing more environmentally friendly policies.

Likewise, according to I Gusti Agung Surya, the Kuta Cultural Manager, he stated:

As managers of tourist villages, we in Kuta are starting to realize that over-tourism negatively impacts the environment and local culture. Therefore, good governance, which includes limiting tourist zones and waste and water management, is essential. We also focus on empowering local communities to ensure they can feel the benefits of tourism without sacrificing their quality of life. We maintain cultural sustainability and social integrity so future generations can experience Balinese culture.

Furthermore, Komang Adi Prasetya, a transportation entrepreneur and local community activist in Ubud, stated that

Many do not realize that over-tourism can threaten the welfare of local communities, both in terms of livelihood and social welfare. For example, many tourism workers rely solely on this sector, without any training or diversification. However, with better tourism regulation and management, we can create fairer and more sustainable opportunities for local communities. Social sustainability is critical in this regard.

Finally, Putu Wayan Jaya as Sanur Tourism Information Manager expressed:

In Sanur, we see the direct impact of over-tourism on the environment. Many once green and beautiful areas are now threatened by waste and pollution. Therefore, good tourism management, involving local community participation and strict regulations from the government, is essential. We must also maintain a balance between meeting the needs of tourists and protecting the rights of local communities so that they are not marginalized in this process.

Furthermore, the second hypothesis shows different results where the multifaceted role has no effect in overcoming overtourism on the sustainability of tourism, the Balinese environment, socio-cultural integrity, livelihoods, and welfare of local communities, which is not in line with research conducted by Fontanari & Berger-Risthaus (2019) and Benner (2020). The growth in the number of tourists in Bali does have a reasonably high impact, as the significant income helps support the development of industry and employment, especially in the service sector, such as hotels, villas, resorts, etc. (Antara & Sumarniasih, 2017). However, it is undeniable that this impacts the pressure of too many visitors to tourist attractions, congestion in every area for tourists, the quality of public space and services getting worse, and natural resources being depleted. This causes urban development to be unsustainable, such as the construction of hotels and resorts, which has directly caused the loss of agricultural land and ecosystem degradation. The decline in soil fertility in more fertile areas, exacerbated by excessive water extraction and extensive use of chemical fertilizers, has further compounded the disintegration of agricultural productivity on the island (Pahalvi et al., 2021). In addition, waste management is also a significant issue that Balinese people have to deal with due to over-tourism. The increasing volume of solid waste, including plastic waste generated by tourists, has become an increasingly complex problem to overcome on the island. Beaches littered with trash, polluted rivers, and overflowing landfills are harsh reminders of how overtourism ultimately damages Bali's environment. This means that government, non-governmental organizations, and communities must be able to improve sustainable tourism measures in Bali, which

requires a multifaceted approach that creates a more sustainable and inclusive tourism model. The main challenge is balancing facilitating economic growth and preserving Bali's unique cultural and environmental attributes. This argument is supported by the results of an interview with I Gede Arjana, as a Tourist Attraction Manager in Ubud, namely:

We have tried various approaches to overcome over-tourism in Ubud, from limiting the number of tourists to promoting alternative destinations. However, the results are still insignificant. Tourists continue to come in large numbers, and although many parties are involved in this management, the impact on the environment and society has not decreased. This shows that even though multifaceted roles are applied, the problem of over-tourism persists without any real change.

The same thing was also expressed by Ni Made Kunti, a Traditional Warung Owner and Social Activist in Sanur

In Sanur, we have also implemented various policies to reduce the impact of tourism, such as limiting visitors and increasing awareness of cleanliness. However, I feel that the negative impact of over-tourism is still present. Although many people play a role, from the government, the community, and the private sector, the main problem is the number of tourists, which is too large, damaging the social and environmental balance. We have not seen significant results from the policies implemented.

Homestay entrepreneur and member of the tourism organization, I Ketut Bagus, stated that:

The efforts made in Kuta to overcome over-tourism, such as limiting the number of visitors and promoting sustainable tourism, are not enough to reduce the impact. Although we involve many parties, including local communities, the policies implemented do not reduce the number of tourists coming. For example, even though we organize more environmentally friendly tourist destinations, the number of visitors is still overflowing, and this continues to impact the environment and community welfare.

The results of the third hypothesis study show that this hypothesis is accepted, which means that the role of conservation has a significant effect in overcoming over-tourism on the sustainability of tourism, the Balinese environment, socio-cultural integrity, livelihoods, and welfare of local communities; this is in line with research conducted by Koh & Fakfare (2019), Høegh-Guldberg et al. (2021) and Kc (2022). Building a sustainable ecotourism development strategy must prioritize environmental conservation. Through direct experience and education provided by tour guides or conservation institutions, visitors can increase their understanding of the importance of protecting the environment and taking responsible action toward it (Walker & Moscardo, 2014). The phenomenon of overtourism should be one of the main priorities in tourism management; the potential negative impacts of overtourism must be watched out for and addressed with strategic and systematic actions to continue realizing sustainable tourism in Indonesia. Through strict conservation policies, natural resources and sensitive ecosystems can be protected from damage or excessive exploitation to achieve sustainable ecotourism. Several confirmations through interviews were made to Putu Adi Dharma as a Tourism Researcher in Sanur, namely:

I see the role of conservation in Sanur has a very big impact in reducing over-tourism. One successful example is our waste management and coastal area preservation program. By involving local communities, we protect the environment and improve the community's quality of life. Conservation protects nature and creates sustainable jobs for residents involved in this program. Sustainable tourism is also achieved because the quality of the environment is maintained.

Sustainable conservation is also implemented through the results of an interview with I Wayan Subagia, as a Bali Tourism Manager in Ubud, namely:

In Ubud, we have focused on conservation to overcome over-tourism. We utilize nature's beauty to attract tourists who know the importance of preservation. We also run sustainable water and land management programs and involve the community in conservation programs. As a result, we see reduced environmental damage and an increased sense of ownership from local communities towards our tourist destinations. This contributes to the sustainability of tourism and community welfare.

Cooperation has also been carried out based on the results of an interview with Made Sudarma as a Restaurant Entrepreneur and Tour Guide, namely:

We have collaborated with various conservation institutions to reduce the impact of over-tourism, such as maintaining marine ecosystems and introducing environmentally friendly nature tourism. The impact is very positive, both for the environment and the community. In addition to improving environmental conditions affected by tourism, this conservation program also helps create new jobs for local communities. Many residents are now involved in coral reef conservation and waste management programs, which provide additional income. Conservation, for me, is the best way to ensure sustainable tourism in Kuta.

The role of governance has a considerable influence in overcoming over-tourism in the Province of Bali because effective governance can ensure sustainable, fair, and equitable tourism management. As one of the world's leading tourist destinations, Bali faces a significant challenge in managing many tourists without damaging the local communities' environment, culture, or welfare. Good governance can be the key to balancing the growth of the tourism industry with the need to protect existing natural, cultural, and social resources. In Bali, several places are already very crowded, such as Kuta and Ubud. The right regulations, such as limiting the number of visitors or implementing a booking system, can prevent excessive tourist accumulation. Governance also includes policies that regulate the development of infrastructure and tourism facilities in terms of environmental and social capacity. Without good governance, Bali will continue to face significant challenges related to over-tourism that damages the quality of life of local communities and the tourism attraction itself. Governance that involves all parties, has clear regulations, is based on long-term planning, and uses technology can create a more sustainable and equitable tourism system.

The multifaceted approach to overcoming over-tourism shows that combining government, private sector, and community policies can create a more inclusive and sustainable tourism model. This multifaceted approach is relevant to Bali and can be applied to other tourism destinations worldwide, both in Indonesia and abroad. Some of the applications include: (1) Many tourist destinations in Indonesia are facing the

problem of overtourism, such as Yogyakarta, Lombok, and Raja Ampat. A multifaceted approach involving community-based management, sustainable tourism development, and equitable distribution of economic impacts would go a long way in addressing the problem in these areas. (2) At the global level, major cities such as Barcelona, Venice, or Kyoto are also experiencing the impacts of overtourism. A similar approach can be applied there by encouraging tourism diversification, increasing local community participation, and utilizing technology for more efficient tourism management. In addition, collaboration between countries in global policies that support sustainable tourism is also important.

7 Conclusion, implications, and limitations

The study's results above, using three independent variables, show differences between the results of this study and the hypothesis. The independent variable, namely the governance role variable, showed an effect on overcoming overtourism, while the multifaceted role variable showed different results, not affect overcoming overtourism. Finally, the conservation variable affects overcoming overtourism.

In the current development of tourism, the term over-tourism has emerged. It refers to the negative impact of a tourism destination that affects the quality of life of the local community and the experience of tourists who come to visit (Berselli et al., 2022). Various things can be done to overcome over-tourism for the sake of tourism sustainability, Bali's environment, socio-cultural integrity, livelihoods, and welfare of local communities, such as increasing tourism diversity, environmental management by reducing plastic use, active participation of local communities in ecological maintenance, environmental education and awareness efforts for visitors, promotion, and sale of local products to support the local economy, and efforts to plan and regulate visitor flows to avoid the negative impacts of over-tourism. In addition, the government facilitates cooperation between local communities, businesses, and tourists to support the development of sustainable tourism initiatives. Tourism development and the right balance must be taken from environmental, economic, and socio-cultural aspects to ensure long-term sustainability (Venugopalan & Kumar, 2017). The sustainability of tourism focuses on the shortcomings of the concept that could be more optimal for progress, increasing understanding of the limitations of the concept that cause society's transition to a sustainable pattern as a multifaceted process.

The limitations of this study lie in the variables used. Only three independent variables cover the role of governance, multifaceted roles, and conservation, so it is still not optimal to show its role in overcoming over-tourism. In addition, the study was only aimed at the Bali tourism area, so it does not represent all tourist areas in Indonesia.

Acknowledgements

The authors would like to thank the Center of Research and Community Service-Universitas Pendidikan Ganesha, which funded this research with grant number: SP DIPA-023.17.2.677530/2024 and 889/UN48.16/LT/2024.

Statement on Data Availability

I declare that this research has provided and included complete data related to the research conducted.

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Editor-in-Chief

Pedro Munari

Authors contribution

I Gusti Ayu Purnamawati was responsible for the conceptualization and theoretical-methodological approach, software learning and application, writing—original draft preparation, review, editing, final revision, supervision, and project administration. Gede Adi Yuniarta was responsible for the theoretical review, data collection, and data curation. I Putu Gede Diatmika was responsible for the conceptualization of the work and the solution methodology, validation of results, and writing—original draft preparation. Emanuel Be was responsible for data analysis, formal analysis, and validation of results.