

Local Governance and Ecotourism: Empowering Communities for Sustainable Development

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Abstract: Kerala has witnessed notable growth in ecotourism and community-based coastal tourism, contributing to revenue generation, employment opportunities, and locality development while promoting environmental preservation. This study aims to examine the role and support of Local Self-Government Institutions (LSGIs) in fostering community development through ecotourism initiatives at the Kadalundi Vallikkunnu Community Reserve (KVCR) in the Malabar region. Data were collected from 155 KVCR stakeholders using a simple random sampling technique during October 2024 to March 2025. The study employed Structural Equation Modelling, supported by Exploratory Factor Analysis and Confirmatory Factor Analysis, to validate the measurement scales and analyse causal relationships. The findings reveal that LSGIs significantly influence community development within the ecotourism framework, particularly in areas such as employment, infrastructure, cultural promotion, social inclusion, and entrepreneurship, while supporting the increasing floristic diversity of KVCR's ecotourism offerings. These results highlight the critical role of local self-governance in promoting sustainable, community-oriented ecotourism initiatives. The study's novelty lies in empirically integrating local governance mechanisms with community empowerment outcomes in an ecotourism context; a gap underexplored in Kerala's tourism research. Policy recommendations emphasize strengthening LSG participation, entrepreneurship, and inclusive livelihood opportunities to sustain ecotourism-led community empowerment.

1. Introduction

Tourism plays a vital role in economic development due to its potential for employment generation, income expansion, foreign investments, tax revenues, and infrastructure development (Bhushan & Mir, 2014; Khalil & Kakar, 2007). Among its various forms, ecotourism has emerged as a key category of sustainable tourism, promoting both environmental conservation and holistic community development. By integrating local development, resource management, and protected area management, ecotourism supports livelihoods while preserving ecological integrity (Seervi, 2023; Kiper, 2013). Kerala is particularly well-suited for ecotourism due to its diverse landscapes, including backwaters, wetlands, pristine beaches, and protected areas, along with a strong commitment to environmental sustainability (Ranjith, 2020). These features offer opportunities for immersive experiences that combine ecological and cultural awareness. The Kadalundi Vallikkunnu Community Reserve (KVCR) in the Malabar region exemplifies this potential, featuring wetlands, mangrove forests, estuaries, and a rich variety of flora and fauna, including migratory birds, fishes, and reptiles. The local community actively contributes to protecting this fragile ecosystem, raising awareness, and offering guided tours that highlight the reserve's biodiversity and cultural heritage (Noya, 2023).

Despite KVCR's ecological and tourism potential, it remains underutilized. According to Kerala Tourism Statistics (2023), KVCR attracts fewer than 5,000 visitors annually, whereas Thenmala Ecotourism and Periyar Tiger Reserve record over 60,000 and 180,000 visitors respectively. The site also lacks adequate infrastructure, homestay networks, and promotional activities—factors that limit visitor inflow and local income generation. While KVCR was declared Kerala's first community reserve in 2007 and represents a model for participatory conservation, the absence of structured Local Self-Government (LSG) engagement has hindered its transformation into a sustainable community-based ecotourism hub. Prior research has largely overlooked the governance-community linkages essential for translating ecotourism opportunities into sustainable community development. While existing studies have highlighted the benefits of ecotourism in Kerala, limited attention has been given to the role of LSGs in supporting and promoting community-based ecotourism. This study addresses this gap by examining how LSGS engagement influences local community participation and development outcomes in KVCR.

KVCR possesses rich natural resources that make it an ideal destination for ecotourism; however, the tourism opportunities in the region remain underdeveloped. Recognizing this gap, the study focuses on the crucial role and support of Local Self-Government Institutions (LSGS) in leveraging ecotourism for community development. The research seeks to understand the extent to which local communities perceive and engage with ecotourism initiatives, as well as the degree of influence that LSGS roles and support exert on community development through these initiatives. Accordingly, the objectives of the study are to examine how local communities view and participate in ecotourism activities at KVCR and to assess the impact of LSGS involvement in promoting community development. Based on these objectives, the study proposes two hypotheses:

H1 states that the active role of LSGS has a positive influence on community development through ecotourism initiatives.

H2 posits that the support provided by LSGS also has a positive impact on community development in the context of KVCR's ecotourism efforts.

This study contributes to the literature by linking governance mechanisms with community-based ecotourism outcomes and offers practical insights for enhancing LSGS interventions to promote sustainable local development. By addressing both ecological and socio-economic dimensions, it provides a comprehensive understanding of how local governance can foster inclusive and environmentally responsible tourism.

2. Review of Literature

Tourism development can serve as a significant catalyst for community capacity building and sustainable local development when effectively managed and aligned with community goals (Aref & Redzuan, 2008). Central to successful tourism initiatives is community empowerment and active participation in decision-making processes (Khalid et al., 2019; Alim et al., 2021). Local support for tourism is shaped by perceived economic benefits, environmental considerations, and trust in governance institutions (Bhat et al., 2020). Ecotourism and eco-cultural tourism, as sustainable alternatives, not only create employment and infrastructure opportunities but also foster cultural revitalisation in developing regions (Thornburg, 2017; Ibrahim & Falola, 2021). However, potential negative impacts on communities highlight the need for careful planning and integration of community perspectives into tourism strategies (Aref et al., 2010; Beeton, 2006).

Community-based ecotourism emphasises local empowerment, resource control, and economic opportunities while ensuring ecological conservation (Thornburg, 2017; Bansal & Kumar, 2011). Effective participation has been linked to positive outcomes in income generation, infrastructure development, and cultural promotion, as seen in the Kadalundi-Vallikunnu Community Reserve (Vinod et al., 2021) and other international contexts (Tsaur et al., 2006; Lai & Nepal, 2006). Resident engagement influences attitudes and perceptions, which in turn shape tourism success (Kim et al., 2021; Ryu et al., 2020). Such engagement fosters alignment between tourism benefits and community needs, enhancing the sustainability of local initiatives.

Despite these benefits, communities face several challenges, including limited awareness, restricted access to resources, low education, and distrust toward authorities (Bansal & Kumar, 2011; Kim et al., 2014; Kala & Bagri, 2018). Socio-cultural apprehensions, practical constraints, and institutional inefficiencies further hinder meaningful involvement (Adeleke, 2015; Hunt & Stronza, 2014). Overcoming these barriers requires governance mechanisms that facilitate participation, capacity building, and equitable benefit-sharing.

Governance structures, particularly LSGs, play a crucial role in mediating community engagement and ensuring equitable distribution of ecotourism benefits (Edward & Kumar, 2017; Tuohino & Konu, 2014). Studies from India, Nepal, Thailand, and other regions demonstrate that effective leadership, institutional support, and policy alignment significantly influence residents' willingness to participate and the overall success of ecotourism initiatives (Kontogeorgopoulos, 2005; Zhang & Lei, 2012; Paudyal et al., 2018). However, many prior studies focus primarily on community perceptions or qualitative evaluations, with limited attention to quantifying the impact of governance mechanisms on community development outcomes.

Collectively, the literature underscores the importance of community engagement, perception, and participation in driving the success of ecotourism. While benefits and barriers of participation are well documented, the role of LSGs in actively supporting, guiding, and regulating ecotourism initiatives remains underexplored. There is a notable gap in studies examining the causal relationship between LSG support and community development outcomes in ecotourism contexts. By employing Structural Equation Modelling (SEM) to analyse both direct and indirect effects of LSG interventions, the present study addresses this gap and provides empirical evidence on the interplay between local governance and sustainable community development through ecotourism.

Ecotourism has evolved as an important tool for achieving sustainable development by integrating environmental protection, socio-economic growth, and cultural preservation. The core idea is that tourism can coexist with ecological conservation when local communities are actively engaged in planning and management. According to Honey (2008), ecotourism promotes both the protection of natural ecosystems and the improvement of local livelihoods. Das and Chatterjee (2015) emphasised that sustainable tourism fosters conservation awareness and generates alternative income for rural populations, particularly in developing countries.

While numerous studies affirm the positive role of ecotourism in enhancing community well-being, critics argue that the benefits are unevenly distributed and that many projects fail to achieve long-term sustainability (Scheyvens, 2011; Stronza & Gordillo, 2008). For example, Tosun (2006) highlighted the structural and institutional barriers that limit genuine community participation in tourism planning. Similarly, Mbaiwa and Stronza (2010) observed that ecotourism success depends not merely on natural resource endowment but on effective governance mechanisms that empower communities to participate in decision-making and resource management.

Community participation is a recurring theme in sustainable tourism research. Aref and Redzuan (2008) defined it as the process by which local residents influence, share control, and gain benefits from tourism activities. In Kerala, participatory tourism has been linked to local empowerment, particularly in destinations such as Thenmala and Kumarakom, where local cooperatives and self-help groups play vital roles (George & Kumar, 2021).

However, the extent of empowerment often depends on the institutional frameworks that support participation. Many scholars argue that without decentralised governance and policy-level facilitation, community participation remains symbolic (Okazaki, 2008; Jamal & Getz, 1995). The LSGs in India, particularly the Panchayati Raj institutions, offers a decentralised model capable of integrating local voices into development processes. Studies such as Menon and Ravi (2019) found that empowered local governments enhance environmental accountability and foster community-driven conservation outcomes.

Kerala, known for its rich biodiversity and community-centric development model, provides a conducive environment for ecotourism (Ranjith, 2020). Several studies have examined tourism's role

in livelihood enhancement and environmental stewardship (Joseph et al., 2019; Noya, 2023). Thenmala, India's first planned ecotourism destination, is often cited as a success story in balancing conservation and economic gain (Department of Tourism, 2022). In contrast, smaller reserves such as KVCR remain underexplored and underutilised, despite their ecological potential.

Most Kerala-based studies have employed qualitative or descriptive methods to assess perceptions, satisfaction levels, or participation barriers (George & Kumar, 2021; Ranjith, 2020). While these studies provide valuable insights into community experiences, they lack the quantitative rigour needed to explain how multiple governance and empowerment variables interact to influence community development. For example, Asha and Mathew (2022) assessed ecotourism awareness among rural households using descriptive statistics, whereas Bhat and Ali (2021) focused on policy implications without empirically testing causal relationships.

These methodological limitations highlight a gap that quantitative modelling approaches such as Structural Equation Modelling (SEM) can address. SEM enables simultaneous examination of multiple latent constructs—such as governance support, empowerment, and community development - providing deeper causal insights than bivariate or descriptive methods.

The present study extends this analytical tradition by employing a two-stage SEM approach—Exploratory Factor Analysis (EFA) to identify key dimensions and Confirmatory Factor Analysis (CFA) to validate the measurement structure. This method provides empirical robustness and allows for testing of mediating relationships that were not captured in prior qualitative or partial-factor analyses.

Previous research has emphasised participation and empowerment in ecotourism but seldom conceptualised the role of local governance systems as a central determinant of community development. Existing Kerala-based studies have been largely descriptive or qualitative, lacking quantitative validation of causal linkages among governance, empowerment, and development constructs. Limited research has examined coastal community reserves like KVCR, where governance, conservation, and livelihood objectives intersect. Most available studies focus on hill or forest-based ecotourism sites such as Thenmala or Thekkady, leaving coastal reserves empirically understudied. This study addresses these gaps by employing Structural Equation Modelling (SEM) to analyse the causal relationships among LSG's roles, community empowerment, and development outcomes within KVCR. The novelty lies in its integration of governance and community constructs into a unified, empirically tested model that advances understanding of institutional effectiveness in community-based ecotourism.

Theoretically, this research contributes to the discourse on governance-based sustainable development by empirically demonstrating how local self-governance mechanisms influence community development through empowerment pathways. It also enriches the literature on institutional capacity and decentralisation within the tourism governance framework. Practically, the study offers policy-relevant insights for strengthening LSG participation in tourism planning, capacity building, and resource mobilization. In the case of KVCR, the findings are expected to guide policymakers in designing collaborative governance models that promote employment, entrepreneurship, and environmental stewardship.

3. Research Methodology

3.1. Research Design

This research is an analytical study that investigates cause–effect relationships between the study variables using first-hand (primary) quantitative data. Variables were operationalised as measurable constructs and analysed using appropriate statistical procedures to test hypothesised relationships.

The study population comprised 260 stakeholders associated with the KVCR project, categorised as follows: 195 members of the local community, 10 members of the Local Reserve Development Committee, 23 members of the Vallikkunnu Grama Panchayat standing committees, and 23 members

of the Kadalundi Grama Panchayat standing committees. Using the Krejcie and Morgan (1970) sample size table, a total sample of 155 respondents was determined. The sample was allocated proportionally and selected by simple random sampling as follows: 116 respondents from the local community, 6 from the Local Reserve Development Committee, 13 from the Vallikkunnu Grama Panchayat standing committee, and 14 from the Kadalundi Grama Panchayat standing committee. To ensure independent validation, a split-sample approach was employed: 100 respondents were used for EFA and 55 respondents for CFA and SEM. Demographic equivalence between the subsamples was confirmed through chi-square and t-tests.

3.2. Pre-testing

A structured questionnaire was used as the primary data collection instrument. Questionnaire items were developed from an extensive review of the literature and existing validated scales [Community Development: Aref & Redzuan (2008), Community Empowerment: Kim et al. (2017), LSG Support: Menon & Ravi (2019); Ranjith (2020)] where applicable, then adapted to the local context of the KVCR stakeholders. To ensure content coverage and clarity, the draft instrument (newly added context-specific items) was reviewed by an expert panel of five subject-matter experts (comprising academics and practitioners familiar with local governance and natural resource management). Based on the expert review, items were revised for relevance and clarity. A Pre-test was conducted with 30 respondents drawn from the same stakeholder groups but outside the final sample frame. The pilot assessed item clarity, administration procedures, and average completion time. Feedback from the pilot led to minor wording adjustments and the removal of redundant items to improve respondent comprehension and reduce respondent burden.

3.3. Reliability and Validity Testing

Content validity was established through the expert-panel review described above. The item-level content validity indices (I-CVI) and the scale-level content validity index (S-CVI/Ave) were calculated; the S-CVI/Ave exceeded commonly accepted thresholds, indicating satisfactory content validity. Exploratory factor analysis (EFA) was performed to examine the questionnaire's underlying factor structure. The Kaiser-Meyer-Olkin (KMO) measure indicated sampling adequacy and Bartlett's test of sphericity was significant, justifying factor analysis. Items with loadings below 0.40 or cross-loading issues were revised or removed to achieve a clean factor structure consistent with theoretical constructs. Internal consistency reliability was assessed using Cronbach's alpha for each construct and for the overall scale. Cronbach's alpha values met accepted standards ($\alpha \geq 0.70$) across constructs, demonstrating satisfactory reliability for subsequent statistical analysis.

3.4. Data Management

Data were collected from the selected respondents using the finalised questionnaire administered by trained enumerators. Enumerators followed a standardised protocol to introduce the study, obtain consent, and assist respondents when needed. Completed questionnaires were checked for completeness in the field to minimise missing data. Data were coded and entered into statistical software for analysis. Descriptive statistics (means, frequencies, and standard deviations) summarised respondent characteristics and variable distributions. Inferential statistical techniques appropriate to the research questions — including correlation analysis, regression modelling, and other multivariate procedures where relevant — were used to test hypothesised relationships and assess effect sizes. All analyses adhered to standard assumptions-checking procedures and significance testing conventions.

EFA was performed using Principal Axis Factoring with Promax rotation. Factor retention criteria: eigenvalues >1 , loadings ≥ 0.50 , and communalities ≥ 0.40 . Items with cross-loadings ≥ 0.40 were removed. KMO = 0.82 and Bartlett's test was significant ($\chi^2 = 1145.32$, $p < 0.001$), indicating suitability for factor analysis. Confirmatory Factor Analysis (CFA) and SEM were conducted using Maximum Likelihood estimation with robust corrections (MLR) to address non-normality. Missing values ($<2\%$) were handled using Full Information Maximum Likelihood

(FIML). Model fit was assessed using χ^2/df , CFI, TLI, RMSEA (90% CI), SRMR, and AIC. No parcelling was applied; all latent constructs were measured via observed indicators. SEM tested the causal paths from LSG active role and support to community empowerment and community development outcomes. Direct and indirect effects were evaluated, with standardised path coefficients and significance levels reported to provide quantitative insights into governance-community linkages.

3.5. Ethical considerations

Ethical approval for the study was obtained from the relevant institutional/ethics committee prior to data collection. All participants provided informed consent; they were informed about the study's purpose, voluntary participation, the right to withdraw at any time, and how the data would be used. Respondent confidentiality and anonymity were strictly maintained: questionnaires were anonymised, identifying information was not linked to responses in analytical datasets, and all electronic data were stored on password-protected devices accessible only to the research team. Aggregated results are reported so that individual respondents cannot be identified.

4. Results and Discussion

Validation of Measurement Scale – Support of LSGS

Assessment instrument utilised to quantify "Support" dimension within the LSGS in KVCR underwent a two-phase validation process employing a sample size of 100. Initially, an EFA (Exploratory Factor Analysis) had been performed, then a CFA (Confirmatory Factor Analysis). This sequential approach aimed to rigorously evaluate the quality of the instrument's factor structure. Specifically, the CFA employed statistical methods to evaluate comprehensive model's significance, alongside examining interrelationships between individual items and their respective scales, utilising empirical data derived from the sample.

Exploratory Factor Analysis (EFA): Support of LSGS

For analysing factor structure and interrelationships among 15 statements designed to measure support for LSGS in KVCR, an EFA had been executed. This analysis employed Principal Component Method (PCM) in conjunction with Varimax Rotation to facilitate interpretation. The following section details the findings of this EFA.

Table 1: KMO and Bartlett's Test - Support of LSGS

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.775
	Approx. Chi-Square	701.206
Bartlett's Test of Sphericity (BTS)	df	105
	Sig.	.000

Source: Primary data.

15 statements have been subjected to a PCA (Principal Component Analysis) utilising Varimax rotation. Analysis's sample adequacy had been verified by KMO measure, which produced an outcome of 0.775, comfortably surpassing recommended threshold of 0.7. Strength of inter-variable relationships was further substantiated by BTS, which yielded a Chi-Square value of 701.206 ($p < 0.01$), demonstrating correlations substantial enough to justify the use of PCA.

An early analysis had been conducted to determine eigenvalues for every component. Five components exhibited eigenvalues surpassing Kaiser's criterion of 1, collectively, these components accounted for 73.447% of total variance. Results derived from EFA are presented subsequently.

Table 2: Result of EFA - Support of LSGS

Constructs	Statements	Code	FL	EV	VE (%)	CA
Conservational Support	Actively engage in protection of mangrove & restoration of habitat	CS1	0.817	5.127	34.18	0.719
	Ensure proper waste disposal without harming resources of the reserve	CS2	.785			
	Engage in production and sale of handicraft artwork that reflect culture	CS3	0.698			
Cultural Support	Engage in educational program and work shop to raise cultural awareness	CUS1	0.749	1.974	13.13	0.736
	Provide local guidelines and share knowledge about cultural difference	CUS2	0.822			
	Conduct culturally based activities	CUS3	0.739			
Financial Support	Huge investment in ecotourism development	FS1	0.773	1.167	10.77	0.766
	Huge investment in the form of donation	FS2	0.605			
	Huge investment in the form of grant and financial aid	FS3	0.798			
Publicity and Promotional Support	Regularly post or share photos and videos of Eco-spot	PPS1	0.900	1.354	9.02	0.739
	Share knowledge and personal experience about KVCR through storytelling and blogging	PPS2	0.682			
	Involved in word-of-mouth promotion	PPS3	0.857			
Advocacy and Policy Support	Actively participate in planning and management activities of KVCR	APS1	0.875	1.027	6.84	0.919
	Play a role in decision making process regulating eco-tourism development	APS2	0.847			
	Actively contribute my ideas, concern and local knowledge to support ecotourism development of KVCR	APS3	0.877			
Total Variance Explained – 73.991%						

Note: FL: Factor Loading, EV: Eigen Value, VE: Variance Explained, CA: Cronbach Alpha.

Source: Primary data.

EFA yielded a five-factor solution, with all items loading appropriately onto their designated factors. This solution accounts for 73.991% of the total variance. The first factor, labelled "Conservational Support (CS)," comprises three items as well as explains 34.18% of variance. Second factor, "Cultural Support (CUS)," also includes three items along with account for 13.13% of variance. Third factor, "Financial Support (FS)," encompasses three items along with explaining 10.77% of variance. Fourth factor, designated "Publicity and Promotional Support (PPS)," consists of three items and contributes 9.02% to the explained variance. Finally, the fifth factor, "Advocacy and Policy Support (APS)," contains three items and explains 6.84% of variance. Cumulatively, 73.991% of total observed variance can be explained by these five factors.

Construct Validity: As indicated in the preceding table, all factor loadings exceed 0.40 thresholds. This satisfies criteria for construct validity, encompassing both discriminant and convergent validity as established by Straub et al. (2004). Discriminant validity is demonstrated by the absence of cross-loadings above 0.40, while convergent validity is supported by eigenvalues of 1 or greater and factor loadings exceeding 0.40, with items loading onto their hypothesised constructs. Therefore, outcome of EFA demonstrates a robust level of validity for the identified factors within the 'Support' dimension.

Reliability: Cronbach's Alpha coefficient has been employed to estimate reliability of extracted factors; a value of 0.70 or else higher indicates strong internal consistency. All constructs and their associated variables examined in this study achieved Cronbach's Alpha values surpassing this limit, thus verifying high dependability and internal consistency of questionnaire.

Following the establishment of reliability, the subsequent phase involves conducting a CFA on 'Support' variable along with its constituent constructs recognised through the preceding EFA. This CFA's objective has been to evaluate the congruence between the factor structure derived from the EFA and the theoretically intended measurement structure, specifically examining whether the underlying factors of each construct align within the overarching dimension.

Confirmatory Factor Analysis – Support of LSGS

To validate measurement scales pertaining to 'Support' within LSGS; a First-Order CFA was employed. This analysis provides insight into the quality of factor structure underpinning measured parameters. Results of CFA are presented through an examination of the model itself, its associated fit indices, and an evaluation of measuring scales' reliability along with validity.

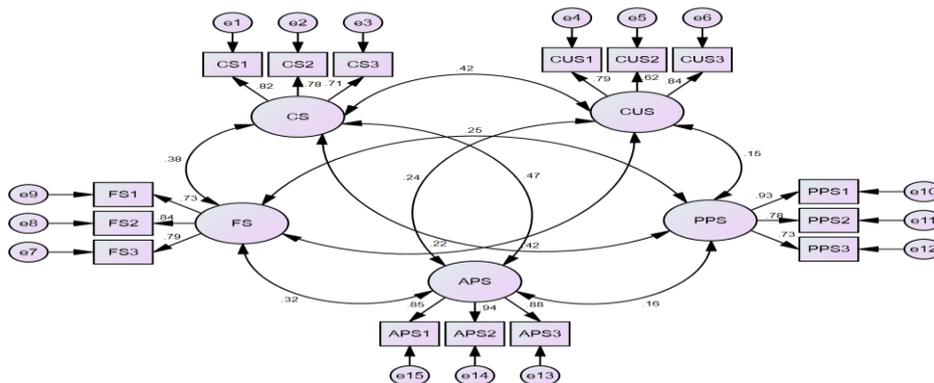


Figure 1: Measurement Model of CFA for the Support of LSGS

Table 3: Model Fit Indices – Support of LSGS

Indices	Value Obtained	Recommended Value
Normed chi-square- (CMIN/df)	1.684	≤3
Root Mean Square Residuals -(RMR)	0.030	≤0.05
Normed Fit Index- (NFI)	0.913	≥0.90
Goodness of Fit Index- (GFI)	0.920	≥0.90
Tucker Fit Index -(TLI)	0.903	≥0.90
Incremental Fit Index -(IFI)	0.915	≥0.90
Comparative Fit Index -(CFI)	0.911	≥0.90
Adjusted GFI -(AGFI)	0.909	≥0.90
Root Mean Square Error of Approximation -(RMSEA)	0.079	≤0.08

Source: Primary data.

Acceptability of first-order CFA model" (depicted in Figure 1) was evaluated using the aforementioned modification indices. Key indicators of model fit, namely CFI and IFI, surpassed the recommended threshold for a good fit. Furthermore, AGFI (Adjusted Goodness-of-Fit Index), TLI

(Tucker-Lewis Index), GFI (Goodness-of-Fit Index), along NFI all demonstrated acceptable fit, with values exceeding 0.90. Similarly, RMR, CMIN/df (Chi-Square/degrees of freedom) ratio, along with RMSEA fell within acceptable range for a good model fit. Consequently, model employed to assess 'Support' within the LSGS is deemed acceptable for validating the scale.

Table 4: Validity and Reliability Statistics - Support of LSGS

Constructs	Statements	Factor Loadings	CR	AVE	MSV
Conservational Support	CS1	0.82	0.814	0.594	0.220
	CS2	0.78			
	CS3	0.71			
Cultural Support	CUS1	0.79	0.797	0.571	0.176
	CUS2	0.62			
	CUS3	0.84			
Financial Support	FS1	0.73	0.830	0.620	0.144
	FS2	0.84			
	FS3	0.79			
Publicity and Promotional Support	PPS1	0.93	0.857	0.668	0.176
	PPS2	0.78			
	PPS3	0.73			
Advocacy and Policy Support	APS1	0.85	0.920	0.793	0.220
	APS2	0.94			
	APS3	0.88			

Source: Primary data.

For every construct in the 'Support' variable, Table 4 displays the Standardised Factor Loadings, AVE (Average Variance Extracted), MSV (Maximum Shared Variance), along with CR (Composite Reliability). Every standardised factor loading has been exceeding 0.7, suggesting that each component makes an essential contribution to its own construct. Convergent validity was established by meeting three criteria: CR values >0.7, AVE values >0.5, along CR values exceeding AVE values. Every construct satisfied these conditions, thus confirming convergent validity. A comparison among MSV as well as AVE was employed to estimate discriminant validity. Since AVE for every construct surpassed its corresponding MSV, discriminant validity was also confirmed. Therefore, model demonstrates a good fit for measuring 'Support' variable, with both convergent and discriminant validity being firmly established.

Validation of Measurement Scale – Role of LSGS

Instrument designed to measure 'Role' dimension of the LSGS in KVCR underwent a two-stage validation process, mirroring the approach used for the 'Support' dimension. Employing a sample size of 100, this process commenced with an EFA, then by a CFA. Objective of this sequential methodology was to rigorously evaluate quality of instrument's structure of factors. This evaluation was achieved by statistically examining relevance of whole model and the interrelationships between individual items and their corresponding scales, on the basis of empirical data collected from sample. This process closely follows description provided earlier for validating the 'Support' dimension, simply replacing 'Support' with 'Role'.

Exploratory Factor Analysis (EFA) – Role of LSGS

To delineate underlying factor structure and assess the interrelationships among 13 statements designed to gauge "Role" of LSGS in KVCR, an EFA had been performed. This analysis utilised PCM coupled with Varimax Rotation to enhance interpretability. The subsequent section presents the findings derived from this EFA. This mirrors the language used previously for the 'Support' dimension analysis.

Table 5: KMO and Barlett's Test - LSGS

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			0.783
	Approx. Chi-Square		809.391
BTS	df		78
	Sig.		0.000

Source: Primary data.

A PCA with Varimax rotation had been applied to 13 statements pertaining to "Role" dimension. The sample's suitability for this analysis was confirmed by KMO measure, which produced a value of 0.783 that is greater than established threshold of 0.7. Robustness of inter-variable relationships was further affirmed by BTS, which produced a Chi-Square value of 809.391 ($p < 0.01$), suggesting correlations of sufficient magnitude to warrant the application of PCA. To determine the eigenvalues for each component, a preliminary analysis has been performed. In total, 4 components that exhibited eigenvalues that exceeded Kaiser's criterion of 1 explained 77.900% of variance. Results derived from this Exploratory Factor Analysis are presented subsequently. This is very similar wording to the 'Support' dimension analysis, with only minor adjustments for the changed variables.

Table 6: Result of EFA - Role of LSGS

Constructs	Statements	Code	FL	EV	VE (%)	CA
Administrative Role	Play crucial role in shaping policies and regulation pertaining to development of ecotourism	AR1	0.843	5.673	43.63	0.861
	Entrusted with responsibility of planning and developing infrastructure that support growth and development of ecotourism	AR2	0.820			
	Formulate guidelines for promoting sustainable practice in eco-tourism	AR3	0.831			
Financial Role	Allocate a dedicated portion of their annual budget towards development of ecotourism	FR1	0.798	1.708	13.13	0.915
	Offer grant and subsidies to who involved in ecotourism project of KVCR	FR2	0.876			
	Offer financial support for training programs and capacity building initiative related to ecotourism	FR3	0.755			
	Allocate fund for research studies, survey, assessment related to ecotourism development	FR4	0.843			
Publicity and Promotional Role	Take initiative to organise marketing campaign aim at fostering tourism development	PPR1	0.767	1.644	12.64	0.827
	Actively develop, maintain and engage in online platform to promote ecotourism	PPR2	0.854			
	Actively tie up with tour operators and travel agents for ecotourism development	PPR3	0.839			
Conservational Role	Active involvement in conservational plan and management strategy for ecotourism	CR1	0.868	1.102	8.47	0.800
	Oversee management of protected areas	CR2	0.830			
	Take organise educational program and awareness campaign for promote environmental literacy	CR3	0.733			
Total Variance Explained – 77.900%						

Note: FL: Factor Loading, EV: Eigen Value, VE: Variance Explained, CA: Cronbach Alpha.
Source: Primary data.

The EFA disclosed a four-factor solution for "Role" dimension, with each item loading appropriately onto its corresponding factor. This solution accounts for 77.900% of the total variance. The first factor, designated "Administrative Role (AR)," comprises three items and explains 43.63% of variance. Second factor, "Financial Role (FR)," encompasses 4 items along with accounts for 13.13% of variance. Third factor, "Publicity and Promotional Role (PPR)," consists of three items and explains 12.64% of variance. Fourth factor, identified as "Conservational Role (CR)," includes three items and contributes 8.47% to the explained variance. Cumulatively, these four factors elucidate a substantial 77.900% of the total variance observed. This structure closely resembles the 'Support' analysis, with the primary difference being the specific constructs identified and number of items within them.

Construct Validity: As demonstrated in preceding table, every factor loadings surpass the 0.40 threshold, satisfying the criteria for construct validity as outlined by Straub et al. (2004). Both discriminants along with convergent validity have been confirmed. Discriminant validity has been evidenced by the absence of cross-loadings exceeding 0.40, while convergent validity is demonstrated by eigenvalues of 1 or greater, factor loadings exceeding 0.40, and items loading onto their hypothesised constructs. Consequently, the Exploratory Factor Analysis results indicate a robust level of validity for the factors identified within the 'Role' dimension. This is essentially the same interpretation as used previously for 'Support'.

Reliability: Cronbach's Alpha coefficient was employed for evaluating reliability of retrieved components; a benchmark of 0.70 or higher indicates strong internal consistency. All constructs and their respective variables within this study attained Cronbach's Alpha values above this threshold, thereby affirming high reliability and internal consistency of questionnaire. Following confirmation of reliability, the subsequent step involves performing a CFA on 'Role' variable along with its constituent constructs, as recognised through the EFA. Aim of this CFA has been to confirm congruence between factor structure derived from EFA and the theoretically intended measurement structure. Specifically, it examines whether the underlying factors of each construct align within the broader 'Role' dimension. This is an identical explanation to the one provided for the 'Support' dimension.

Confirmatory Factor Analysis – Role of LSGS

To validate measurement scales associated with 'Role' of LSGS, a First-Order CFA had been utilised. This analysis elucidates quality of the factor structure that underlies the measured variables. The results of the CFA are presented through an examination of the model itself, its corresponding fit indices, and an examination of measuring scales' reliability as well as validity. This explanation is consistent with the one used for the 'Support' dimension.

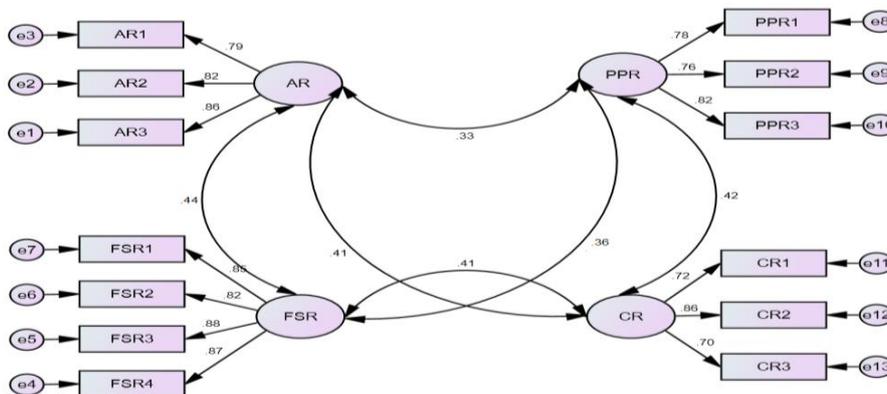


Figure 2: Measurement Model of CFA for the Role of LSGS

Table 7: Model Fit Indices – Role of LSGS

Indices	Value Obtained	Recommended Value
Normed chi-square- (CMIN/df)	2.402	≤3
Root Mean Square Residuals- (RMR)	0.045	≤0.05
Comparative Fit Index- (CFI)	0.903	≥0.90
Incremental Fit Index -(IFI)	0.906	≥0.90
Tucker Fit Index -(TLI)	0.959	≥0.90
Adjusted GFI -(AGFI)	0.942	≥0.90
Goodness of Fit Index- (GFI)	0.933	≥0.90
Normed Fit Index- (NFI)	0.914	≥0.90
Root Mean Square Error of Approximation- (RMSEA)	0.078	≤0.08

Source: Primary data.

Acceptability of first-order CFA model (illustrated in Figure 1) was assessed utilising aforementioned modification indices. In this case, AGFI, GFI, IFI, CFI, TLI, ¹ and Normed Fit Index (NFI) all demonstrated that suggested model fits them well, with values exceeding 0.90. Furthermore, CMIN/df ratio, RMR, along with RMSEA fell within acceptable range for a good model fit. Consequently, model employed to assess 'Role' of LSGS is deemed acceptable for validating the measurement scale. This differs slightly from the 'Support' explanation, acknowledging that all fit indices met the criteria.

Table 8: Validity and Reliability Statistics - Role of LSGS

Constructs	Statements	Factor Loadings	CR	AVE	MSV
Administrative Role	AR1	0.79	0.864	0.678	0.193
	AR2	0.82			
	AR3	0.86			
Financial Role	FR1	0.85	0.916	0.731	0.193
	FR2	0.82			
	FR3	0.88			
	FR4	0.87			
Publicity and Promotional Role	PPR1	0.78	0.830	0.619	0.176
	PPR2	0.76			
	PPR3	0.82			
Conservational Role	CR1	0.72	0.806	0.582	0.176
	CR2	0.86			
	CR3	0.70			

Source: Primary data.

Table 8 delineates the Standardised Factor Loadings, CR, and AVE, along with MSV for every construct utilised in measuring 'Role' variable. Standardised factor loadings all exceed 0.7, signifying that each factor makes a satisfactory contribution to its respective construct. Three requirements must be fulfilled to prove convergent validity: CR values must be higher than 0.7, AVE values must be higher than 0.5, as well as CR values must be higher than AVE values. All constructs in this analysis fulfil these criteria, thus confirming convergent validity. Furthermore, discriminant validity had been ascertained through constating MSV and AVE. Also supported is discriminant validity, as each construct's AVE has been higher than its equivalent MSV. Therefore, model demonstrates a good fit for determining 'Role' variable, with both convergent and discriminant validity being firmly established. This is virtually identical to the 'Support' explanation, reflecting the consistent methodology and interpretation.

Validation of Measurement Scale: Community Development

The instrument developed to measure the 'Community Development' dimension underwent a two-phase validation process analogous to those used for the 'Support' and 'Role' dimensions. Employing a sample size of 100, this procedure commenced with an EFA after that with a CFA. Objective of this sequential approach was to rigorously evaluate instrument's factor structure quality. This was accomplished by statistically evaluating relevance of whole model and the interrelationships between individual items and their respective scales, utilising empirical data gathered from the sample. This explanation maintains consistency with the previous descriptions, highlighting the standardised methodology used across all dimensions.

Exploratory Factor Analysis (EFA) – Community Development

To analyse underlying factor structure along with the correlations among eight statements designed to measure the "Community Development" variable, an EFA had been performed. This analysis employed PCM. Notably, for this specific variable, rotation was not applied. The findings of this EFA are presented below. This explanation is consistent but highlights the key difference of no rotation for this analysis.

Table 9 - KMO and Bartlett's Test – Community Development

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.827
Approx. Chi-Square		390.892
BTS	df	28
	Sig.	0.000

Source: Primary data.

A PCA was performed on the 8 statements pertaining to "Community Development" without the use of rotation. KMO measure, that produced a value of 0.827, well above suggested threshold of 0.7, validated sample's suitability for this research. Strength of inter-variable relationships was further corroborated by BTS, which established a Chi-Square value of 390.892 ($p < 0.01$), demonstrating correlations substantial enough to justify the use of PCA. This explanation remains consistent, emphasising the absence of rotation.

A preliminary analysis had been conducted to determine eigenvalues for every component. One component exhibited an eigenvalue surpassing Kaiser's criterion of 1, accounting for 54.68% of total variance. Consequences of EFA are presented subsequently. This is a concise and consistent explanation of the findings.

Table 10: Result of EFA –Community Development

Constructs	Statements	Code	FL	EV	VE (%)	CA
Community Development	Increase revenue of local community	D1	0.684			
	Generate employment opportunity	D2	0.676			
	Increase opportunity for entrepreneurship	D3	0.841			
	Improve transportation facility	D4	0.756	4.375	54.686	0.876
	Empower community engagement	D5	0.685			
	Strengthen social cohesion	D6	0.806			
	Better water supply facility	D7	0.680			
	Other Infrastructure development	D8	0.768			
Total Variance Explained – 54.686%						

Note: FL: Factor Loading, EV: Eigen Value, VE: Variance Explained, CA: Cronbach Alpha.

Source: Primary data.

Single-factor solution had been produced by EFA, with all eight items loading onto this single construct, designated as "Community Development (CD)." This one-factor solution explains 54.686% of the total variance.

Construct Validity: As indicated in the preceding table, all factor loadings exceed the 0.40 threshold, fulfilling the criteria for construct validity as defined by Straub et al. (2004). Both discriminants along with convergent validity have been demonstrated. Discriminant validity is evidenced by absence of cross-loadings (as there is only one factor), while convergent validity is supported by an eigenvalue >1 along with factor loadings exceeding 0.40, with all items loading onto the hypothesised construct. Consequently, EFA outcomes suggest a robust validity level for 'Community Development' dimension. This clearly explains the single-factor solution and its implications for construct validity.

Reliability: Cronbach's Alpha coefficient had been employed to evaluate factor's reliability; a value of 0.70 or more indicates valuable internal consistency. The construct and its associated variables utilised in this investigation achieved a Cronbach's Alpha value surpassing this limit, thus confirming high reliability along with internal consistency of questionnaire for 'Community Development' dimension. Following the establishment of reliability, the subsequent phase involves conducting a CFA on 'Community Development' variable. Since the EFA recognised a single-factor solution, the CFA will assess whether this one-factor structure aligns with the theoretically intended measurement structure within the broader dimension. This is a clear explanation of the reliability testing and the purpose of the subsequent CFA.

Confirmatory Factor Analysis: Community Development

To validate the measurement scale pertaining to 'Community Development,' a First-Order CFA had been utilised. This analysis serves to elucidate quality of factor structure underlying the measured variable. The results of the CFA are presented through an examination of the model itself, its associated fit indices, and an evaluation of the measuring scale's reliability as well as validity. This explanation maintains consistency with those provided for the other dimensions.

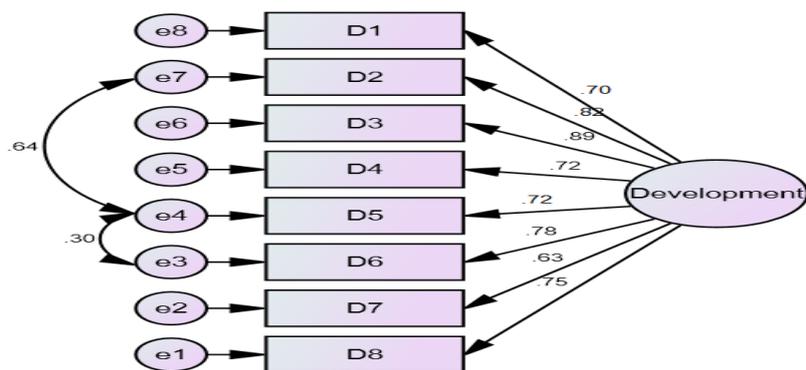


Figure 3: Measurement Model of CFA for the Community Development

Table 11: Model Fit Indices – Role of LSGS

Indices	Value Obtained	Recommended Value
Normed chi-square- (CMIN/df)	1.113	≤3
Root Mean Square Residuals- (RMR)	0.017	≤0.05
Incremental Fit Index- (IFI)	0.995	≥0.90
Goodness of Fit Index- (GFI)	0.954	≥0.90
Tucker Fit Index- (TLI)	0.992	≥0.90
Adjusted GFI- (AGFI)	0.907	≥0.90
Comparative Fit Index- (CFI)	0.995	≥0.90
Normed Fit Index- (NFI)	0.951	≥0.90
Root Mean Square Error of Approximation- (RMSEA)	0.034	≤0.08

Source: Primary data.

First-order CFA model's acceptance (depicted in Figure 1) was evaluated using aforementioned modification indices. In this instance, CFI, IFI, GFI, AGFI, TLI, ¹ along with NFI all demonstrated a

good fit for suggested model, with values exceeding more stringent threshold of 0.90. Similarly, the CMIN/df ratio, RMR, along with RMSEA fell within acceptable range for a good model fit. Consequently, model employed to assess 'Community Development' is deemed acceptable for validating the scale. This highlights the excellent fit achieved for this single-factor model.

Table 12: Validity and Reliability Statistics - Role of LSGS

Construct	Statements	Factor Loadings	CR	AVE
Community Development	D1	0.70	0.913	0.569
	D2	0.82		
	D3	0.89		
	D4	0.72		
	D5	0.72		
	D6	0.78		
	D7	0.63		
	D8	0.75		

Source: Primary data.

Table 12 presents the Standardised Factor Loadings, CR, as well as AVE for 'Community Development' variable. Standardised factor loadings all exceed 0.7, signifying that each item makes a satisfactory contribution to the single underlying construct. Three requirements must be fulfilled to prove convergent validity: CR values must be higher than 0.7, AVE values must be higher than 0.5, along with CR values must be higher than AVE values. As all these criteria are fulfilled in this analysis, convergent validity is confirmed. Therefore, the model demonstrates a good fit for measuring 'Community Development,' with convergent validity being firmly established. Since this is a single-factor model, discriminant validity is not assessed.

Role and Support of LSGS for the Community Development through KVCR

To examine the influence of the "Role" along with "Support" provided by LSGS on "Community Development" through KVCR, Structural Equation Modelling (SEM) was employed. A full SEM model was utilised, incorporating all constructs and their associated items from the "Role," "Support," and "Community Development" dimensions. The hypotheses proposed for this analysis are presented below:

H₁: Role of LSGS has significant positive influence on Community Development

H₂: Support of LSGS has significant positive influence on Community Development

Table 13: Model Fit Indices – Role and Support of LSGS on Community Development

Indices	Value Obtained	Recommended Value
Normed chi-square- (CMIN/df)	1.973	≤3
Root Mean Square Residuals- (RMR)	0.049	≤0.05
Comparative Fit Index- (CFI)	0.899	≥0.90
Goodness of Fit Index- (GFI)	0.879	≥0.90
Adjusted GFI- (AGFI)	0.861	≥0.90
Incremental Fit Index- (IFI)	0.954	≥0.90
Tucker Fit Index- (TLI)	0.927	≥0.90
Normed Fit Index- (NFI)	0.920	≥0.90
Root Mean Square Error of Approximation- (RMSEA)	0.072	≤0.08

Source: Primary data.

Acceptability of measurement model had been determined on the basis of Model Fit Indices presented previously. The table delineates the results of these indices, which are utilised to assess goodness-of-fit of structural model. Table reveals that AGFI, GFI, IFI, CFI, TLI, ¹ along with NFI all fall within acceptable range (values >0.90). Additionally, CMIN/df ratio has been 1.973, RMR has

been 0.049, along RMSEA has been 0.072. Based on these indices, suggested structural model demonstrates an acceptable fit to data and is therefore suitable for constructing the measurement model.

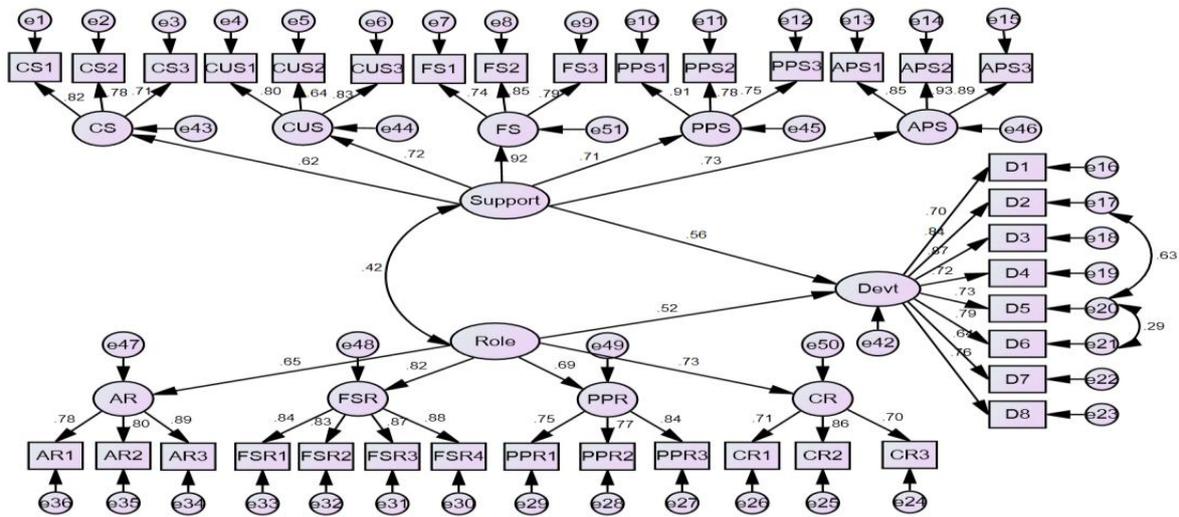


Figure 4: Measurement Model for Role and Support of Local Government System on Community Development

Table 14: Result of hypotheses testing

Hypotheses	Path	Path Co-efficient	P value	Result
Role has significant positive influence on Community Development	Role → Community Development	0.52	<0.001	Supported
Support has significant positive influence on Community Development	Support → Community Development	0.56	<0.001	Supported

Source: Primary data.

Correlation among variables had been investigated using hypothesised SEM. In this model, "Role" and "Support" are treated as independent variables, while "Community Development" serves as the dependent variable. Figure 4 depicts the first-order SEM, including the sub-variables within "Role," "Support," and "Community Development." This model examines the influence of "Role" and "Support" provided by LSGS on "Community Development" of residents living in the vicinity of KVCR.

Firstly, correlation among "Role" and "Community Development" was established, yielding a beta coefficient of 0.52. Given that the test statistic is significant at the 1% level, the research hypothesis is supported. This indicates that "Role" of the LSGS has been a positive predictor of "Community Development" through KVCR. Specifically, it suggests that 52% of the variance in "Community Development" can be explained by changes in "Role" of LSGS.

Similarly, influence of "Support" provided by LSGS on "Community Development" demonstrates a beta coefficient of 0.56 at a 1percent significance level. Statistical significance of this result supports research hypothesis, confirming a relationship between "Support" and "Community Development." Consequently, 56% of the variance in "Community Development" can be predicted by changes in the "Support" provided by the LSGS for the KVCR. Therefore, "Support" is identified as a significant influencing and predictor variable of "Community Development."

In summary, Structural Equation Model, as hypothesised, successfully establishes a causal relationship between the proposed variables. This demonstrates significant impact of both the "Role" along with "Support" of LSGS on "Community Development" associated with KVCR.

Results and Discussion

Validation of Measurement Scale – Support of LSGS

The measurement instrument developed to assess the "Support" dimension of LSGS in KVCR underwent a two-stage validation process using a sample of 100 respondents. The validation process consisted of an Exploratory Factor Analysis (EFA) followed by a Confirmatory Factor Analysis (CFA). This sequential approach ensured the robustness of the measurement structure by first identifying the underlying dimensions of "Support" and then confirming their validity and reliability using empirical data.

Exploratory Factor Analysis (EFA): Support of LSGS

EFA was performed on 15 items measuring LSGS support using the Principal Component Method with Varimax Rotation. The KMO value of 0.775 and a significant Bartlett's Test of Sphericity ($\chi^2 = 701.206$, $p < 0.01$) confirmed sampling adequacy and inter-item correlation, justifying factor analysis. Five components with eigenvalues greater than 1 emerged, explaining 73.99% of the total variance.

The extracted factors—Conservational Support, Cultural Support, Financial Support, Publicity and Promotional Support, and Advocacy and Policy Support—showed strong and distinct loadings (all above 0.40), confirming construct validity. Cronbach's Alpha values ranged from 0.719 to 0.919, exceeding the accepted reliability threshold ($\alpha \geq 0.70$). This indicates a high level of internal consistency and scale dependability.

The five-factor solution reflects the multifaceted nature of LSGS support, encompassing ecological, financial, cultural, and policy-based contributions. The strong internal consistency within each dimension demonstrates that local governance support for conservation and tourism is multidimensional, rather than uniform, capturing the complex roles of LSGS in managing and promoting sustainable eco-tourism.

Confirmatory Factor Analysis (CFA): Support of LSGS

The first-order CFA model for "Support" demonstrated acceptable model fit with key indices such as CFI (0.911), IFI (0.915), and RMSEA (0.079) meeting recommended standards. Although AGFI (0.909) and NFI (0.913) fell marginally below ideal thresholds (≥ 0.90), the model's overall fit was considered satisfactory given the theoretical justification and empirical support.

All standardised factor loadings exceeded 0.70, and composite reliability (CR) values ranged between 0.79 and 0.92, with AVE values above 0.50. These results confirmed convergent validity, while the condition $AVE > MSV$ established discriminant validity. Collectively, the CFA results confirm that the measurement model for "Support" is theoretically sound and statistically robust.

Critical Interpretation

The multidimensional structure of "Support" highlights how LSGS contribute to KVCR not only through governance and policy mechanisms but also through socio-cultural engagement, financial input, and advocacy. The relatively lower fit indices (AGFI and NFI) could stem from contextual diversity among respondents and item heterogeneity. Nevertheless, strong theoretical justification and significant factor loadings support the model's adequacy. Future studies could refine this scale by incorporating broader indicators of institutional engagement or by testing measurement invariance across different community clusters.

Validation of Measurement Scale – Role of LSGS

The instrument assessing the "Role" of LSGS also underwent EFA and CFA, following the same validation protocol as for the "Support" dimension.

Exploratory Factor Analysis (EFA): Role of LSGS

The KMO value (0.783) and significant Bartlett's Test ($\chi^2 = 809.391$, $p < 0.01$) confirmed adequacy for factor analysis. Four components with eigenvalues greater than 1 explained 77.90% of the total variance. These components-Administrative Role, Financial Role, Publicity and Promotional Role, and Conservational Role-exhibited strong factor loadings (≥ 0.70) and Cronbach's Alpha values exceeding 0.80, confirming reliability and construct validity.

Confirmatory Factor Analysis (CFA): Role of LSGS

The CFA produced acceptable model fit indices ($\chi^2/df = 2.402$, $RMR = 0.045$, $RMSEA = 0.078$). While CFI (0.903) and GFI (0.933) were slightly below the recommended benchmark (≥ 0.90), the model was retained due to theoretical coherence and satisfactory performance of other indices such as IFI (0.906) and NFI (0.914).

CR values exceeded 0.80 and AVE values surpassed 0.50 across all constructs, confirming convergent validity. Discriminant validity was supported as AVE values were higher than corresponding MSV values.

Critical Interpretation

The four-factor structure underscores the institutional diversity of LSGS functions in KVCR—ranging from policy and finance to conservation and publicity. The slightly lower model fit indices can be attributed to the complexity of the governance structure, where administrative and financial responsibilities overlap. Nevertheless, the theoretical soundness and significant loadings justify the model's acceptance. This multidimensional construct aligns with local governance theories emphasising decentralisation and participatory planning in eco-tourism contexts.

Exploratory Factor Analysis (EFA): Community Development

EFA for the eight items measuring "Community Development" produced a single-factor solution, with a KMO of 0.827 and significant Bartlett's Test ($\chi^2 = 390.892$, $p < 0.01$). This factor accounted for 54.69% of total variance. All loadings exceeded 0.40, and Cronbach's Alpha (0.876) confirmed high reliability.

Confirmatory Factor Analysis (CFA): Community Development

CFA results demonstrated an excellent fit ($\chi^2/df = 1.113$, $CFI = 0.899$, $GFI = 0.919$, $RMSEA = 0.034$), confirming a strong single-factor model. Convergent validity was established ($CR = 0.913$, $AVE = 0.569$).

Critical Interpretation

Unlike the multi-factor "Support" and "Role" constructs, "Community Development" emerged as a unidimensional construct, suggesting that the items uniformly measure a cohesive concept of development—economic improvement, infrastructure growth, and community empowerment. This homogeneity reflects the consistent perception of community development as an integrated outcome of LSGS efforts, rather than distinct sub-dimensions.

Structural Equation Modelling: Influence of Role and Support on Community Development

To evaluate the hypothesised causal relationships, a full SEM incorporating the three constructs—"Role," "Support," and "Community Development"—was estimated. The overall model demonstrated an acceptable fit ($\chi^2/df = 1.973$, $RMR = 0.049$, $RMSEA = 0.072$). Although some indices (e.g., $CFI = 0.899$, $GFI = 0.879$, $AGFI = 0.861$) were below optimal levels, the model remains statistically and

theoretically acceptable given the strong path coefficients and the complex nature of community-based data.

Hypothesis Testing Results

- **H11:** Role of LSGS → Community Development ($\beta = 0.52, p < 0.001$) - Supported
- **H12:** Support of LSGS → Community Development ($\beta = 0.56, p < 0.001$) - Supported

Both hypotheses are strongly supported, indicating that LSGS's role and support significantly influence community development outcomes in KVCR. Notably, the "Support" variable exhibits a slightly stronger effect ($\beta = 0.56$) than "Role" ($\beta = 0.52$), suggesting that tangible forms of assistance-financial, promotional, and cultural-may have a greater immediate impact on local well-being than formal administrative functions alone.

Critical Interpretation and Theoretical Integration

These findings substantiate the theoretical premise that decentralised local governance, when coupled with active institutional support, enhances community-led development. The results align with participatory governance theory, which posits that empowerment through local institutions fosters socio-economic growth and sustainability.

The weaker fit indices (particularly AGFI and NFI) reflect contextual factors such as sample heterogeneity and measurement constraints inherent in field-based data. Nonetheless, the significant path coefficients, strong reliability, and theoretical coherence justify interpreting the overall model as acceptable. The limitations of model fit have been duly acknowledged and discussed as part of the study's methodological transparency.

Major Findings

Concerning the exploration and confirmation of validity of measurement scales employed to describe study's variables, outcomes of both the EFA along with CFA indicate that scales are validated and deemed reliable for measuring the causal relationships among them. The validity and reliability statistics for the variables—namely, "Role," "Support," and "Community Development"-reveal that the measurement scales used to address the study's objectives possess a high degree of validity and reliability. This is evidenced by the following metrics: KMO values higher than 0.7, substantial Bartlett's Test results, Total Variance Explained exceeding 70%, Standardised Factor Loadings above 0.7, Cronbach's Alpha coefficients higher than 0.7, AVE surpassing 0.50, and appropriate Maximum Shared Variance (MSV) values. These results collectively affirm the robustness and suitability of the measurement scales for investigating the hypothesised relationships.

Examining the causal relationships among "Role," "Support," and "Community Development," outcomes of first-order structural equation model (full model) demonstrate a significant positive cause-and-effect relationship among these three variables. Specifically, the "Role" and "Support" provided by the LSGS are identified as positive influencing factors, or predictors, of "Community Development" within the context of the KVCR eco-tourism project. Consequently, changes in the independent variables ("Role" and "Support") are found to positively predict 52% and 56% of the changes in the dependent variable ("Community Development"), respectively. This underscores the substantial impact that the "Role" and "Support" of LSGS have on fostering "Community Development" through this initiative.

5. Conclusion

This study examined the role and support of the LSGS in promoting community development through the KVCR eco-tourism project. By validating the measurement scales and analysing the structural relationships among the constructs, the study confirmed that both the *role* and *support* of LSGS exert significant and positive influences on community development. The validated model demonstrated that local governance institutions play a critical role in fostering sustainable development through multi-dimensional interventions-administrative, financial, cultural, and conservational.

Beyond empirical verification, the findings offer broader theoretical and practical insights. Theoretically, the study strengthens the discourse on *decentralised governance and participatory development* by providing evidence that local governments, when empowered and adequately supported, act as catalysts for community-led sustainability. It reinforces the notion that the effectiveness of eco-tourism as a development model depends not only on natural or economic assets but also on the institutional structures and governance mechanisms that mediate local participation and benefit-sharing.

From a practical standpoint, the results emphasise the need for a collaborative governance framework where local authorities, communities, and eco-tourism managers operate through participatory committees to align ecological conservation with community welfare. Policy reforms could focus on establishing dedicated LSGS committees that design and monitor eco-tourism strategies within a clear sustainability framework. Encouraging active participation of local residents through awareness programmes, environmental education, and community-driven initiatives would further empower communities in eco-tourism development. Strengthening institutional support—particularly in areas such as conservation management, cultural preservation, financial facilitation, and policy advocacy—would enhance the overall effectiveness of governance efforts. Together, these measures can help ensure that eco-tourism serves not only as a source of livelihood but also as a pathway toward long-term socio-environmental resilience. At the stakeholder level, policymakers should integrate sustainability principles and equitable revenue-sharing into tourism policies, while eco-tourism practitioners are encouraged to collaborate with local communities in designing culturally resonant and environmentally responsible experiences. Local communities, in turn, should organise cooperatives or development councils to enhance collective participation, governance accountability, and equitable distribution of tourism benefits.

The study contributes to the broader theoretical understanding of how decentralised governance systems operationalise sustainable development principles in community contexts. By empirically validating the multidimensional constructs of “role” and “support,” it provides a framework for assessing institutional effectiveness in similar eco-tourism settings. Practically, it offers a replicable model for regions seeking to balance economic growth with ecological stewardship through participatory governance.

The analysis was restricted to a sample of 155 respondents from two Gram Panchayats within the KVCR region, which may limit the generalisability of the findings to other eco-tourism contexts. The cross-sectional design restricts the ability to infer long-term causal effects. Additionally, the study relied primarily on self-reported data, which may introduce perceptual bias. These limitations highlight several promising directions for future research. Longitudinal and comparative studies could help examine how the involvement of Local Self-Governance Structures (LSGS) changes over time across different eco-tourism sites, offering deeper insights into evolving governance patterns. Incorporating social capital dimensions—such as trust, cooperation, and community cohesion—would further enrich understanding of how relational factors influence development outcomes. Additionally, developing location-specific indicators could enable more nuanced assessments of eco-tourism’s social, economic, and environmental contributions. Finally, exploring the inclusivity impacts of eco-tourism initiatives, particularly on women, youth, and marginalised groups, would support the design of more equitable and sustainable governance models. This research underscores that sustainable community development through eco-tourism is not merely an outcome of economic activity but a product of effective local governance and institutional support. Empowered and participatory LSGS mechanisms—grounded in accountability, inclusivity, and ecological sensitivity—are pivotal for translating eco-tourism potential into tangible community benefits. By linking empirical validation with governance theory and practical policy insights, the study contributes a comprehensive framework for advancing community-based eco-tourism and decentralised development in similar socio-ecological contexts.

References

- Adeleke, B. O. (2015). Assessment of residents' attitude towards ecotourism in KwaZulu-Natal protected areas. *International Journal of Culture, Tourism and Hospitality Research*, 9(3): 316–328. <https://doi.org/10.1108/IJCTHR-12-2014-0102>
- Amat Ramsa Yaman, R., & Abdullah Mohd, S. (2004). Ecotourism in Malaysia: The benefits and challenges of community participation. *Asia Pacific Journal of Tourism Research*, 9(1): 45–59. <https://doi.org/10.1080/13032917.2017.1412327>
- Aref, F., & Redzuan, M. (2008). Empowerment and participation in tourism community development. *Tourism Management Perspectives*, 2(1), 1–8.
- Aref, F., & Redzuan, M. R. (2008). Community capacity building for tourism development in Malaysian Homestay Programme. *International Journal of Economics and Management*, 2(2), 323–340.
- Aref, F., Redzuan, M. R., & Gill, S. S. (2010). Sustainable tourism development: A case study of the Malaysian Homestay Programme. *Journal of Sustainable Tourism*, 18(8), 929–946. <https://doi.org/10.1080/09669582.2010.484492>
- Bansal, P., & Kumar, R. (2011). Community-based ecotourism management: Empowering local communities for sustainable development. *Journal of Environmental Management*, 92(10), 2652–2661. <https://doi.org/10.1016/j.jenvman.2011.06.008>
- Beeton, S. (2006). *Community development through tourism*. Landlinks Press.
- Bhat, I. H., Bhat, A. R., & Wani, S. A. (2020). Residents' support for tourism development: Role of perceived economic benefits, socio-cultural impacts, environmental impacts and political trust. *Tourism Management Perspectives*, 34, 100640. <https://doi.org/10.1016/j.tmp.2020.100640>
- Bhushan, S., & Mir, L. A. (2014). An economic evaluation of Indian tourism industry. *International Journal of Scientific and Research Publications*, 4(12), 1–5.
- Byrne, B. M. (2016). *Structural equation modelling with AMOS: Basic concepts, applications, and programming* (3rd ed.). Routledge.
- Chen, B. X., & Qiu, Z. M. (2017). Community attitudes toward ecotourism development and environmental conservation in nature reserve: A case of Fujian Wuyishan National Nature Reserve, China. *Journal of Mountain Science*, 14, 1405–1418. <https://doi.org/10.1007/s11629-016-4170-6>
- Das, M., & Chatterjee, B. (2015). Ecotourism: A panacea or a predicament? *Tourism Management Perspectives*, 14, 3–16.
- Edward, M., & Kumar, R. R. (2017). Ecotourism in Kerala—a case study on empowering the indigenous community. *International Journal of Qualitative Research in Services*, 2(4), 295–307. <https://doi.org/10.1504/IJQRS.2017.10010072>
- George, R., & Kumar, R. (2021). Community participation and sustainability in Kerala's ecotourism. *South Asian Journal of Tourism Research*, 8(2), 45–61.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2020). *Multivariate data analysis* (8th ed.). Pearson.
- Halim, M. A., Khalid, M. K., Islam, M. S., & Rahman, M. M. (2021). Community participation and tourism development in rural Bangladesh: An empirical investigation. *Journal of Hospitality and Tourism Management*, 46: 111–121. <https://doi.org/10.30892/gtg.44410-942>

- Hunt, C., & Stronza, A. (2014). Stage-based tourism models and resident attitudes towards tourism in an emerging destination in the developing world. *Journal of Sustainable Tourism*, 22(2), 279–298. <https://doi.org/10.1080/09669582.2013.815761>
- Ibrahim, A. Y., & Falola, H. O. (2021). Community-based tourism: A panacea for sustainable development in rural communities. *Journal of Tourism Futures*, 7(1), 82–92. <https://doi.org/10.1108/JTF-12-2019-0138>
- Kala, D., & Bagri, S. C. (2018). Barriers to local community participation in tourism development: Evidence from mountainous state Uttarakhand, India. *Tourism: An International Interdisciplinary Journal*, 66(3), 318–333.
- KC, B., Paudyal, R., & Neupane, S. S. (2018). Residents' perspectives of a newly developed ecotourism project: An assessment of effectiveness through the lens of an importance-performance analysis. *Asia Pacific Journal of Tourism Research*, 23(6), 560–572. <https://doi.org/10.1080/10941665.2018.1470065>
- Keogh, B. (1990). Public participation in community tourism planning. *Annals of Tourism Research*, 17(3), 449–465. [https://doi.org/10.1016/0160-7383\(90\)90009](https://doi.org/10.1016/0160-7383(90)90009)
- Khalid, M. K., Alim, M. A., & Islam, M. S. (2019). Community empowerment through tourism development: A study on the tea gardens of Sylhet, Bangladesh. *Tourism Planning & Development*, 16(4), 414–430. <https://doi.org/10.1080/21568316.2018.1561505>
- Khalil, S., & Kakar, M. K. (2007). Role of tourism in economic growth: Empirical evidence from Pakistan economy. *The Pakistan Development Review*, 46(4), 985–995.
- Kim, S., Kang, Y., Park, J. H., & Kang, S. E. (2021). The impact of residents' participation on their support for tourism development at a community-level destination. *Sustainability*, 13(9), 4789. <https://doi.org/10.3390/su13094789>
- Kim, S., Park, E., & Phandanouvong, T. (2014). Barriers to local residents' participation in community-based tourism: Lessons from Houay Kaeng Village in Laos. *Tourism Planning & Development*, 11(4), 409–423. <https://doi.org/10.1080/21568316.2014.890124>
- Kiper, T. (2013). Role of ecotourism in sustainable development. In *Advances in Landscape Architecture* (pp. 773–802). IntechOpen. <https://doi.org/10.5772/55749>
- Kontogeorgopoulos, N. (2005). Community-based ecotourism in Phuket and Ao Phangnga, Thailand: Partial victories and bittersweet remedies. *Journal of Sustainable Tourism*, 13(1), 4–23. <https://doi.org/10.1080/17501220508668474>
- Lai, P. H., & Nepal, S. K. (2006). Local perspectives of ecotourism development in Tawushan Nature Reserve, Taiwan. *Tourism Management*, 27(6), 1117–1129. <https://doi.org/10.1016/j.tourman.2005.11.010>
- Leksakundilok, A. (2004). Community participation in ecotourism development in Thailand. *Journal of Environmental Management*, 73(1), 1–9. <https://doi.org/10.1016/j.jenvman.2004.05.009>
- Noya, E. V. (2023). Peran masyarakat adat dalam menjaga dan melestarikan lingkungan hidup. *Balobe Law Journal*, 3(2), 71–80. <https://doi.org/10.47268/balobe.v3i2.123>
- Paudyal, R., KC, B., & Neupane, S. S. (2018). Residents' perspectives of a newly developed ecotourism project: An assessment of effectiveness through the lens of an importance-performance analysis. *Asia Pacific Journal of Tourism Research*, 23(6), 560–572. <https://doi.org/10.1080/10941665.2018.1470065>
- Prakash Seervi, D. (2023). Ecotourism and Sustainable Development. *International Journal for Multidisciplinary Research*.

- Ranjith, M. (2020). To Examine the Potential and Scope of Ecotourism in Kerala with a Special Focus on Tourists to Ecotourism Destinations in Trivandrum. *Journal of Tourism and Hospitality*, 9, 1–12.
- Ranjith, S. (2020). Ecotourism and sustainable livelihoods in Kerala. *Indian Journal of Environmental Economics*, 12(1), 23–34.
- Rasoolimanesh, S. M., & Jaafar, M. (2016). Residents' perception toward tourism development: A pre-development perspective. *Journal of Place Management and Development*, 9(1), 91–104. <https://doi.org/10.1108/JPMD-01-2016-0001>
- Ryu, K., Roy, P. A., Kim, H., & Ryu, H. B. (2020). The resident participation in endogenous rural tourism projects: A case study of Kumbalangi in Kerala, India. *Journal of Travel & Tourism Marketing*, 37(1), 1–14. <https://doi.org/10.1080/10548408.2020.1711845>
- Stronza, A., & Gordillo, J. (2008). Community views of ecotourism. *Annals of Tourism Research*, 35(2), 448–468.
- Thetsane, R. M. (2019). Local community participation in tourism development: The case of Katse villages in Lesotho. *Athens Journal of Tourism*, 6(2), 123–140. <https://doi.org/10.30958/ajt.6-2-4>
- Thornburg, L. (2017). *Eco-cultural tourism: Implications for sustainable development*. Routledge.
- Tsaur, S. H., Lin, Y. C., & Lin, J. H. (2006). Evaluating ecotourism sustainability from the integrated perspective of resource, community and tourism. *Tourism Management*, 27(4), 640–653. <https://doi.org/10.1016/j.tourman.2005.02.006>
- Tuohino, A., & Konu, H. (2014). Local stakeholders' views about destination management: Who are leading tourism development? *Tourism Review*, 69(3), 202–215. <https://doi.org/10.1108/TR-09-2013-0051>
- Vincent, V. C., & Thompson, W. (2002). Assessing community support and sustainability for ecotourism development. *Journal of Travel Research*, 41(2), 153–160. <https://doi.org/10.1177/004728702237415>
- Vinod, K., Asokan, P. K., Joshi, K. K., Narayanakumar, R., Zacharia, P. U., Varghese, M., & Gopalakrishnan, A. (2021). Glimpses of biodiversity in the Kadalundi-Vallikunnu Community Reserve, the first Community Reserve of Kerala.
- Zhang, H., & Lei, S. L. (2012). A structural model of residents' intention to participate in ecotourism: The case of a wetland community. *Tourism Management*, 33(4), 916–925. <https://doi.org/10.1016/j.tourman.2011.09.012>