

## Article

# Ecotourism Dynamics: A Village-Level Analysis of Marketing and Policy Indicators in Iran's Hawraman Region

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**Abstract:** Despite growing interest in community-based ecotourism as a pathway to sustainable development, there is a critical lack of research on how localized configurations of marketing and policy factors shape ecotourism performance at the village level. This study addresses this gap by pioneering a comprehensive, contextually grounded analysis of the availability and desirability of key marketing and policy indicators across 25 rural villages in Iran's culturally and ecologically rich Hawraman region. By employing an innovative mixed-methods approach blending statistical analysis, GIS spatial modeling, surveys, and interviews, the research reveals striking heterogeneity in ecotourism constraints and opportunities, even within a localized setting. Spatial analysis uncovers distance decay effects, with peripheral villages facing exacerbated accessibility deficits compared to centrally located ones. Substantial variations in marketing effectiveness and governance capacities underscore the inadequacy of one-size-fits-all tourism planning. The findings make a novel contribution by demonstrating the imperative for transitioning from monolithic interventions to hyper-localized, place-based strategies tailored to each village's unique barrier and asset profiles. Embracing this paradigm shift promises to enhance the equity and sustainability of ecotourism in rural contexts globally. The study provides an original methodological blueprint for harnessing multi-modal diagnostics to unpack complex tourism dynamics and catalyze transformative, community-centric solutions.

**Keywords:** ecotourism; spatial analysis; local governance; rural marketing; Hawraman region



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## 1. Introduction

As interest in sustainable tourism grows, community-based ecotourism has become a promising way to balance environmental conservation, cultural preservation, and local economic vitality [1–4]. However, the success of ecotourism initiatives at the grassroots level is profoundly shaped by a complex interplay of place-based marketing and policy factors that remain underexplored in the literature [1,2]. This study aims to fill this critical gap by pioneering a contextually grounded investigation into the village-level dynamics molding ecotourism performance across Iran's culturally rich and ecologically diverse Hawraman region.

The Hawraman landscape, spanning the Iran–Iraq border, has long enchanted visitors with its stunning natural beauty, vibrant folkloric traditions, and mosaic of Indigenous

lifestyles [5,6]. The region's recent inscription on the UNESCO World Heritage List in 2021 has further amplified its promise as an emerging ecotourism destination [7,8]. Yet, the sustainable development of community-based ecolodges in this context hinges on a nuanced understanding of the place-specific constraints and opportunities that shape their trajectories [9].

Nonetheless, the triumph of ecolodge ventures is intricately contingent upon the synergistic interplay among marketing stratagems, policy scaffolding, and the dynamics of local governance [10,11]. Scholarly discourse underscores the salience of astute marketing maneuvers in magnetizing eco-conscious clientele and fostering sustainable consumption patterns [2,12]. Empirical inquiries have dissected the influence of eco-certifications, green branding, and immersive marketing on the competitive edge and patron contentment of ecolodges [1,10]. Furthermore, the literature accentuates the imperative of conducive political milieus in propelling the sustainable trajectory [13–15]. Policies germane to land-use orchestration, infrastructural evolution, and fortification of local competencies are regarded as catalysts for ecolodge prosperity [10,16]. Yet, the potency of these policies is invariably linked to the robustness of local governance frameworks and the efficacy of community engagement modalities [17,18].

Amidst the burgeoning corpus on ecolodge sustainability, there is a discernible dearth of integrative research probing the locational dynamics that sculpt ecolodge performance at the village echelon [19]. While certain investigations have delved into the repercussions of marketing strategies on ecolodge marketability [20], scant attention has been devoted to amalgamating these insights with the scrutiny of local policy terrains and governance matrices [21]. Additionally, the spatial aspects of ecolodge sustainability are yet to be thoroughly canvassed, with scant regard for how geographical variables such as isolation, accessibility, and natural capital influence the prospects and impediments confronting individual hamlets [22,23].

This study contributes significantly to the literature on sustainable ecotourism by addressing critical gaps in our understanding of how ecolodges perform in diverse rural contexts. While previous research has provided valuable insights into ecolodge sustainability, there remains a need for more comprehensive and context-specific analyses that account for the complex interplay of marketing, policy, and spatial factors shaping ecotourism outcomes at the local level. This study fills this lacuna by pioneering an innovative, multi-modal methodology that combines advanced statistical techniques, GIS mapping, and participatory community engagement to develop a nuanced, place-based understanding of ecolodge dynamics in the culturally rich and ecologically diverse villages of Iran's Hawraman region.

The multi-method approach employed in this research represents a significant advancement in sustainable tourism scholarship. By synergistically integrating quantitative and qualitative methods, the study generates a holistic and granular understanding of the localized constraints and opportunities that shape ecolodge performance in rural settings. Advanced statistical analyses, such as the binomial distribution test and one-sample t-test, enable the rigorous assessment of the availability and desirability of key marketing and policy indicators across the studied villages. Moreover, applying GIS mapping techniques, particularly the IDW interpolation method, allows for the spatial visualization and analysis of ecolodge dynamics, revealing critical patterns and disparities that might otherwise remain obscured. Importantly, this study actively engages local communities as co-producers of knowledge. Through surveys and interviews with village leaders and members of the Islamic councils, the research incorporates the lived experiences, perceptions, and aspirations of those most directly impacted by ecolodge development. This participatory approach enhances the contextual validity of the findings and lays the groundwork for more inclusive, community-driven strategies in the planning and management of ecolodges.

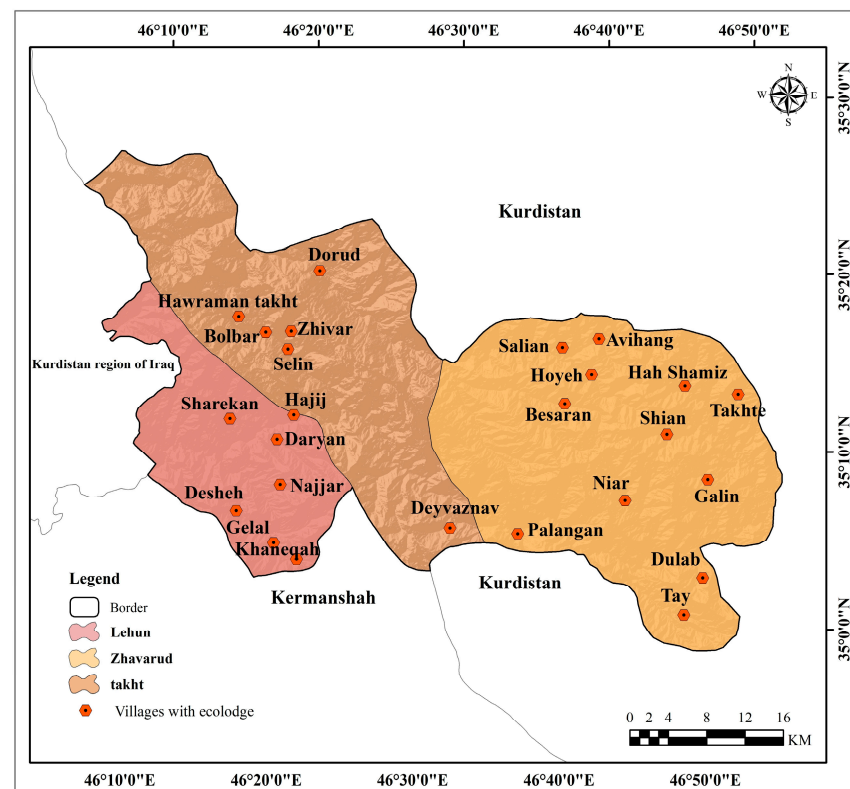
## 2. Study Area

The Hawraman or Avroman region is vast on both sides of the Iran–Iraq border. Hawraman Iran, which was inscribed on the UNESCO World Heritage List in August 2021 based on criteria 3 and 5, is located in the provinces of Kurdistan and Kermanshah and is divided into three parts: Hawraman Takht, Hawraman Lahon, and Hawraman Zhavorud [5,9].

Hawraman Takht and Zhavorud are in Kurdistan Province, while Hawraman Lahon is in Kermanshah Province. In terms of political divisions, Hawraman Takht is in Sarvabad County (Kurdistan Province), Hawraman Zhavorud is in the cities of Sanandaj, Kamyaran, and Sarvabad (Kurdistan Province), and Hawraman Lahon is in Paveh County (Kermanshah Province). This region has significant potential for the development of ecotourism and sustainable community-based tourism due to its rich cultural attractions, vibrant local traditions, and stunning natural landscapes. However, realizing this potential requires a deep understanding of the local dynamics, barriers, and opportunities for the development of ecolodges at the village level [7].

There are 45 ecolodges in 28 villages in the Hawraman region of Iran (Figure 1). The distribution of these ecolodges in the sub-regions of Hawraman is as follows:

- Hawraman Takht: The villages of Selin, Balbar, Durood, and Zhivar, as well as the village-city of Hawraman Takht (five ecolodges);
- Hawraman Zhavorud: The villages of Gelin, Dolab, Shian, Avihang, Salyan, Takhteh, Huyeh, Bisaran, Tay, Hashmiz, Nir, Divznau, and Palangan (27 ecolodges);
- Hawraman Lahon: The villages of Darian, Hajij, Shurkan, Gelal, Khaneqah, and Dashteh, which have 13 ecolodges.



**Figure 1.** The study area.

This geographical diversity of ecolodges in the Hawraman region provides a rich context for examining spatial dynamics and inequalities in sustainable rural tourism development. Considering the objectives of this research, studying how local marketing and

policy indicators affect the performance of ecolodges in these villages can help identify leverage points, barriers, and customized solutions for community-based tourism planning.

This research employs a mixed approach, including statistical analysis, GIS spatial modeling, surveys, and local interviews, to thoroughly assess the accessibility and desirability of key marketing and policy indicators at the village level. The resulting findings can provide valuable insights into the complexities of community-based ecological tourism in the Hawraman region and serve as a basis for formulating place-based strategies for sustainable and equitable rural tourism development.

### 3. Literature

Ecotourism has emerged as a promising approach to sustainable tourism development, aiming to conserve natural resources, support local communities, and promote environmental awareness [24,25]. The International Ecotourism Society defines ecotourism as responsible travel to natural areas that conserves the environment sustains the well-being of the local people, and involves interpretation and education (TIES, 2015). This definition emphasizes the critical principles of ecotourism, which include minimizing negative impacts on the environment, supporting conservation efforts, providing socio-economic benefits to local communities, and fostering a deeper understanding and appreciation of nature and culture among visitors [1,26].

Ecolodges play a crucial role in the development and implementation of ecotourism. These accommodations are designed to blend harmoniously with the natural environment, often using sustainable materials and practices, such as renewable energy, water conservation, and waste management [27]. Ecolodges also strive to support local communities by providing employment opportunities, sourcing products and services locally, and engaging in community development initiatives [28]. By offering immersive natural experiences and facilitating meaningful interactions with local cultures, ecolodges enable visitors to gain a deeper understanding and appreciation of their destinations [27].

The spatial planning of ecolodges is a critical aspect of sustainable tourism development. The location, design, and management of these accommodations can significantly influence their environmental and social impacts. Ecolodges should be strategically located in areas that minimize their ecological footprint, avoid sensitive habitats, and ensure compatibility with the surrounding landscape [26,29]. This often involves conducting thorough environmental impact assessments and engaging in participatory planning with local communities to identify suitable sites and mitigate potential conflicts [30,31].

The ecolodge design should incorporate sustainable architecture principles, such as using locally sourced materials, optimizing energy efficiency, and integrating with the natural environment [27]. Ecolodges should also be designed to minimize waste generation, conserve water resources, and promote responsible consumption among guests [32]. The spatial layout of ecolodges should facilitate immersive experiences in nature, provide opportunities for environmental education, and encourage responsible visitor behavior [33].

Effective spatial planning of ecolodges also involves considering the broader landscape context and the connectivity between different ecotourism sites [31,34]. This may include establishing ecological corridors, protecting buffer zones around protected areas, and promoting regional cooperation in ecotourism development [35]. By adopting a landscape-scale approach, ecolodges can contribute to the conservation of larger ecosystems, support the movement of wildlife, and enhance the overall resilience of the natural environment [36].

Despite the growing recognition of the importance of ecotourism and ecolodges in sustainable tourism development, significant gaps remain in our understanding of how these accommodations perform in diverse rural contexts [37]. While previous research has provided valuable insights into the sustainability of ecolodges, there is a need for more comprehensive and context-specific analyses that account for the complex interplay of marketing, policy, and spatial factors shaping ecotourism outcomes at the local level [38,39].

This study aims to address this research gap by thoroughly investigating ecolodge dynamics in the culturally rich and ecologically diverse villages of Iran's Hawraman region.

This research seeks to develop a nuanced, place-based understanding of the constraints and opportunities shaping ecolodge performance in rural settings by employing a novel, multi-modal methodology that combines advanced statistical techniques, GIS mapping, and participatory community engagement [40–42].

#### 4. Methods

This research is applied in terms of purpose and is descriptive–explanatory in nature. The dominant approach to the research is quantitative, and the research philosophy is post-positivism. The primary method in this study is comparative, and from a methodological perspective, it is considered somewhat objective. The data collection method is survey-based, and the research time horizon is cross-sectional.

The research was conducted in several stages. First, based on the theoretical foundations and local experiences, eight marketing indicators (product, price, place, promotion, people, planning, physical and quality evidence, and productivity) and five policy indicators (statistical and information system, governing bureaucracy, governing values, power structure, policy implementation, and monitoring) were extracted, resulting in a total of 185 criteria for the marketing policy of ecolodges in the study area (See Appendix A).

Next, to determine the level of availability and importance of each criterion in the marketing policy of ecolodges in the Hawraman region, the researcher approached the local community managers (village heads or members of the Islamic councils of the sample villages) and requested their participation in the study. The managers were chosen as participants due to their extensive knowledge and accurate information about the rural areas, which could significantly contribute to the research. The data collection tool was a questionnaire with a Cronbach’s alpha coefficient of 0.97, ensuring its reliability. The sample size included 25 individuals from the local community, consisting of village heads or members of the village Islamic councils, who were selected to answer questions and provide quantitative data. The interviews were primarily conducted in the participants’ offices to ensure a comfortable and familiar setting.

Binomial distribution statistical methods were employed to examine the status of indicator criteria in the sample villages. A one-sample t-test was used to assess the status of indicator criteria in the marketing policy of ecolodges in the Hawraman region. The data collected during the summer of 2023, specifically from June to August, were then analyzed using advanced statistical methods and spatial analysis techniques. The IDW interpolation method in ArcGIS 10.8.2 software was utilized to analyze spatial data, enabling the identification of spatial distribution patterns and intra-regional variations in the availability and desirability of criteria affecting ecolodge performance.

Furthermore, the ARAS technique, a multi-criteria decision-making method, was applied to evaluate and rank the sample villages based on their level of benefiting from spatial marketing policy indicators of ecolodges. The technique involved several steps, including forming a decision matrix, normalizing the matrix, preparing a weighted dimensionless matrix, calculating optimality function values, and determining the degree of optimality for each village.

The methodology used in this study provides a comprehensive framework for identifying strengths, limitations, and opportunities for sustainable rural tourism development in the Hawraman region. By incorporating diverse marketing and policy indicators alongside spatial analyses, the research aims to serve as a basis for formulating place-based strategies and targeted actions to improve ecolodge performance and enhance tourism sustainability in this valuable cultural–natural area [43].

The formation of the decision matrix ( $X$ ) using the collected data on the marketing policy indicators for each village is as follows:

$$X = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \vdots & & & \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix}$$

The dimensionless matrix ( $N$ ) is prepared by normalizing the decision matrix using the linear method. The normalization is performed based on the following function:

$$nij = xij / \Sigma xij$$

The weighted dimensionless matrix ( $V$ ) is prepared by multiplying the dimensionless matrix ( $N$ ) with the weights of the indicators calculated using the coefficient of variation method:

$$xij = 1/xij$$

$$nij = xij/\Sigma xij$$

$$V = N \times W; Vij = Nij \times Wj$$

$$V = \begin{bmatrix} v11 & v12 & \dots & v1n \\ v21 & v22 & \dots & v2n \\ \vdots & \vdots & \ddots & \vdots \\ vm1 & vm2 & \dots & vmn \end{bmatrix}$$

Calculation of the optimality function values ( $S_j$ ) for each alternative (village) uses the following function:

$$S_j = \sum_{j=1}^n V_{ij}$$

The village with the largest  $S_j$  is considered the best alternative.

The calculation of the degree of optimality ( $K_i$ ) for each village by comparing its optimality function value ( $S_i$ ) with the optimal value ( $S_o$ ) determined based on expert opinions is as follows:

$$K_i = \frac{S_i}{S_o}$$

The value of  $K_i$  ranges between 0 and 1, and the closer the degree of optimality is to one, the better the alternative (village) performs in terms of marketing policy indicators.

The alternatives (villages) and evaluation criteria were coded as 1 to 13 for the analysis. By applying the ARAS technique, a comprehensive ranking of the villages was obtained, enabling the identification of the villages with the best performance in benefiting from spatial marketing policy indicators of ecolodges.

This multi-criterion decision-making approach provides a systematic and objective method for evaluating villages' relative performance in the context of ecolodge marketing policies. The results obtained from the ARAS technique can inform targeted strategies and interventions to enhance the marketing effectiveness and sustainability of ecolodges in the Hawraman region.

## 5. Results

### 5.1. The Status of Availability and Desirability of Marketing Indicators

One of the primary research objectives is to assess the current state of marketing practices in the ecolodges of the Hawraman region. This study uses the binomial distribution test to examine the availability and desirability of marketing indicators, which determines the presence and effectiveness of various marketing indicators in the sample villages.

Table 1 presents the availability percentage for each of the eight marketing indicators and the total marketing indicators across the sample villages. The results reveal that Gelin village stands out with the highest availability of total marketing indicators at 76.27%, followed by Hawraman Takht village city at 68.36%, and Hajj village at 65.31%. These findings suggest that the ecolodges in these villages have successfully implemented a wide range of marketing strategies and indicators, which may contribute to their overall performance and attractiveness to tourists.

**Table 1.** The extent to which sample villages in the Hawraman region have marketing indicators.

Village	The Product	Price	People	Promotion	Place	Planning	Physical Evidence	Quality and Productivity	Total Marketing Indicators
Selin	65	21.43	56.25	56.25	47.06	27.27	55.56	92.31	52.64
Zhivar	60	35.71	62.50	5.0	52.94	27.27	66.67	92.31	55.93
Bolbar	50	28.57	50	56.25	64.71	27.27	55.56	53.85	48.28
Dorud	50	35.71	68.75	68.75	52.94	27.27	66.67	38.46	51.07
Hawraman takht	80	42.86	75.0	81.25	64.71	36.36	66.67	100	68.36
Galın	60	57.14	81.25	75.0	64.71	45.45	77.78	76.92	76.28
Dulab	65	42.86	62.50	75.0	58.82	27.27	66.67	92.31	61.30
Shian	55	50	56.25	56.25	41.18	27.27	55.56	92.31	54.23
Avihang	60	42.86	62.50	62.50	41.18	18.18	66.67	69.23	52.89
Salian	50	50	62.50	50	64.71	27.27	55.56	92.31	56.45
Hoyeh	55	57.14	50	56.25	52.94	36.36	66.67	53.85	53.53
Besaran	45	35.71	50	50	58.82	27.27	66.67	53.85	48.42
Tay	35	42.86	62.50	56.25	35.29	27.27	66.67	69.23	49.38
Palangan	75	42.86	81.25	62.50	58.82	18.18	66.67	67.92	60.28
Niar	55	35.71	43.75	50	52.94	9.09	66.67	30.77	42.99
Hah									
Shamiz	45	42.86	50	43.75	47.06	27.27	66.67	92.31	51.86
Takhteh	45	57.14	50	50	29.41	27.27	55.56	69.23	47.95
Deyvaznav	55	28.57	43.75	56.25	47.06	18.18	66.67	92.31	50.97
Daryan	45	28.57	56.25	56.25	47.06	18.18	66.67	30.77	43.59
Hajij	85	57.14	75.0	68.75	70.59	45.45	66.67	53.85	65.31
Sheekaan	45	42.86	37.50	68.75	58.82	18.18	77.78	30.77	47.46
Desheh	65	57.14	56.25	62.50	47.06	27.27	66.67	53.85	54.47
Gelal	60	50	62.50	68.75	64.71	18.18	66.67	92.31	60.39
Najjar	65	42.86	62.50	56.25	58.82	27.27	66.67	30.77	51.27
Khaneqah	65	57.14	56.25	56.25	58.82	18.18	66.67	92.31	58.83

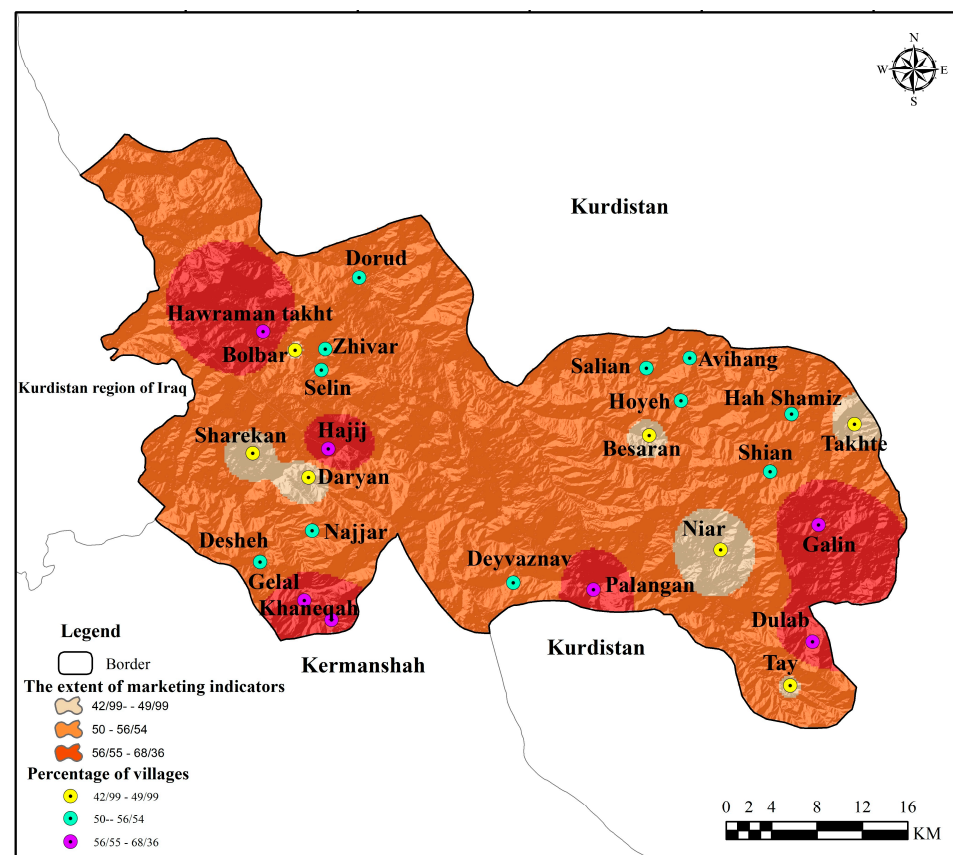
The high availability percentages in Gelin, Hawraman Takht, and Hajij villages indicate that the ecolodges in these areas have effectively utilized various marketing channels, such as promotional activities, pricing strategies, and customer relationship management, to reach their target audience and enhance their visibility in the market. The presence of a diverse set of marketing indicators in these villages highlights the efforts made by the ecolodge operators to create a strong brand identity, attract visitors, and improve customer satisfaction.

Furthermore, the binomial distribution test provides insights into the desirability of the marketing indicators, which reflects their perceived effectiveness and impact on the ecolodges' performance. The desirability analysis helps identify the marketing strategies that are most valued by the ecolodge operators and tourists, enabling the researchers to make recommendations for improving the marketing practices in the region.

The findings from the availability and desirability analysis of marketing indicators contribute to the research objectives by providing a benchmark for assessing the marketing performance of ecolodges in the Hawraman region. By identifying the villages with the highest availability and desirability of marketing indicators, the study highlights the best practices and successful strategies that other ecolodges in the region can adopt. This information can guide decision-makers and ecolodge operators in developing targeted marketing interventions and allocating resources effectively to enhance the sustainability and competitiveness of their businesses.

To gain a comprehensive understanding of the spatial distribution of marketing indicators across the Hawraman region, which is a key research objective, this study employs the IDW (Inverse Distance Weighted) interpolation method in ArcGIS 10.8.2 software. While the Table in the previous section provides the percentage of availability for the eight marketing indicators in the sample villages, it does not allow for a spatial analysis of their distribution. The IDW interpolation method generates a visual representation of the spatial distribution of marketing indicators, as shown in Figure 2. This approach enables researchers to identify patterns and disparities in the availability of marketing indicators across the study area. The findings reveal that most of the sample villages (18 out of 25)

have more than 50% of the marketing indicator criteria, suggesting a relatively strong presence of marketing activities in these villages.



**Figure 2.** The extent to which the sample villages have marketing indicators.

However, the spatial analysis also highlights seven villages, namely Ta, Nir, Takhteh, Bisaran, Darian, Shorkan, and Balbar, which have less than 50% of the marketing indicator criteria. This observation indicates that these villages may be lagging in terms of their marketing efforts and could benefit from targeted interventions to enhance their marketing capabilities. The identification of spatial patterns and disparities in marketing indicator availability contributes to the research objectives by providing valuable insights for decision-making and resource allocation. By understanding which villages have a strong presence in marketing activities and which ones require additional support, policymakers and ecododge operators can develop tailored strategies to improve the overall marketing performance of the region. Furthermore, the spatial analysis enables researchers to explore potential factors influencing the distribution of marketing indicators, such as geographical location, accessibility, or local community engagement. This information can guide future research efforts and help identify best practices and success stories that can be replicated in other villages.

As mentioned in the results of the binomial distribution test, the quality of each is as follows: The binomial distribution test results reveal that the availability rate alone is insufficient for analyzing and examining the quality of each criterion in the sample villages and the study area. To address this limitation, a one-sample t-test is employed to assess the quality and desirability of each indicator in the sample villages. Table 2 presents the findings of this analysis, showcasing the desirability of each marketing indicator. The average desirability of each indicator is then calculated to determine the overall desirability of marketing ecododges in the study area for the sample villages. According to these findings, Gelin village emerges as the top-performing village, with a desirability score of 2.10, indicating a relatively appropriate and desirable marketing trend. Hawraman

Takht village-city and Hajij village follow closely, with desirability scores of 1.88 and 1.65, respectively, securing the second and third positions regarding the desirability of marketing ecolodges in the Hawraman region.

**Table 2.** The level of desirability of marketing indicators in the sample villages of Hawraman region.

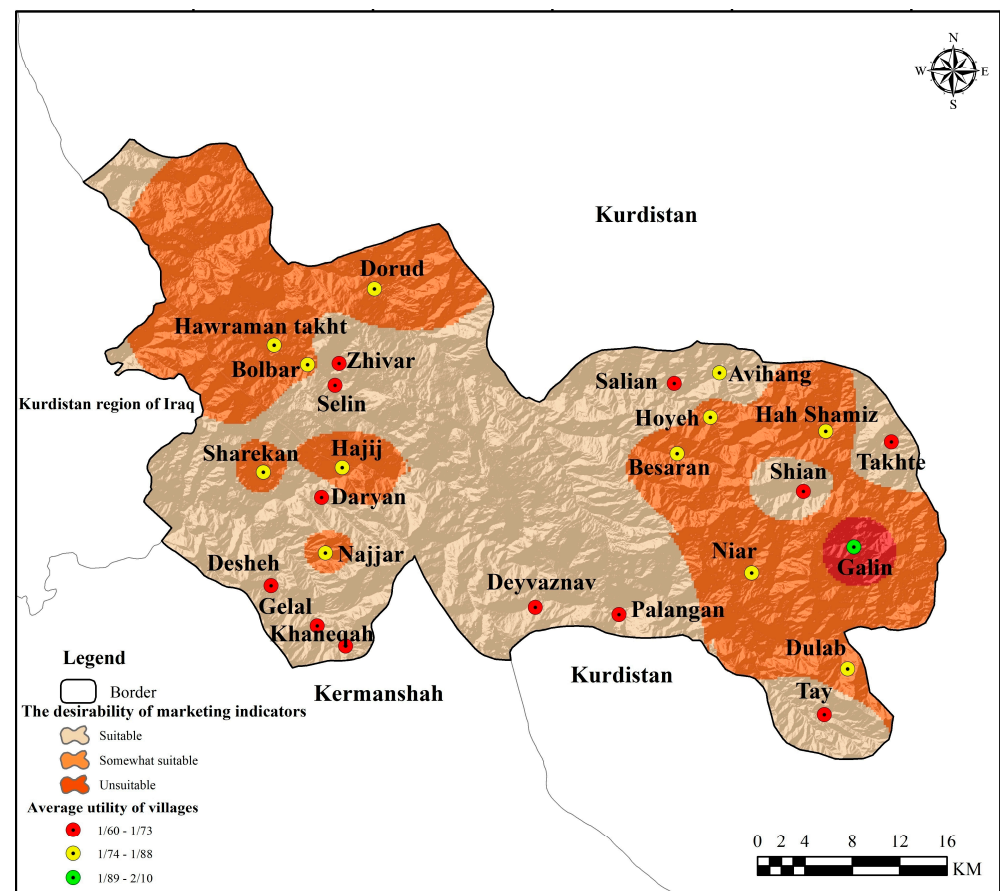
Village	The Product	Price	People	Promotion	Place	Planning	Physical Evidence	Quality and Productivity	Total Marketing Indicators
Selin	1.92	1.0	1.33	2.0	1.88	1.0	1.80	1.57	1.63
Zhivar	1.92	1.60	1.30	1.88	2.0	1.33	1.33	1.57	1.68
Bolbar	2.0	2.0	1.25	2.20	2.18	1.67	1.60	1.57	1.80
Dorud	1.80	1.80	1.64	2.45	2.0	1.67	1.67	1.80	1.83
Hawraman takht	2.38	1.67	1.58	2.31	1.91	1.50	1.83	1.77	1.88
Galın	2.17	1.50	1.62	2.33	1.73	1.60	2.71	2.40	2.20
Dulab	2.0	1.50	1.70	2.17	1.50	2.33	2.33	1.92	1.81
Shian	1.82	1.29	1.56	2.0	1.71	1.33	2.0	1.75	1.70
Avihang	1.83	1.67	1.60	2.0	1.57	1.50	1.67	2.0	1.75
Salian	1.50	1.57	1.50	2.13	1.91	1.67	1.80	1.92	1.70
Hoyeh	1.73	2.50	1.50	1.78	1.67	1.25	1.83	2.0	1.79
Besaran	1.67	1.60	2.0	1.63	2.20	1.33	1.67	1.86	1.79
Tay	1.86	1.83	1.80	2.0	2.0	1.67	1.50	1.67	1.71
Palangan	2.33	1.50	1.54	2.60	1.70	1.0	1.33	1.30	1.73
Niar	1.64	1.60	1.71	2.13	2.0	1.50	2.0	1.75	1.77
Hah	1.78	1.83	1.50	2.14	2.13	1.33	2.0	1.75	1.85
Shamiz	1.67	1.63	1.50	1.88	2.0	1.67	1.60	1.67	1.62
Takhteh	1.82	2.0	1.29	2.20	1.88	1.0	1.33	1.92	1.67
Deyvaznav	1.56	1.25	1.78	1.78	1.50	1.0	2.33	2.0	1.70
Daryan	2.20	1.38	2.20	2.27	1.92	1.40	1.67	2.14	1.88
Hajij	2.20	1.38	2.20	2.27	1.92	1.40	1.67	2.14	1.88
Sheekaan	1.67	2.0	1.83	1.91	1.80	1.50	1.86	1.50	1.78
Desheh	1.69	1.75	1.89	2.20	1.88	1.67	1.33	1.71	1.68
Gelal	1.75	2.0	1.50	1.73	1.91	1.0	1.50	1.58	1.66
Najjar	1.46	2.17	1.70	1.89	2.0	1.33	2.0	1.75	1.81
Khaneqah	1.54	1.75	1.89	2.20	1.90	1.50	1.83	1.75	1.60

However, the results also highlight a concerning trend—apart from Gelin village, all other sample villages have achieved desirability scores below 2, suggesting an inadequate and inappropriate marketing situation. This observation underscores the need for targeted interventions and strategies to enhance the marketing effectiveness of ecolodges in these villages.

The Table above provides a ranking of sample villages based on their performance in marketing indicators. However, the presentation of the data in points and percentages limits the ability to conduct a comprehensive spatial analysis of the desirability across the study area. To overcome this limitation and gain a deeper understanding of the spatial distribution of marketing indicator desirability, the IDW (Inverse Distance Weighted) interpolation method was employed using ArcGIS 10.8.2 software. Figure 3 presents the results of this spatial analysis, offering a visual representation of the desirability levels across the study area. The IDW interpolation method considers the marketing indicator desirability values at each sample village and interpolates the values between the villages based on their spatial proximity. This approach enables the identification of patterns and trends in the desirability levels across the entire study area.

The spatial distribution reveals a concerning trend—14 villages fall into the “inappropriate” range of marketing indicator desirability. This finding suggests that these villages are struggling to effectively implement and benefit from marketing strategies, which may hinder the growth and sustainability of their ecolodges. The reasons behind this poor performance warrant further investigation to identify the specific challenges and barriers faced by these villages. On a more positive note, the analysis also identifies 10 villages classified as “somewhat appropriate” regarding their marketing indicator desirability. While these villages have made progress in their marketing efforts, there is still room for improvement to reach the optimal level of desirability. Targeted interventions and support mechanisms

can be designed to help these villages enhance their marketing strategies and bridge the gap between their current performance and the desired benchmark.



**Figure 3.** The degree of desirability of marketing indicators in the studied area.

Notably, one village stands out as “appropriate” in the spatial distribution of marketing indicator desirability. This village serves as a model of success, demonstrating effective implementation and utilization of marketing strategies. Further examination of this village’s specific practices and approaches can provide valuable insights and best practices that can be shared with other regional villages.

### 5.2. Availability and Desirability of Policy Indicators

A binomial distribution test was conducted to comprehensively assess the overall status of policy indicators in the ecolodges of the Hawraman region. The test results presented in Table 3 reveal the availability of each sample village across five policy indicators and the total policy indicators. The findings indicate that Hajij village, with 57.69% availability of the total policy indicators, secures the top rank among the ecolodges in the Hawraman region. Dolab village follows closely, with 68.12% availability, claiming the second position. Hawraman Takht village-city ranks third, with 66.67% availability of policy indicators. The binomial distribution test is an effective tool for evaluating the presence and distribution of policy indicators across the sample villages. By quantifying the availability percentages, the test enables a clear comparison and ranking of the villages based on their policy indicator performance. The high availability rates observed in Hajij village, Dolab village, and Hawraman Takht village-city suggest that these localities have successfully implemented and integrated a significant portion of the policy indicators into their ecolodge operations.

**Table 3.** The degree of enjoyment of sample villages in Hawraman region from policy indicators.

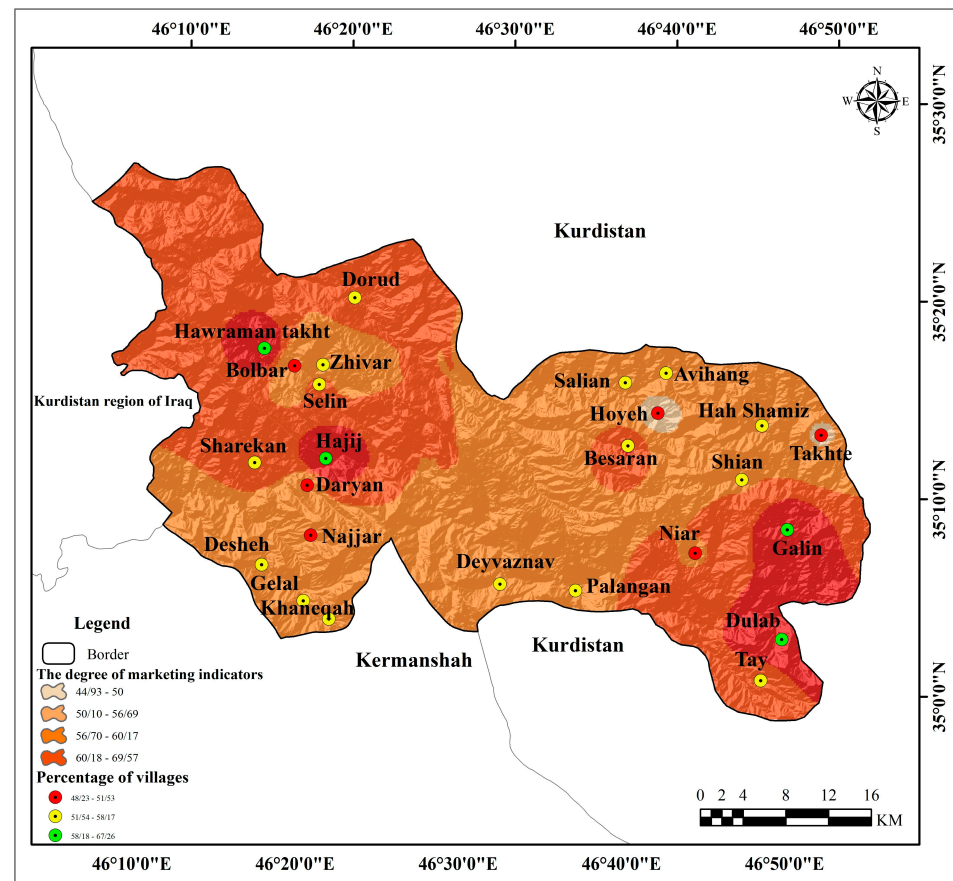
Village	Statistical and Information System	Ruling Bureaucracy	Governing Values	Power Structure	Implementation and Monitoring of Policies	A Set of Policy Indicators
Selin	71.43	46.15	70.59	58.33	46.15	59.42
Zhivar	57.14	46.15	58.82	41.67	38.46	49.28
Bolbar	71.43	30.77	41.18	58.33	46.15	49.28
Dorud	78.57	53.85	58.82	58.33	46.15	59.42
Hawraman takht	78.57	61.54	82.35	66.67	38.46	66.67
Galın	78.57	53.85	70.59	75.0	46.15	65.22
Dulab	78.57	46.15	76.47	83.33	53.85	68.12
Shian	64.29	30.77	64.71	58.33	61.54	56.52
Avihang	71.43	30.77	52.94	66.67	53.85	55.07
Salian	71.43	30.77	47.06	66.67	46.15	52.17
Hoyeh	71.43	30.77	35.29	50	38.46	44.93
Besaran	71.43	61.54	64.71	58.33	46.15	60.87
Tay	71.43	46.15	52.94	66.67	46.15	56.52
Palangan	64.29	38.46	64.71	66.67	46.15	56.52
Niar	64.29	53.85	58.82	66.67	38.46	56.52
Hah Shamiz	71.43	38.46	38.46	83.33	38.46	55.07
Takhteh	71.43	23.08	47.06	66.67	38.46	49.28
Deyvaznav	71.43	46.38	52.94	66.67	38.46	53.62
Daryan	71.43	23.08	64.71	66.67	38.46	53.62
Hajij	78.57	61.54	76.47	83.33	46.15	69.57
Sheekaan	71.43	53.85	64.71	50	46.15	57.97
Desheh	71.43	23.08	47.06	50	61.54	50.72
Gelal	64.29	38.46	52.94	50	53.85	52.17
Najjar	71.43	30.77	52.94	50	53.85	52.17
Khaneqah	71.43	23.08	47.06	58.33	61.54	52.29

However, it is crucial to delve deeper into the specific policy indicators and their desirability to understand the ecolodges' policy landscape better. While availability provides an overview of the presence of policy indicators, desirability offers insights into their effectiveness and impact on the sustainable development of ecolodges in the region. Further analysis of the individual policy indicators, such as statistical and information systems, governing bureaucracy, governing values, power structure, and policy implementation and monitoring, can shed light on the strengths and weaknesses of each village's policy framework. By examining the desirability of these indicators, researchers can identify areas that require improvement and develop targeted strategies to enhance the overall policy performance of ecolodges in the Hawraman region.

Figure 4 illustrates the results of this spatial analysis, providing a visual representation of the availability levels of policy indicators across the study area. The IDW interpolation method considers the availability values at each sample village and interpolates the values between the villages based on their spatial proximity. This approach enables the identification of patterns and trends in the availability levels across the entire study area.

The spatial distribution reveals that most sample villages, specifically 21 out of 25, have more than 50% of the policy indicator criteria available. This finding suggests that these villages have successfully implemented and integrated a significant portion of the policy indicators into their ecolodge operations. The high availability of policy indicators in these villages indicates a strong commitment to sustainable tourism development and the adoption of best practices in policy frameworks.

However, the analysis also identifies four villages, namely Takhteh, Huyeh, Balbar, and Zhivar, which have less than 50% of the policy indicator criteria available. This observation raises concerns about the policy readiness and effectiveness of ecolodges in these villages. The lower availability of policy indicators may hinder the sustainable growth and management of ecotourism in these localities. Further investigation into the specific challenges and barriers these villages face is necessary to develop targeted interventions and support mechanisms.



**Figure 4.** The extent of the sample villages having policy indicators.

As mentioned in the results of the binomial distribution test, the quality of each criterion in the sample villages and the study area cannot be analyzed and examined using the availability rate. Therefore, the quality and desirability of each indicator in the sample villages are presented in Table 4 using the one-sample t-test findings, which examine each criterion's quality. In this Table, the desirability of each of the policy indicators is presented, and finally, using the average desirability of each indicator, the desirability of policy-making for ecolodges in the study area is obtained for the sample villages. Based on these findings, Darian village is ranked first with a desirability of 1.84, Hawraman Takht village-city is ranked second with a desirability of 1.83, and Hajji village is ranked third with an average desirability of 1.87 in terms of the desirability of policy-making for ecolodges in the Hawraman region. According to the findings of the Table below, which shows the desirability of policy-making after ecolodges in the study area, all sample villages have a desirability of less than 2, indicating an inappropriate policy-making situation in the ecolodges of the Hawraman region.

Figure 5 illustrates the results of this spatial analysis, offering a visual representation of the desirability levels of policy-making across the study area. The IDW interpolation method considers the desirability values at each sample village and interpolates the values between the villages based on their spatial proximity. This approach enables the identification of patterns and trends in the desirability levels across the entire study area.

The spatial distribution of policy-making desirability reveals a concerning trend, with most villages falling into the unfavorable range. Specifically, 18 out of the 25 sample villages are classified as having an unfavorable level of policy-making desirability. This finding suggests that there are significant challenges and limitations in the policy frameworks and implementation processes within these villages. The low desirability levels indicate that the existing policies may not effectively address the needs and aspirations of the local communities and the sustainable development of ecotourism in these areas.

Table 4. The degree of desirability of policy indicators in sample villages of Hawraman region.

Village	Statistical and Information System	Ruling Bureaucracy	Governing Values	Power Structure	Implementation and Monitoring of Policies	A Set of Policy Indicators
Selin	1.90	2.0	2.50	1.86	1.33	1.72
Zhivar	1.63	1.0	1.40	1.40	1.20	1.33
Bolbar	1.90	1.57	1.43	1.43	1.17	1.53
Dorud	2.18	1.43	1.60	1.29	1.50	1.60
Hawraman takht	2.20	2.0	1.93	1.75	1.40	1.83
Galın	2.20	1.86	1.58	1.1	1.17	1.65
Dulab	2.20	1.67	1.69	1.70	1.14	1.66
Shian	1.56	1.0	1.64	1.57	1.25	1.40
Avihang	1.30	1.75	1.67	1.25	1.14	1.42
Salian	1.60	1.75	1.25	1.13	1.33	1.41
Hoyeh	1.70	1.75	1.83	1.67	1.40	1.67
Besaran	2.0	1.63	1.36	1.14	1.33	1.46
Tay	2.20	1.67	1.56	1.0	1.67	1.62
Palangan	2.44	1.40	1.82	1.38	1.33	1.67
Niar	1.56	1.86	1.20	1.38	1.0	1.40
Hah Shamiz	1.70	1.0	2.0	1.60	1.0	1.46
Takhteh	1.70	1.33	1.63	1.63	1.20	1.50
Deyvaznav	1.70	2.0	1.67	1.38	1.20	1.59
Daryan	2.20	2.0	2.0	1.88	1.20	1.84
Hajj	2.20	1.63	2.23	1.80	1.17	1.78
Sheekaan	1.60	1.43	2.0	1.83	1.0	1.57
Desheh	1.50	2.0	1.88	1.83	1.63	1.77
Gelal	2.0	1.0	1.56	1.67	1.57	1.56
Najjar	1.70	1.75	1.67	1.33	1.29	1.55
Khaneqah	1.80	1.67	1.88	2.0	1.38	1.74

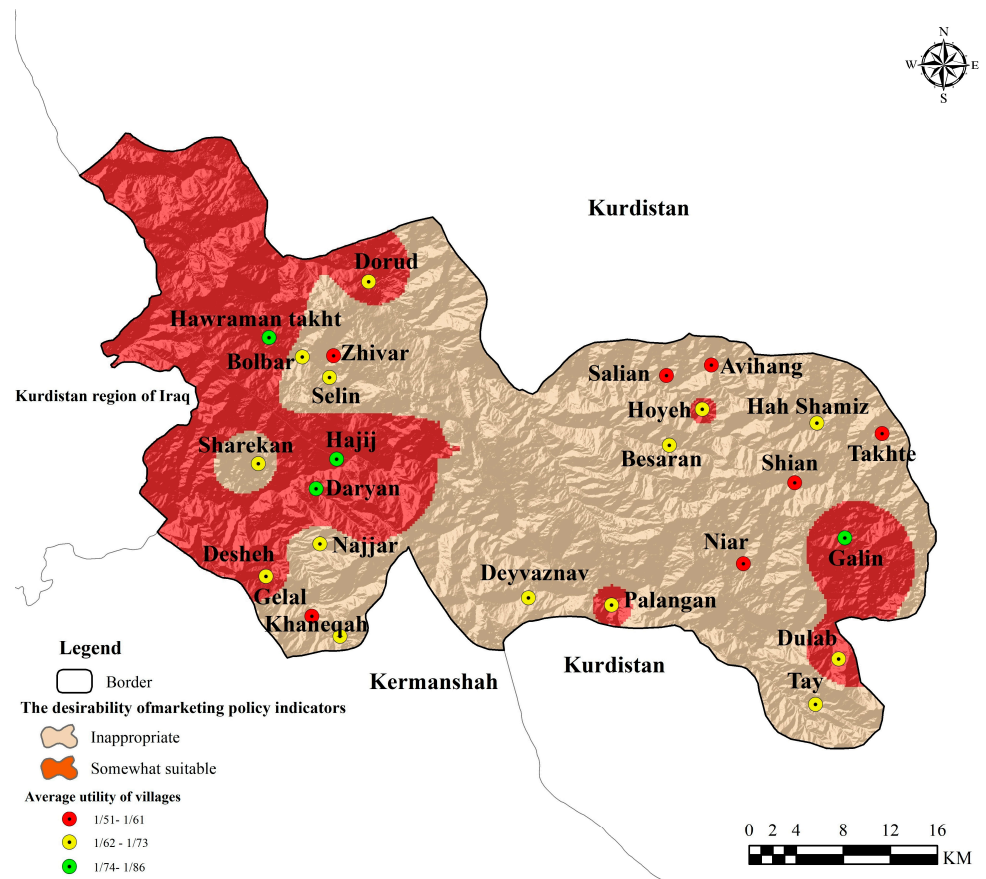


Figure 5. The degree of desirability of policy indicators in the study area.

Furthermore, the analysis identifies seven villages that fall into the moderately favorable range of policy-making desirability. While these villages demonstrate a relatively better performance than those in the unfavorable range, there is still considerable room for improvement. The moderately favorable classification suggests that these villages have made some progress in developing and implementing policies supporting ecotourism development. However, further enhancements and refinements are necessary to achieve optimal desirability levels.

### 5.3. Availability and Desirability of Marketing Policy Dimensions for Ecolodges

A binomial distribution test was conducted to assess the overall status of marketing policy dimensions in the ecolodges of the Hawraman region. The test results, presented in Table 5, reveal the availability level of each sample village across marketing and policy-making indicators. The findings indicate that Hawraman Takht village secures the top rank, with an impressive availability rate of 66.94%. Dolab village follows closely, with an availability rate of 66.49%, claiming the second position. Galin village ranks third, with an availability rate of 66.06%.

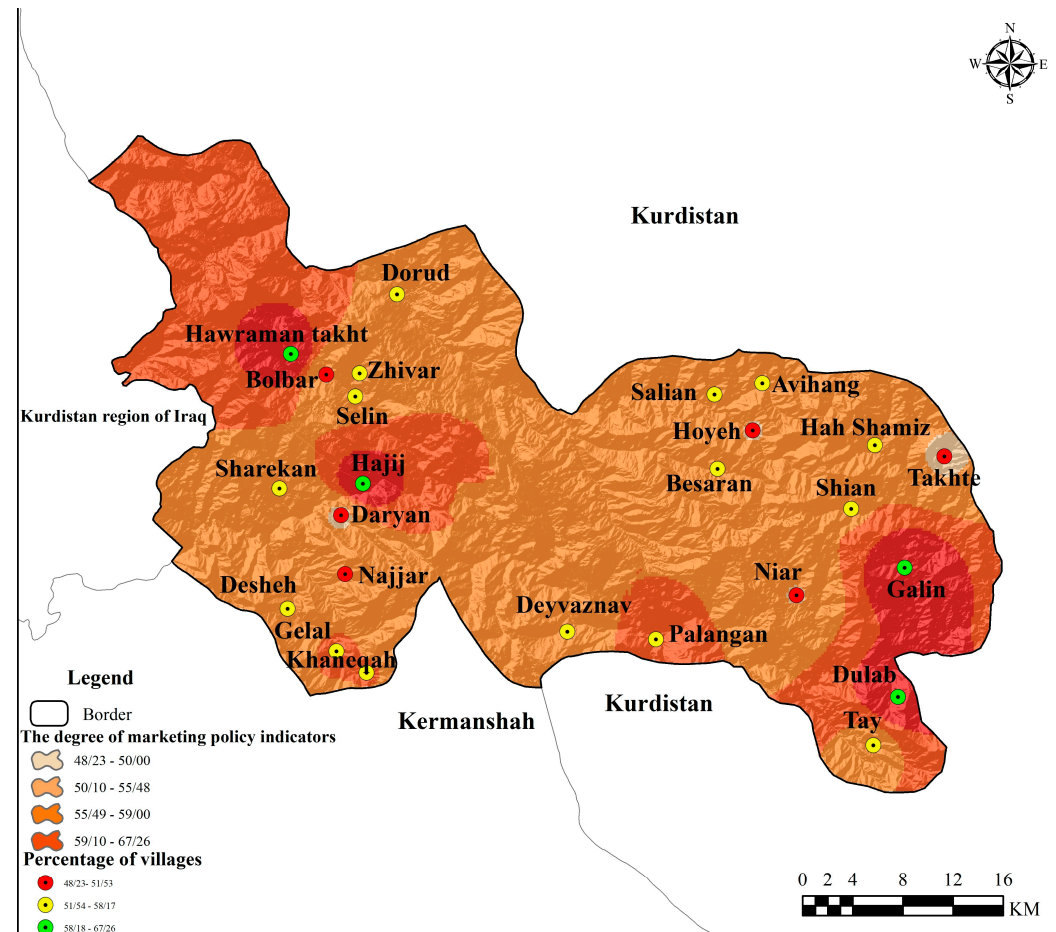
**Table 5.** The extent to which sample villages in Hawraman region enjoy the aspects of ecotourism marketing policies.

The Extent of Marketing	The Extent of Policy	The Extent of Marketing	Village
52.64	59.42	55.59	Selin
55.93	49.28	52.19	Zhivar
48.28	49.28	48.92	Bolbar
51.7	59.42	55.11	Dorud
68.36	66.67	66.94	Hawraman takht
76.28	65.22	66.6	Galın
61.30	68.12	64.49	Dulab
54.23	56.52	55.8	Shian
52.89	55.7	54.1	Avihang
56.45	52.17	54.48	Salian
53.53	44.93	49.36	Hoyeh
48.42	6.87	54.42	Besaran
49.38	56.52	53.3	Tay
60.28	56.52	58.17	Palangan
42.99	56.52	49.70	Niar
51.86	55.7	53.81	Hah Shamiz
47.95	49.28	48.65	Takhteh
50.97	53.62	52.28	Deyvaznav
43.59	53.62	48.23	Daryan
65.31	69.57	67.26	Hajij
47.46	57.97	52.34	Sheekean
54.47	50.72	52.54	Desheh
60.39	52.17	56.15	Gelal
51.27	52.17	51.53	Najjar
58.83	52.29	55.56	Khaneqah

The binomial distribution test proves to be an effective tool for evaluating the presence and distribution of marketing and policy-making indicators across the sample villages. By quantifying the availability percentages, the test enables a clear comparison and ranking of the villages based on their performance in these dimensions. The high availability rates observed in Hawraman Takht village, Dolab village, and Galin village suggest that these localities have successfully implemented and integrated a significant portion of the marketing and policy-making indicators into their ecolodge operations.

Notably, among the sample villages in the Hawraman region, only five villages had an availability rate below 50%, while an impressive 20 villages demonstrated an availability rate above 50%. This finding highlights the overall positive performance of the ecolodges in the region in terms of adopting and implementing marketing and policy-making dimensions. The high availability rates indicate a strong commitment to sustainable tourism development and adopting best practices in these critical areas.

Figure 6 illustrates the results of this spatial analysis, providing a visual representation of the availability levels of marketing indicators across the study area. The IDW interpolation method considers the availability values at each sample village and interpolates the values between the villages based on their spatial proximity. This approach enables the identification of patterns and trends in the availability levels across the entire study area.



**Figure 6.** The extent of the sample villages having marketing policy indicators.

The spatial distribution reveals that most of the sample villages (20 out of 25) have more than 50% of the marketing indicator criteria available. This finding suggests that these villages have successfully implemented and integrated a significant portion of the marketing indicators into their ecolodge operations. The high availability of marketing indicators in these villages indicates a strong commitment to effective marketing strategies and the adoption of best practices in promoting and sustaining ecotourism.

However, the analysis also identifies five villages, namely Balbar, Darian, Huyeh, Nir, and Takhteh, which have less than 50% of the marketing indicator criteria available. This observation raises concerns about the marketing readiness and effectiveness of ecolodges in these villages. The lower availability of marketing indicators may hinder the ability of these villages to attract visitors, promote their unique selling points, and ensure the long-term viability of their ecotourism initiatives. Further investigation into the specific challenges and barriers faced by these villages is necessary to develop targeted interventions and support mechanisms.

Table 6 presents each dimension of the marketing policy indicator's desirability for ecolodges in the Hawraman region. The overall desirability of marketing policy-making for ecolodges in the sample villages is obtained by calculating the average desirability of each dimension. The findings reveal that Hawraman Takht village-city secures the top rank,

with a desirability score of 1.86, indicating a relatively strong performance in marketing policy-making. Gelin and Hajij villages follow closely, both with an average desirability score of 1.83, sharing the second position. Darian village ranks third, with a desirability score of 1.77, while Dolab village ranks fourth, with an average desirability of 1.73. On the other end of the spectrum, Zhivar village exhibits the lowest desirability, with an average score of 1.50.

**Table 6.** The degree of desirability of marketing policy indicators in sample villages of Hawraman region.

The Extent of Marketing	The Extent of Policy	The Extent of Marketing	Village
1.63	1.72	1.67	Selin
1.68	1.33	1.50	Zhivar
1.80	1.53	1.67	Bolbar
1.83	1.60	1.72	Dorud
1.88	1.83	1.86	Hawraman takht
2.10	1.65	1.83	Galın
1.81	1.66	1.73	Dulab
1.70	1.40	1.55	Shian
1.75	1.42	1.59	Avihang
1.70	1.41	1.55	Salian
1.79	1.67	1.73	Hoyeh
1.79	1.46	1.64	Besaran
1.71	1.62	1.66	Tay
1.73	1.67	1.70	Palangan
1.77	1.40	1.58	Niar
1.85	1.46	1.65	Hah Shamiz
1.62	1.50	1.56	Takhteh
1.67	1.59	1.63	Deyvaznav
1.70	1.84	1.77	Daryan
1.88	1.78	1.83	Hajij
1.78	1.57	1.68	Sheekaan
1.68	1.77	1.72	Desheh
1.66	1.56	1.61	Gelal
1.81	1.55	1.68	Najjar
1.60	1.74	1.67	Khaneqah

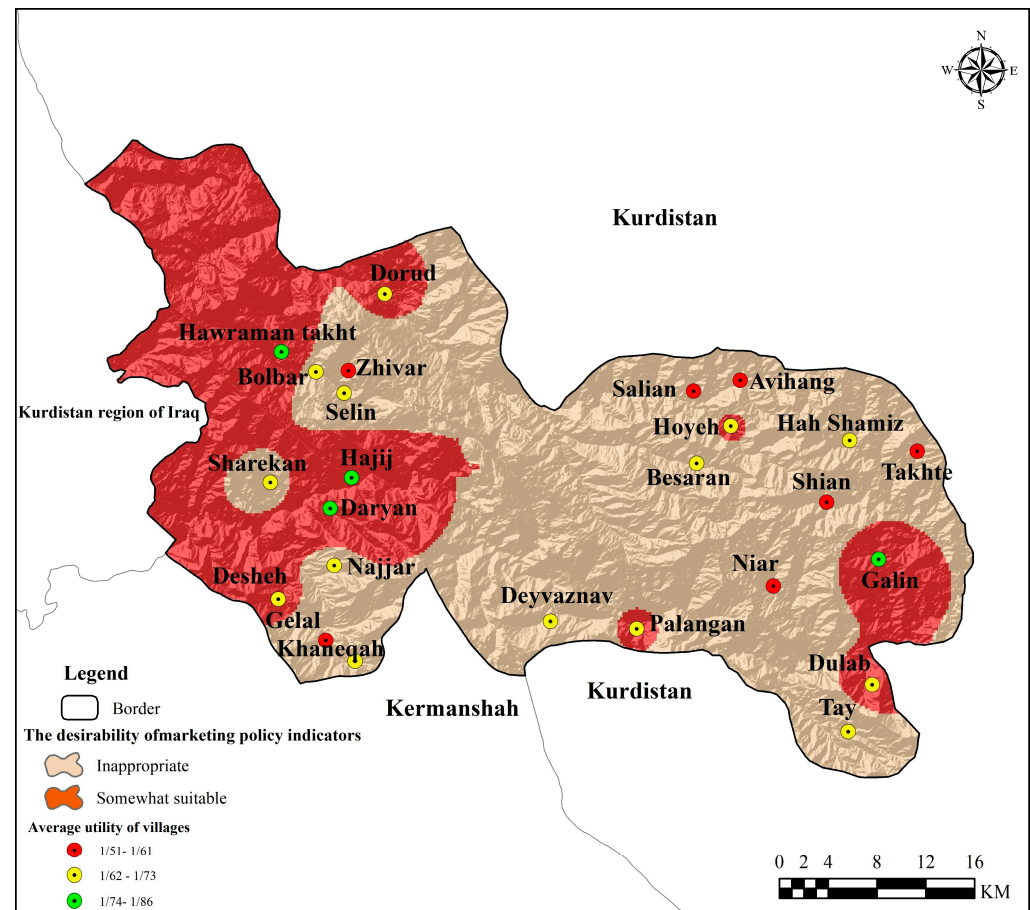
Notably, all sample villages have a desirability score below 2, suggesting an overall suboptimal situation in the marketing policy-making of ecolodges in the Hawraman region. This finding indicates significant room for improvement in developing and implementing effective marketing policies that align with the region's specific needs and challenges of ecolodges.

The desirability scores provide valuable insights into each village's perceived effectiveness and impact of marketing policy-making efforts. The higher scores obtained by Hawraman Takht village-city, Gelin village, and Hajij village suggest that these localities have better-developed marketing policies and strategies than other villages in the region. However, even these top-performing villages have not achieved a desirability score of 2 or above, indicating that there are still areas that require attention and enhancement.

The lower desirability scores observed in most of the sample villages highlight the need for comprehensive reviews and reforms of marketing policy-making processes. This may involve conducting thorough assessments of existing policies, identifying gaps and weaknesses, and developing targeted interventions to address the specific challenges faced by each village. Engaging with local stakeholders, including ecolodge operators, community members, and tourism authorities, can provide valuable insights and ensure that marketing policies are tailored to each village's unique contexts and aspirations.

Figure 7 illustrates the results of this spatial analysis, providing a visual representation of the desirability levels of marketing policy indicators across the study area. The IDW interpolation method considers the desirability values at each sample village and interpolates the values between the villages based on their spatial proximity. This approach enables the identification of patterns and trends in the desirability levels across the entire study area. The spatial distribution reveals a concerning trend, with the majority of the villages

falling into the inappropriate range of marketing policy indicator desirability. Specifically, 18 out of the 25 sample villages are classified as having an inappropriate level of desirability. This finding suggests that there are significant challenges and limitations in the marketing strategies and policies adopted by the ecolodges in these villages. The low desirability levels indicate that the existing marketing approaches may not effectively promote the unique selling points of the ecolodges, attract target audiences, or ensure the long-term sustainability of tourism initiatives in these areas.



**Figure 7.** The degree of desirability of marketing policy indicators in the study area.

Furthermore, the analysis identifies seven villages that fall into the somewhat appropriate marketing policy indicator desirability range. While these villages demonstrate a relatively better performance compared to those in the inappropriate range, there is still considerable room for improvement. The somewhat appropriate classification suggests that these villages have made some progress in developing and implementing marketing policies that align with the ecolodge's and local community's needs and aspirations. However, further refinements and enhancements are necessary to achieve optimal desirability levels and maximize the potential of ecotourism in these villages.

#### 5.4. Evaluation and Ranking of Sample Villages Using the ARAS Technique

Figure 7 illustrates the spatial distribution of the desirability of marketing policy indicators in the Hawraman region and sample villages. To provide a more comprehensive assessment of the desirability and ranking of sample villages, the weight of each dimension of marketing policy-making is determined using the variance coefficient method. This approach allows for considering the relative importance of each dimension in the overall evaluation of the villages' performance.

Table 7 presents the weights of each dimension of marketing policy-making, calculated using the desirability of marketing policy indicators and the variance coefficient method. The process involves several steps. First, a standardization matrix is constructed to normalize the desirability values across the sample villages. Then, the standard deviation of each dimension is calculated to measure the dispersion of the desirability values. Subsequently, the variance coefficient (CV) is computed by dividing the standard deviation by the mean of each dimension. Finally, the weights of the dimensions are obtained by normalizing the variance coefficients.

**Table 7.** Weighting of marketing policy dimensions using variance coefficient method.

Marketing	Policy Making	Village	Marketing	Policy Making	Village
0.059	0.478	Selin	0.275	0.556	Palangan
0.167	0	Zhivar	0.345	0.229	Niar
0.400	0.461	Bolbar	0.504	0.429	Shamiz
0.469	0.601	Dorud	0.040	0.152	Takhteh
0.566	0	Hawraman takht	0.141	0.353	Deyvaznav
1	0.166	Galın	0.205	0.746	Daryan
0.418	0.468	Dulab	0.573	0.933	Hajj
0.212	0.142	Shian	0.364	0.488	Sheekaan
0.307	0.236	Avihang	0.170	0.625	Desheh
0.199	0.145	Salian	0.132	0.305	Gelal
0.390	0.644	Hoyeh	0.422	0.494	Najjar
0.376	0.385	Besaran	0	0.472	Khaneqah
0.220	0.451	Tay			
	Marketing			policy making	
7.93	Total		11.14	Total	
0.317	xi		0.446	xi	
0.214	standard deviation		0.247	standard deviation	
0.678	Cv		0.553	Cv	
0.549	Weight		0.451	Weight	

Table 7's findings reveal that the marketing dimension, with a weight of 0.549, ranks first in terms of its importance in the overall evaluation of the villages' performance. This suggests that the marketing aspects of ecolodges, such as product development, pricing strategies, promotional activities, and customer relationship management, play a crucial role in determining the desirability and success of ecotourism initiatives in the Hawraman region. On the other hand, the policy-making dimension, with a weight of 0.451, ranks second, indicating its relatively lower but still significant influence on the overall performance of the villages. The weights obtained through the variance coefficient method provide valuable insights into the relative importance of each dimension in shaping the desirability and competitiveness of ecolodges in the Hawraman region. These weights are then utilized in the ARAS (Additive Ratio Assessment) ranking technique to evaluate and rank the sample villages based on their performance in marketing policy-making.

Table 8 presents the evaluation and ranking results of the sample villages. The findings reveal significant disparities in the desirability of marketing policy-making indicators among the villages. Hawraman Takht village-city emerges as the top-ranked village, followed by Gelin village and Hajj village in the second and third positions, respectively. Darian village and Dolab village occupy the fourth and fifth ranks. On the other hand, Zhivar village is positioned at the bottom of the ranking, securing the 25th spot among the sample villages. These ranking results provide valuable insights into the relative strengths and weaknesses of the marketing policy-making strategies employed by the ecolodges in each village. The top-ranked villages demonstrate the effectiveness of their approaches in attracting tourists, promoting sustainable practices, and ensuring the overall desirability of their ecolodges. Conversely, the low-ranked villages, such as Zhivar, may require targeted interventions and support to enhance their marketing policy-making efforts and improve their regional competitiveness.

**Table 8.** Evaluation and ranking of sample villages in terms of the level of desirability and dimensions of marketing policies in Hawraman region.

Village	The Level of Desirability	Degree of Desirability	Rank	Village	The Level of Desirability	Degree of Desirability	Rank
Selin	0.0398	0.845	13	Palangan	0.0406	0.862	9
Zhivar	0.0361	0.766	25	Niar	0.0381	0.808	21
Bolbar	0.0399	0.848	12	Shamiz	0.0398	0.844	14
Dorud	0.0411	0.872	7	Takhteh	0.0372	0.790	24
Hawraman takht	0.0441	0.941	1	Deyvaznav	0.0389	0.826	18
Galın	0.0440	0.935	2	Daryan	0.0421	0.893	4
Dulab	0.0414	0.880	5	Hajjı	0.0438	0.930	3
Shian	0.0373	0.791	23	Sheekaan	0.0401	0.825	11
Avihang	0.0414	0.808	20	Desheh	0.0411	0.872	8
Salian	0.0393	0.791	22	Gelal	0.0385	0.817	19
Hoyeh	0.0379	0.879	6	Najjar	0.0402	0.845	10
Besaran	0.0406	0.834	17	Khaneqah	0.0379	0.834	15
Tay	0.0381	0.835	16				

The findings from this ranking analysis contribute to the overarching research objectives by identifying the villages that serve as benchmarks for best practices in marketing policy-making. The insights gained can guide decision-makers and stakeholders in formulating strategies and allocating resources to support the sustainable development of ecolodges across the Hawraman region. By focusing on the specific needs and challenges each village faces, policymakers can develop customized interventions that address the disparities highlighted by the ranking results. Furthermore, the ranking analysis provides a foundation for future research to understand the factors that contribute to the success or underperformance of ecolodges in different villages. By comparing the characteristics and strategies of the top-ranked and bottom-ranked villages, researchers can identify key determinants of effective marketing policy-making and develop evidence-based recommendations for improvement.

Evaluating and ranking sample villages based on the desirability of marketing policy-making indicators offer a valuable tool for assessing ecolodges' performance in the Hawraman region. The results emphasize the need for targeted interventions, knowledge sharing, and continuous monitoring to support ecolodges' sustainable growth and competitiveness in this culturally and ecologically rich area.

## 6. Discussion and Conclusions

This study set out to investigate the critical question of how localized configurations of marketing and policy indicators impact the sustainability and equity of ecolodge tourism across rural villages in Iran's Hawraman region. By employing a robust mixed-methods approach that blended statistical analysis, GIS mapping, surveys, and interviews, we have uncovered a complex tapestry of place-based dynamics that shape the prospects and challenges of community-based ecotourism in this culturally rich and ecologically diverse landscape.

Our findings reveal striking heterogeneity in the availability and desirability of key marketing and policy indicators across the 25 studied villages, underscoring the inadequacy of one-size-fits-all approaches to sustainable tourism planning. The spatial analysis vividly illustrates the distance decay effect, whereby peripheral villages face exacerbated accessibility constraints and infrastructural deficits compared to their more centrally located counterparts. This pattern aligns with the core-periphery model and the concept of enhanced peripherality [44,45], highlighting the need for targeted interventions that address the unique challenges of remote rural communities.

Moreover, our results underscore the pivotal role of governance capacities and political dynamics in shaping ecolodge outcomes at the village level. The substantial variations observed in bureaucratic tendencies, monitoring effectiveness, and power configurations across the studied communities challenge the assumptions of homogeneity and uniformity

that often underpin decentralized planning approaches [46]. These findings suggest that the success of community-based ecotourism hinges not only on the presence of natural and cultural assets but also on the intricate interplay of local governance, social capital, and institutional arrangements [31].

### 6.1. Theoretical Implications

This diagnostic analysis of ecotourism constraints and potentials across Hawraman, Iran, focusing on the village sphere and localized asset configurations, carries critical implications for community-based tourism theory, sustainable livelihoods frameworks, and place-based development models globally. Most importantly, the study's findings substantiate significant geographic variations in tourism barriers and opportunities, even within a localized rural setting, confirming the inherent complexity of local dynamics. For instance, the results reveal striking differences in the availability and desirability of marketing and policy indicators across villages, with some peripheral villages facing acute accessibility constraints and infrastructural deficits compared to their more centrally located counterparts. These findings debunk assumptions of local homogeneity prevalent in decentralized planning approaches and oversimplified community development frameworks, highlighting the need for more nuanced and context-specific understandings of tourism dynamics [23,47,48].

The distance decay effects and remoteness disadvantages observed empirically demonstrate sustainability challenges that manifest distinctly even in proximal rural contexts due to relative connectivity, infrastructure access, and risk profiles. These relativities confuse universalist planning models, which often assume uniform conditions across rural areas. The study's findings underscore the need for tourism planning frameworks that consider the complex localization patterns and spatial inequalities that shape the distribution of tourism benefits and costs. By incorporating spatial inequality assessments into sustainable tourism frameworks, policymakers can ensure that marginalization is not reproduced but instead reduced through tourism development [49–51].

The substantial variations observed across villages in the Hawraman region reveal the fallacy of blanket solutions, single-asset fixes, and one-size-fits-all policies. The findings call for a fundamental shift in interventions towards local customization based on each community's unique asset portfolio, including connectivity networks, product mixes, power configurations, and risk capacities. The results provide unprecedented granularity regarding context-specific leverage points across geographical space, conveying strategic directions tailored to each village's distinct barrier profile and opportunity setup. This granularity can inform the development of place-based approaches focused on specialized interventions that address each community's specific needs and potentials rather than relying on standard models that may not be effective in all contexts.

This analysis emphasizes that tourism development should focus on each place's uniqueness, considering the specific configurations of marketing, policy, and governance factors that shape the prospects and challenges of community-based ecotourism. Instead of applying general solutions, policymakers and practitioners should customize their approach to fit each location's specific potential and challenges, leveraging local assets and capacities while addressing context-specific barriers and inequalities. By adopting a place-based, community-centric approach to sustainable tourism planning, we can achieve both environmental sustainability and equitable distribution of socio-economic benefits for everyone across all regions. Specialization and contextualization are key to progress in the field of sustainable tourism development.

### 6.2. Practical and Management Implications

This pioneering study, grounded in a robust diagnostic analysis of ecotourism dynamics across Iran's Hawraman region, yields transformative insights for sustainable tourism planning and development praxis. By meticulously delineating the intricate tapestry of barriers and opportunities manifesting at the village level, our findings un-

underscore the imperative for a paradigm shift towards hyper-localized, context-responsive interventions in lieu of monolithic, one-size-fits-all strategies. A cardinal implication stemming from our research is the need for tourism planners and policymakers to eschew assumptions of local homogeneity and instead embrace the inherent heterogeneity that permeates even geographically proximate rural settings. Our results unequivocally demonstrate that the success of ecolodge initiatives hinges on the deft navigation of place-specific constraint profiles, resource endowments, and sociopolitical contingencies. Consequently, we advocate for the widespread adoption of bespoke interventions meticulously calibrated to address the unique challenges and opportunities endemic to each village milieu.

In the context of Hawraman, our spatial analysis reveals a striking pattern of remoteness-induced accessibility disadvantages plaguing peripheral villages, juxtaposed against the agglomeration benefits accruing to centrally located settlements. This finding carries profound ramifications for the optimal allocation of scarce resources. We posit that in outlying villages, investments should be strategically channeled toward enhancing connectivity and transportation infrastructure to mitigate the debilitating effects of isolation. Conversely, in core villages exhibiting greater baseline viability, resources may be more prudently directed towards targeted marketing initiatives and product diversification efforts to capitalize on extant strengths and stimulate further growth.

Moreover, our research illuminates the pivotal role of governance capacity in shaping ecolodge outcomes, underscoring the need for interventions to be sensitively attuned to local administrative and political realities. In villages beset by endemic governance deficits, we advocate for the frontloading of capacity-building measures and the strategic deployment of technical assistance to bridge critical competency gaps. Conversely, where robust local leadership and social capital exist, policymakers should prioritize the creation of participatory mechanisms to harness and amplify grassroots expertise. This fine-grained tailoring of interventions to village-level governance contexts is imperative for fostering sustainable ecotourism growth.

Methodologically, our study offers a compelling blueprint for tourism planners seeking to craft evidence-based, contextually grounded strategies. By synergistically blending rigorous statistical diagnostics with participatory action research and immersive spatial analytics, we demonstrate the power of multi-modal inquiry in illuminating place-based nuances and catalyzing locally responsive solutions. This integrative approach enables policymakers to transcend the limitations of siloed, top-down planning and cultivate a rich, holistic understanding of the complex socio-ecological systems underpinning ecotourism dynamics.

Furthermore, our use of local leader surveys and interviews underscores the indispensability of community buy-in and grassroots agencies in the sustainable operationalization of ecolodge initiatives. We exhort tourism planners to proactively create spaces for meaningful community participation and prioritize the co-production of knowledge with local stakeholders throughout the planning process. This collaborative ethos is essential for fostering a sense of shared ownership, ensuring the sociocultural compatibility of proposed interventions, and ultimately enhancing the resilience of ecotourism ventures.

In the Hawraman region, we specifically recommend the establishment of village-level sustainable tourism committees to institutionalize participatory governance and create a platform for ongoing community engagement. These committees should be empowered to spearhead environmental education campaigns, oversee the implementation of context-specific best practices, and serve as a conduit for channeling local insights into the policy arena. Policymakers can cultivate a more adaptive, locally responsive planning milieu by devolving a measure of decision-making authority to these grassroots structures.

Our research makes a compelling case for the embracement of place-based diagnostics and bespoke interventions as the keystone of sustainable ecotourism planning. We assert that only by attuning support configurations to the unique socio-spatial realities of each village can policymakers hope to unlock the full potential of ecolodge initiatives in an equitable and enduring manner. As the Hawraman region stands poised on the cusp of an ecotourism renaissance, it is incumbent upon planners to eschew the allure of cookie-cutter

solutions and instead chart a course towards a more contextually embedded, community-centric paradigm of sustainable development. The insights encapsulated in this study offer a roadmap for this transformative journey.

### 6.3. Research Limitations and Suggestions for Future Research

This study offers valuable insights into the intricate dynamics of ecotourism in Iran's Hawraman region. However, it is important to recognize certain limitations. Firstly, the research focused on a specific geographic area, which may restrict the generalizability of the findings to other contexts. The unique sociocultural, political, and environmental characteristics of Hawraman may not fully indicate other rural tourism destinations. Therefore, caution should be exercised when extrapolating the results. Future studies could explore the framework's applicability across diverse regional settings to enhance its external validity. Secondly, the study utilized a cross-sectional design, capturing ecotourism dynamics at a single moment in time. Although this approach produced rich diagnostic insights, it did not allow for examining longitudinal trends or the impact of specific interventions over time. Incorporating a temporal dimension in future research could unveil the dynamic evolution of ecotourism systems and the long-term effectiveness of place-based strategies.

Additionally, while the mixed-methods approach utilized in this study provided a comprehensive understanding of ecotourism dynamics, the qualitative component relied on a relatively small sample of local leader interviews. While these informants were selected for their expertise, the perspectives captured may not fully represent the diverse viewpoints within each village. Future studies could benefit from more extensive qualitative data collection, including a wider range of stakeholder voices, to further enrich the contextual understanding of ecotourism.

The study identifies several promising avenues for future research in the area of ecotourism. Comparative analyses of ecotourism dynamics across multiple regions could assess the transferability of identified patterns and strategies while adopting a longitudinal approach could track the evolution of marketing and policy landscapes. Ethnographic methods could provide a more nuanced understanding of community dynamics, power relations, and local agency, while participatory action research approaches could foster community empowerment, generate context-specific knowledge, and catalyze transformative change. Continued research that embraces contextual complexity, temporal fluidity, and participatory engagement is needed to develop more nuanced, adaptive, and community-centric approaches to sustainable ecotourism planning.

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**Institutional Review Board Statement:** This study was conducted in accordance with the ethical guidelines of Tarbiat Modares University and the National Committee for Ethics in Biomedical Research of Iran. As per these guidelines and the nature of this study, which involves no interventions or data collection from human subjects, formal ethics approval was not required. The study adheres to the principles of informed consent and voluntary participation, ensuring the anonymity and confidentiality of all participants.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions.

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## Appendix A

Total service product	Diversity and attractiveness of natural and native attractions	
	Branding and providing unique services to tourists	
	The level of tourists' satisfaction with the services of ecotourism units	
	Diversification of services according to different seasons of the year	
Original product	Events and festivals (for example, pomegranate, strawberry, Nowruz, etc.)	
	Diversity of culture (e.g., clothes, language, celebrations, etc.)	
The product	Historical background (is the residence built in a place with a historical background)	
	Gaining experience and training tourists from the local community	
	Transferring experience and training to the local community	
	Music festival	
	Additional services	Religious events
		Historical events
		Varied and quality foods
	Support services	Variety of services (tours inside the village, accommodation, food, etc.)
		Friendly dealings with tourists
		How to access the residence
The physical space of the residence and its traditionality		
Quality and cleanliness of bed and sleep		
Price	Use a local guide	
	Souvenirs and handicrafts	
	Cost	Reducing travel and accommodation costs for tourists from arrival to departure
		Adopting a flexible pricing policy (offering discount codes for tours)
		Controlling and recording the price of goods and services provided to tourists
		Proportion of prices with the quality of goods and services offered to tourists
	Based on the prevailing price in the market	
Discount strategy (low price on non-peak days)		
Based on customer needs		
The operation	Low cost compared to competitors	
	Penetration prices (introduction of services at a low price to capture the market)	
	Sales packages such as a combination of food and activities	
Competition	Longer stay, lower cost (for example, a tourist who stays for several days should be charged for the second and third days at a lower cost)	
	Reduced rates for leaders and agencies	
	Discount cards for tourists to reuse	
	Sales other than courier	

Location	Location	Mental image of the tourist accommodation (to create a good mental image for tourists by reviving local and traditional values and hospitality)
		The interior space and environment of Bogordi residence (built and decorated with local items)
		Geographical location of the ecology unit
		The body and the external physical space of the ecotourism residence
	Access	The health and quality of the place of ecotourism accommodation from pollution and insecurity
		The distance between ecotourism accommodation and tourist attractions
		The right time to travel to natural and historical villages
		Creating a suitable space for tourists to gain experience from the local community
	Transportation services	The distance between Bomgardi residence and the city center
		The quality of the road and access ways to the ecotourism residence
Ease of access to public transportation		
Ease of access on foot		
Electronic delivery	The quality of flooring in the residence area	
	Private parking lot of the resort	
	Tourists' online shopping of products (handicrafts, herbal and edible medicines, etc.) produced in the ecotourism unit	
Promotion	Internal marketing	Tourists' virtual visit to the tourist resort
		The possibility of online reservation of the rooms at the resort
	Direct marketing	Advertising on local and national TV and radio
		Publication of pamphlets, books, and brochures related to ecotourism accommodations
		Tagging (recording the geographic location of the tourism unit in Google Maps)
	Advertising	Sharing photos and videos through YouTube and cameras
		Access to ecotourism enthusiasts through digital information sources to information about the food menu and accommodation environment, the address of the ecotourism unit, and even the grade and quality of food and local ingredients (mashup)
		Advertising and sharing content creation through blog and site
		Using applications related to booking and introducing ecotourism accommodations
	Advertising method	Sharing the production of tourism content through social media (Instagram, Telegram, WhatsApp, Twitter, Facebook, etc.)
Selling or gifting a t-shirt or hat with the ecotourism logo to tourists		
Telling stories about cultural habits, social relations, village body, and special services in ecotourism (word of mouth advertising)		
Personal communication with distribution channels of tours interested in rural tourism and ecotourism		
Advertising method	Special discounts, for example, 80% for staying in an ecotourism unit for one day to increase customer awareness	
	Self-awareness and responsibility based on the culture of traveling to natural places	
	Awareness based on the environment, the least negative impact in the places visited	
Advertising method	Invitation to the participation of the local and host community	
	Participation in national and international tourism exhibitions	

People	Customers	Respecting the rights of the host community	
		Responsible use of available resources	
		Respecting the customs and beliefs (national, religious) of the local community	
	Staff	Using local forces trained in the field of ecotourism for management, ceremonies, etc. in the ecotourism unit	
		Using local and trained people to guide those interested in ecotourism (local leader)	
		Word-of-mouth advertising	
		Adhering to the proportionality of gender and age characteristics in the selection of employees	
		Development of human resources training in the activities of the ecotourism sector in order to provide efficient services	
		Training employees and turning them into skilled and active human resources	
		Continuous monitoring and evaluation of employees to improve the quality of providing services to tourists	
	Social interactions	Creating a platform for communication, transfer of experiences, and cultural exchange between the local community and tourists	
		The cooperation of ecotourism residences with the local community to hold celebrations and charity events	
		The attitude of local people towards tourists	
	Roles and relationships	Communication with local authorities	
		Improving the general culture of local people in dealing with tourists	
Planning	Service design	Improving the morale and sense of belonging of local people towards tourists	
		Strategic plan for the sustainable development of the ecology unit (identification, segmentation, targeting, etc.)	
		Comprehensive program for interaction between local community and tourists	
	Standardization	Analyzing the problems in the process of providing services to tourists and providing solutions	
		Updating ecotourism services using the combination of new technologies and Indigenous knowledge	
		Improving the monitoring of the performance of the existing departments in the eco-residence, such as (restaurants, crafts, rural museums, personnel, etc.) in order to support them	
	Ordering	Accurate identification of the problems and obstacles of ecotourism and efforts to solve them	
		Compilation and implementation of a suitable travel plan according to the needs and wishes of tourists	
	Operational efficiency	Planning and policy-making to identify the goals of tourists from traveling to ecotourism accommodation	
		Dynamics of marketing information system for the development of ecotourism	
		Coordination between different phases of providing services to tourists in ecotourism houses	
	Physical evidence	Facilities and equipment	Local community attraction and participation policies in the development of rural tourism with an emphasis on the mechanism of education
			Physical appearances, environmental perspectives, color architecture, etc. in ecotourism
			The cleanliness of the tourist accommodation
		Life and Antiquities	Appropriate spatial distribution of infrastructures and facilities needed for the well-being of tourists
Reconstruction and improvement of historical monuments and their use for tourism accommodation			
Symbols		Performance of historical and traditional shows	
		The distinctiveness of the traditional architecture of the residence	
	Beautification of ecotourism resort using traditional elements		
		Using tangible and intangible local and regional symbols	
		Compliance with the principles of furniture and physical spatial arrangement in ecotourism	

Quality and productivity	Entertainment	Attractive, exciting, and energetic
		Clean environment
	Art and music	Being experience-oriented (grabbing and teaching local activities to tourists)
		Original and traditional effects
		The sense of belonging and the amount of pleasure
		Diversity and creativity (diversity of traditional arts and holding different Indigenous music)
	Rich architecture	Diversity of native architecture is desirable
		Good access quality
		Appropriate design and beauty of exterior and interior architecture
		Having originality and tradition
	Culture of acceptance	Holding ancient and ritual celebrations
		Being family-oriented (is the resort managed by a family)
Customer satisfaction (how much attention is paid to customer satisfaction in ecotours)		
Statistical and information system	Comprehensiveness	Human resources and efficiently trained workforce in the tourism industry
		Educational, employment, business, legal, and tourism business environments
		Financing and expenses of the tourism industry
		The private sector entrepreneur in the tourism industry with an emphasis on ecology
	Purposefulness	Information and communication technology infrastructure and physical infrastructure
		Local people's participation and perspective on the development of tourism and ecology
		The length of stay and the amount spent by Kurdish tourists on tourism
	Easy accessibility	The dynamics of experience-based attractions in ecotourism and education for tourists
		Access to the Internet in attractive places tourism
		All people's access to the services of ecotourism accommodations
	Transfer speed	Access to communication tools with ecotourism collections
		Using social media such as Instagram, WhatsApp, Facebook, etc.
Existence of Internet sites for introduction and reservation of tourist accommodation		
The presence of applications for introducing eco-friendly accommodations		
Ruling bureaucracy	Flexibility	Creating a strong organizational culture in executive organizations
		Training managers and experts training executives to implement tourism policies
		Employing people who have appropriate and necessary experience in the implementation of tourism policies
		Using information technology to implement tourism policies
	Responsiveness	Designing a system for evaluating the performance of tourism policies
		Providing effective information and advice to the private sector for the implementation of tourism policies
		Providing facilities to the private sector to invest in tourism
		Creating a sense of responsibility in the performers
	Simplicity	Creating awareness and correct understanding of the instructions by the executives
		Decreasing the concentration in organizations implementing tourism policies (landscape)
		Reducing the complexity in organizations implementing tourism policies (landscape)
		Reducing the size of the relevant organization
		Coordination between parallel devices and multiple executive centers

Governing values	Select the target market	The degree of desirability of business relations between Iran and the country in question as a target market for tourism
		The degree of desirability of relations between Iran and the country in question as a target market for tourism from a political point of view
		The perception of the tourism place (tourism) can change from one person to another
		The number of competitors and the state of competition in the tourism sector of the market
		The amount of budget that should be spent to achieve ecotourism
	Foresight	Does ecotourism have enough growth potential?
		Achieving sustainable development of ecology that includes responsible social and environmental behavior
		Application of advanced technology strategy in the tourism industry
		Determining the vision and strategic goals of the field of ecotourism
		Ease of establishing business related to ecotourism
		Improving the level of education of activists in the field of ecology
		Improving productivity and evaluating the performance of ecotourism accommodations
		Diversifying attractions in tourist destinations (landscapes), creating complementary attractions
		Increasing the level of self-employment in tourism
		Increasing the efficiency of ecotourism markets
Power structure	Coherence in policy-making and planning	Development of tourism business infrastructure
		Making the labor market flexible
		Developing comprehensive policies in the tourism industry with an emphasis on the ecotourism sector
		Elaboration of tourism policies based on scientific and technical bases
		Elaboration of tourism policies with the participation of executives
	Independent and purposeful executive structure	Developing tourism policies in harmony with the values of the local community
		Clear formulation of the goals of tourism policies based on ecotourism
		Developing tourism policies away from political conflicts
		Direct involvement of the government in investing in the tourism industry
		Applying effective laws and regulations for private sector investment in the tourism industry
Policy implementation and monitoring	Constitution	Providing land to the private sector for investment in tourism
		Providing effective information and advice to the private sector for the implementation of tourism policies
	Long-term and short-term law	Using the market mechanism to implement tourism policies with an emphasis on the private sector
		Teaching the benefits of tourism to families and society for the implementation of tourism policies
		Approval of guidelines and laws for the implementation of Article 44 of the constitution in the tourism industry
	Normal rules	Approving appropriate laws to facilitate and remove visas for issuing visas
		Approval of easy laws for investment in ecotourism
		Approving guidelines and rules for coordination between organizations' regulations
		Affecting the development of tourism (tourism) with the private sector and eliminating parallel work
	Regulations and directives	Development of good relations with other countries
Pursuing and continuing the de-escalation policy		
Peaceful relations with neighboring Muslim countries		
Entry and active activity in regional cooperation organizations and implementation of agreements		
		Activating embassies, cultural consultations, and setting up exhibitions in the countries of origin
		Uniform policies and non-discrimination between tourists
		Political development inside the country
		Accepting tourists from all countries

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