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Formulating policies and prioritizing components of the epitourism model for local and regional sustainable development in the Taleghan region

Mohsen Naderi

Department of Geography and Rural Planning, SR.C.,, Islamic Azad University, Tehran, Iran.

Rahim Sarvar

Department of Geography and Urban Planning, SR.C., Islamic Azad University, Tehran, Iran.

Tahmineh Daniali

Department of Geography and Rural Planning, YI.C.,, Islamic Azad University, Tehran, Iran.

Extended Abstract

Introduction:

The 21st century is characterized by rapid economic development and escalating environmental degradation, leading to biodiversity loss and ecosystem disruptions. Globalization further threatens local behaviors, traditions, and cultures, necessitating ecological countermeasures. Tourism, as a key economic sector, must prioritize the conservation of natural and human resources (Pereira et al., 2015). There is a growing global interest in alternative tourism forms, such as ecotourism, rural tourism, and cultural tourism, where travelers seek novel experiences tied to a region's natural and cultural assets. One intriguing variant is apitourism (honeybee tourism), which integrates beekeeping, bee products, and cultural-environmental experiences (Pejic et al., 2009).

Apitourism encompasses activities like visiting open-air apiaries and bee museums, where tourists observe beekeepers at work, learn about honey production, taste honey, and explore other bee products (pollen, wax, royal jelly). It fosters ecological awareness of human-bee interdependencies (Koç & Özgürel, 2023). This form of tourism can revitalize rural areas, generate new jobs, and revive local traditions (Andanda, 2023). While apitourism has flourished in countries like Slovenia (the global leader since 2016), Poland, Germany, Czech Republic, Lithuania, Romania, and Ukraine, Iran holds significant potential. With over 6.69 million beehives producing 77,393 tons of honey annually (Ministry of Agriculture Jihad, 2015), Iran's beekeeping sector ranks among the world's top 10. Vast apiaries, combined with agricultural and tourism capabilities, position bee farm tourism as a viable alternative.

In Iran, apitourism can drive endogenous rural development through infrastructure growth, promoting healthy food consumption (e.g., honey in family diets), local

employment, and income generation (Topal et al., 2021). However, despite national plans emphasizing rural agriculture as an economic asset, rural economic weaknesses persist, exacerbated by Iran's diverse climate, topography, and flora (Izquierdo-Gascón & Rubio-Gil, 2023; Kim et al., 2020; Yin et al., 2021). Regions like Taleqan in Alborz Province, with its unique climate, rich biodiversity, long beekeeping history, over 28,000 bee colonies, natural attractions (e.g., Shahroud River, Taleqan Dam Lake), and cultural heritage, emerge as ideal apitourism destinations.

This study addresses a critical research gap: while apitourism literature is largely review-based or country-specific, Iranian research is limited to two studies. It investigates apitourism's role in local and regional development in Taleqan, answering: Given Iran's beekeeping capacities, what is apitourism's position in regional/local development, and how can it foster sustainable growth? The research proposes a localized model emphasizing multidimensional sustainability (environmental, economic, socio-cultural), informing policies for rural revitalization

Methodology:

This descriptive-analytical study examines apitourism's status and role without variable manipulation, focusing on depiction, explanation, and causation. Mixed methods (quantitative and qualitative) were employed: advanced statistical analysis, expert interviews, and surveys.

Data collection followed a dual-path approach:

- **Path 1 (Documentary/Library):** Reviewed books, journals, government documents, statistics, visuals, and online resources; registered via notes, tables, charts; processed for analysis.
- **Path 2 (Processed Data):** Used Path 1 outputs to define criteria for apitourism's role in Taleqan development.
- **Path 3 (Subjective Data):** Researcher-designed questionnaires for belief exploration among residents, experts, and specialists.

Tools included semi-structured interviews with experts (selected for theoretical mastery, practical experience, participation willingness, accessibility) to refine literature-derived factors (merging, splitting, adding). This yielded a factor list distributed via questionnaires to validate dimensions, criteria, and strategies.

The population comprised 100 experts (urban managers, elites, Alborz Province officials) via simple random/availability sampling. Three questionnaires addressed research questions; reliability via Cronbach's alpha (>0.70) confirmed in SPSS (Table 4-3). Normality tested via Kolmogorov-Smirnov (non-significant, enabling parametric tests like t and F; Table 4).

Analysis involved descriptive statistics (means, variances), inferential tests (regression, path analysis, lean analysis), and prioritization via t-values and means (Table 5; Figure 3).

Findings:

Respondents' demographics: mean age 37.4 years; education: 24% bachelor's, 31% master's, 45% PhD (Table 3).

Five core components emerged, with infrastructural (mean 3.362, t=12.514) and managerial-policy (mean 3.378, t=12.507) highest, followed by socio-cultural (3.311, t=7.443), economic (3.272, t=7.609), and environmental (3.213, t=4.811) (Table 5; Figure 3; Table 6).

Environmental Indicators: Biodiversity protection (e.g., plant species pollinated by bees, x1, mean 3.17, variance 1.205), environmental sustainability (organic methods, x4, mean 3.22, SE 0.050), awareness (waste management, x12, mean 3.22). Means 3.14-3.25; regression β=0.32 (strong indirect economic link, correlation 0.855).

Economic Indicators: Job creation (direct jobs, x17, mean 3.24, variance 1.232), income (honey sales to tourists, x22, mean 3.28), investment (advertising, x29, mean 3.32, variance 1.070). Means 3.15-3.36; β=0.28.

Socio-Cultural Indicators: Tradition revival (honey festivals, x32, mean 3.28), social interactions (tourist satisfaction, x37, mean 3.32, SE 0.049), local identity (documented stories, x41, mean 3.28). Means 3.28-3.34; β=0.25; strong economic correlation (0.682).

Infrastructural Indicators: Tourism facilities (internet access for promotion, x48, mean 3.37, variance 0.968), educational infrastructure (recreational-educational centers, x54, mean 3.43). Means 3.24-3.43; β=0.20; strong managerial correlation (0.630).

Managerial-Policy Indicators: Policy-making (government supports, x55, mean 3.42), planning (consultations, x62, mean 3.41), empowerment (manager training, x58, mean 3.42, variance 0.980; startup support, x70, mean 3.41). Means 3.32-3.42; β=0.15; path β=0.22 (mediator role); weak environmental/economic links (-0.059, -0.081).

Lean analysis identified key activities (e.g., educational centers, digital marketing). Challenges: digital infrastructure gaps, cultural documentation weaknesses, insufficient financial supports.

Discussion and Conclusion:

Prioritization: 1) Infrastructural (key for tourist attraction, e.g., eco-lodges, bee museums); 2) Managerial-Policy (coordination, e.g., incentives, training); 3) Socio-Cultural (identity strengthening, e.g., festivals); 4) Economic (income/jobs, e.g., direct sales); 5) Environmental (sustainability base, e.g., organic practices).

The Taleqan apitourism model integrates components for balanced sustainability, leveraging 28,000+ colonies, biodiversity, and attractions like Shahroud River. Environmental protection indirectly boosts economy via eco-tourists; economic

pillars reduce rural migration; socio-cultural preserves heritage; infrastructural elevates experiences; managerial facilitates synergy.
Scientifically, multi-linear regression and path analysis validate interrelations; practically, it targets weaknesses (e.g., beekeeper income, x24, mean 3.15) via digital platforms and global marketing.
Recommendations: 1) Boost educational/digital investments; 2) Enhance public-private partnerships; 3) Expand training for tourists/beekeepers; 4) Develop international digital marketing. This model positions Taleqan as a national/international apitourism hub, serving as a blueprint for similar rural areas. Successful implementation requires stakeholder commitment for long-term sustainability.

Keywords: Apitourism, regional development, local development, Taleghan, sustainable beekeeping, agricultural tourism, ecotourism,

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