

**Relationship Analysis of Local Community  
Participation in Sustainable Ecotourism Development  
in Protected Areas, Iran**

**Table S1.** List of sustainable ecotourism indicators along the environmental-physical dimension

Variables	Indicators	References
Environmental pollution	Water pollution	[6,7,40-62]
	Soil pollution	
	Air pollution	
	Noise pollution	
Ecosystems	Changes in habitat integration	
	Land use and land cover changes	
	Area's ecological potential for intensive ecotourism development	
	Area's ecological potential for extensive ecotourism development	
Biodiversity	Flora and fauna biodiversity	
	Endangered species percentage	
Ecotourism carrying capacity	Physical carrying capacity	
	Real carrying capacity	
	Effective carrying capacity	
Safety	Emergency services accessibility	
	Fire services accessibility	
	Feeling of driving safety level on the road	
Ecotourism infrastructure and facilities	Health care accessibility	
	Garbage container accessibility	
	Wastewater disposal system accessibility	
	Drinking water accessibility	
	Transport networks accessibility	
	Public transportation network quality	
	Public parking lots accessibility	
	Canopies and tent installation platforms accessibility	
	Religious and cultural places accessibility	
	Restaurant and grocery store accessibility	
	Restaurant and grocery store quality	
	Access to accommodation	
	Accommodation quality	
	Theaters and cinemas accessibility	
	Health facilities accessibility	
	Access to various roads	
	Quality of various roads	
	Tour agencies accessibility	
	Information signs accessibility	
	Natural ecotourism attractions accessibility	
	Cultural and historical ecotourism attractions accessibility	
	Access to man-made tourism attractions	

**Table S2.** List of sustainable ecotourism indicators along the socio-demographic dimension

Variables	Indicators	References
Satisfaction	Satisfaction of ecotourism from local communities	
	Satisfaction from local communities' behavior and acceptance	
	Satisfaction with maintaining welfare facilities and ecotourism infrastructure	
	Satisfaction of maintaining cultural, historical and archeological monuments	
	Satisfaction of maintaining herb and woody species	
	Satisfaction of maintaining animals	
	Satisfaction of maintaining the environment against pollutions	
	Satisfaction of environmental health status	
	Satisfaction of road traffic situation	
Participation	Satisfaction of ecotourism from local communities	
	Level of participation in planting seedling	
	Level of participation in feeding the animal species	
	Level of participation in protection of historical and archeological monuments	
	Level of participation in maintaining water resources from pollutions	
	Level of participation in maintaining nature clean	
	Level of participation in protection of tourism infrastructure	
Feeling of security	Level of participation in protection of local facilities and services	[6,7,41,43-52,54-59,61,62]
	Level of participation in respecting local residents	
	Level of sense of security among tourists	
Population density	Level of security among local communities	
	Level of security among environmental guardians	
	Level of access to police	
Culture	Density of local residents	
	Migration of local residents	
Justice	Value of education among local residents	
	Development of novel cultural and moral values among local residents	
	Loyalty to actual local values and traditions	
	Access to a variety of local services	
	Access to tourism infrastructure	
	Participation and presence of women in development of ecotourism	
	Number of job opportunities for local residents	
	Number of employees of local households	
	Wage level of local residents	
	Buying power of local households	
	Income of local households	
	Cost of local households	

**Table S3.** List of sustainable ecotourism indicators along the economic-institutional dimension

Variables	Indicators	References
Information and communication infrastructure	Access to the telecommunication network	[40-48,50,54-59,61,63]
	Access to internet	
	Access to banking services and ATMs	
	Access to information centers	
	Access to newspapers	
	Mobile antenna status	
	Radio and TV antenna status	
Local prices	Prices of food and commodities	
	Prices of accommodations	
	Prices of land and property	
Employments	Level of employment in industrial sector	
	Level of employment in service sector	
	Level of employment in agricultural sector	
	Level of employment in technology and information sector	
	Level of employment in ecotourism activities	
Governmental and non-governmental institutions	Access to government institutions Access to non-governmental organizations (tourism agencies, NGO, local councils, institutions, service enterprises, etc.)	
Government investments	Level of government financial support	
Monitoring and control	Level of monitoring and control in area	
Institutional cooperation	Level of cooperation between relevant organizations	
Quality of managerial functions	Quality of managers' performance in training and information	
	Quality of performance of local tour guides	
	Quality of performance of environmental guardians	
Ecotourism costs	Cost of food	
	Cost of transportation	
	Cost of using local facilities	
	Cost of input	
	Cost of health services	
Rules and regulations	Level of adherence to laws and regulations	
	Access to local laws and regulations	

**Table S4.** List of local community participation indicators in sustainable ecotourism development in Protected Areas.

Variables	Indicators	References
Participation	Level of participation in conservation and sustainable ecotourism development	[31,46,49,50,57]
	Level of participation in protection of ecological resources	
	Level of participation in development of protected areas	
	Level of participation in promoting and encouraging protection of these areas	
	Level of participation in protection of nature and natural monuments	
	Level of participation in protection of plants, trees and green spaces	
	Level of participation in protection of animal species	
	Level of participation in maintaining environment from pollutions	
	Level of participation in supporting from art, culture, and handicrafts monuments	
	Level of participation in adherence to laws and regulations	
	Level of participation in reporting illegal hunting	
	Level of participation in reporting deforestation and destruction of vegetation	
	Level of participation in public training	
	Level of participation in management and planning	
	Level of participation in advertising and awareness	

**Table S5.** List of factors affecting on local communities' participation level in these areas (results of round 1 of Delphi method). Values were measured on a 5-point Likert scale ranging from “strongly disagree (1) to strongly agree (5)”.

Studied area	Factors	n	Mean	SD	V	Rank	Total mean
Lar National Park	(1) Existence of pristine habitats and high species richness (rare species such as <i>Salmo trutta fario</i> )	40	3.48	1.030	1.000	5	2.91
	(2) High distance from metropolis of Tehran	40	3.36	1.000	2.030	6	
	(3) Low access of tourists and visitors to the area	40	2.51	1.029	1.000	10	
	(4) High ecological sensitiveness	40	3.33	1.000	1.000	7	
	(5) High restrictions in develop physical and economic activities	40	2.4	1.000	2.000	11	
	(6) High level of attachment and interest to pristine nature among local communities	40	4.58	1.000	2.055	1	
	(7) Income status of local communities	40	1.57	1.000	2.023	15	
	(8) Low number of tourists	40	2.33	1.030	1.000	12	
	(9) Adherence to laws and regulations	40	4.19	1.000	1.000	2	
	(10) Existence of indigenous knowledge	40	2.2	1.000	1.000	13	
	(11) Education level of local communities	40	1.63	1.000	1.000	14	
	(12) High level of local communities' awareness	40	3.86	1.024	1.000	3	
	(13) High number of young people among local communities	40	1.55	1.000	1.000	16	
	(14) Protection importance of the area among local communities	40	3.2	1.000	1.000	8	
	(15) Encourage development of participation to funder protection	40	3.74	1.000	2.036	4	
	(16) High importance of traditions and cultural values among local communities	40	2.7	1.030	1.000	9	
Jajrud Protected Area with the Sustainable Use of Natural Resources	(1) Located in the metropolis of Tehran	40	3.73	1.000	1.000	3	2.65
	(2) High access for tourists and visitors	40	2.37	1.000	2.000	10	
	(3) High number of tourists	40	1.47	1.030	1.060	13	
	(4) High capacity to develop physical and economic activities	40	3.2	1.000	1.000	7	
	(5) Low level of place attachment and ownership among local communities	40	3.39	1.000	1.043	5	
	(6) Low level of ecological sensitivities	40	2.45	1.000	1.000	9	
	(7) Low level of protection importance among local communities	40	4	1.000	1.000	1	
	(8) Income status of local communities	40	1.32	1.000	1.000	15	
	(9) Destroyed nature	40	1.75	1.000	1.000	12	
	(10) Low level of awareness and education among local communities	40	3.86	1.029	1.000	2	
	(11) Education level of local communities	40	1.26	1.030	1.000	16	
	(12) Lack of indigenous knowledge and affected by urban development	40	3.58	1.000	1.000	4	
	(13) Lack of attention to laws and regulations	40	2.27	1.000	2.030	11	
	(14) High number of young people among local communities	40	1.39	1.000	1.000	14	
	(15) High number of various organizations and lack of attention to development of participation	40	3.28	1.000	1.000	6	
	(16) Low importance of traditions and cultural values among local communities	40	3.11	1.000	1.000	8	

**Table S6.** List of factors affecting on local communities' participation level in these areas (results of round 2 of Delphi method). Values were measured on a 5-point Likert scale ranging from “strongly disagree (1) to strongly agree (5)”.

Studied area	Factors	n	Mean	SD	V	Rank	Total mean
Lar National Park	(1) Existence of pristine habitats and high species richness (rare species such as <i>Salmo trutta fario</i> )	37	3.50	1.000	1.000	5	3.04
	(2) High distance from metropolis of Tehran	37	3.43	1.000	2.030	6	
	(3) Low access of tourists and visitors to the area	37	2.52	1.029	1.000	10	
	(4) High ecological sensitiveness	37	3.34	1.000	1.000	7	
	(5) High restrictions in develop physical and economic activities	37	1.89	1.000	2.000	12	
	(6) High level of attachment and interest to pristine nature among local communities	37	4.51	1.000	2.055	1	
	(7) Low number of tourists	37	2.35	1.030	1.000	11	
	(8) Adherence to laws and regulations	37	4.25	1.000	1.000	2	
	(9) Existence of indigenous knowledge	37	1.72	1.000	1.000	13	
	(10) High level of local communities' awareness	37	3.84	1.024	1.000	3	
	(11) Protection importance of the area among local communities	37	3.19	1.000	1.000	8	
	(12) Encourage development of participation to funder protection	37	3.68	1.000	2.036	4	
	(13) High number of young people among local communities	37	1.64	1.000	1.000	14	
	(14) High importance of traditions and cultural values among local communities	37	2.66	1.030	1.000	9	
Jajrud Protected Area with the Sustainable Use of Natural Resources	(1) Located in the metropolis of Tehran	37	3.74	1.000	1.000	3	2.80
	(2) High access for tourists and visitors	37	2.32	1.000	2.000	10	
	(3) High number of tourists	37	1.32	1.030	1.060	13	
	(4) High capacity to develop physical and economic activities	37	3.21	1.000	1.000	7	
	(5) Low level of place attachment and ownership among local communities	37	3.40	1.000	1.043	5	
	(6) Low level of ecological sensitivities	37	2.46	1.000	1.000	9	
	(7) Low level of protection importance among local communities	37	4.03	1.000	1.000	1	
	(8) Destroyed nature	37	1.42	1.000	1.000	12	
	(9) Low level of awareness and education among local communities	37	3.84	1.029	1.000	2	
	(10) Lack of indigenous knowledge and affected by urban development	37	3.52	1.000	1.000	4	
	(11) Lack of attention to laws and regulations	37	2.21	1.000	2.030	11	
	(12) High number of various organizations and lack of attention to development of participation	37	3.33	1.000	1.000	6	
	(13) High number of young people among local communities	37	1.30	1.000	2.030	14	
	(14) Low importance of traditions and cultural values among local communities	37	3.14	1.000	1.000	8	