

## Geomorphosite assessment of Ziarat village by the use of Scientific and Additional values Methods

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**Abstract:** During the last two decades many efforts have been made to evaluate the quality of the geomorphological heritage in various contexts. One of the tourist attractions in Golestan Province is Ziarat village that attracts many tourists attention geomorphologically. This research investigates geomorphologic potentials as well as the ecologic, aesthetic, cultural, economic and historical criteria of the region by the use of Scientific and Additional values methods that are evaluated quantitatively. The results showed that the Additional value criteria of geomorphosite in Ziarat scored higher than the scientific value indicating the low level of awareness of tourists and relevant authorities of the scientific characteristics of the region.

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**Key words:** Geomorphosite, Geotourism, Scientific value, Value added, Ziarat village

### Introduction and Problem Statement

Geotourism is defined as tourism that sustains or enhances the geographical character of a place its environment, heritage, aesthetics, culture, and the well-being of its residents (Torutellot, 2002). Geomorphosites are landforms with special features that alone or along with other human and bio-ecological factors considered as the heritage of a place and consists of two criteria, scientific and Additional values. Numerous studies have been developed on the issues of geotourism and geomorphologic sites and different methods have been used: Reynard et al. (2007), assessed geomorphosites of two regions of the Belnio Valley and the Lucomagno area in Switzerland, Pellegrini et al. (2010), assessed the relationship exists between geotourism and geomorphological hazards and Pralong (2005), introduced new method to evaluate tourist potential of geomorphological sites. Mokhtari (2009), used Prolong method to evaluate ecotourism potential of geomorphological sites in Asiyab Kharabe and Bahrami et al. (2009), evaluate geomorphological site of wetlands of Pol Dokhtar in Lorestan province by the use of Scientific and Additional values methods. The characteristics and geotourism potential of Ziarat village identified and Scientific and Additional values used in this research to protect natural sources of the environment and focus on investment attraction in order to improve

economic condition of the village, increase the visitors, create job opportunities and high income for residents and etc. It attempts to evaluate this natural environment potentials based on these objectives.

### The Study Area

Ziarat village is located in Alborz mountains, 1000 meters over the sea at the south of Gorgan city in Golestan province. It is bounded on the north by Naharkhoran and on the south by the waterfall and forest highlands, and khasseh-rood river crosses the village (Figure 1). Ziarat village located at 36.42° North latitude and 54.28° East longitude and has various terrains with different slopes topographically and the main part of the region geologically has high or relatively high elevation units composed of limestone and some Marl with Gorgan schist and Precambrian metamorphic rocks.

### Methodology

In this research, first direct observation and library studies were used. After the data collected, the geomorphosite of Ziarat have scored by the use of Scientific and Additional values methods. There are geomorphosite evaluation cards to identify geomorphological site which consist of two parts, Scientific and Additional values, and each of them has sub-criteria (Table 1 & 2).

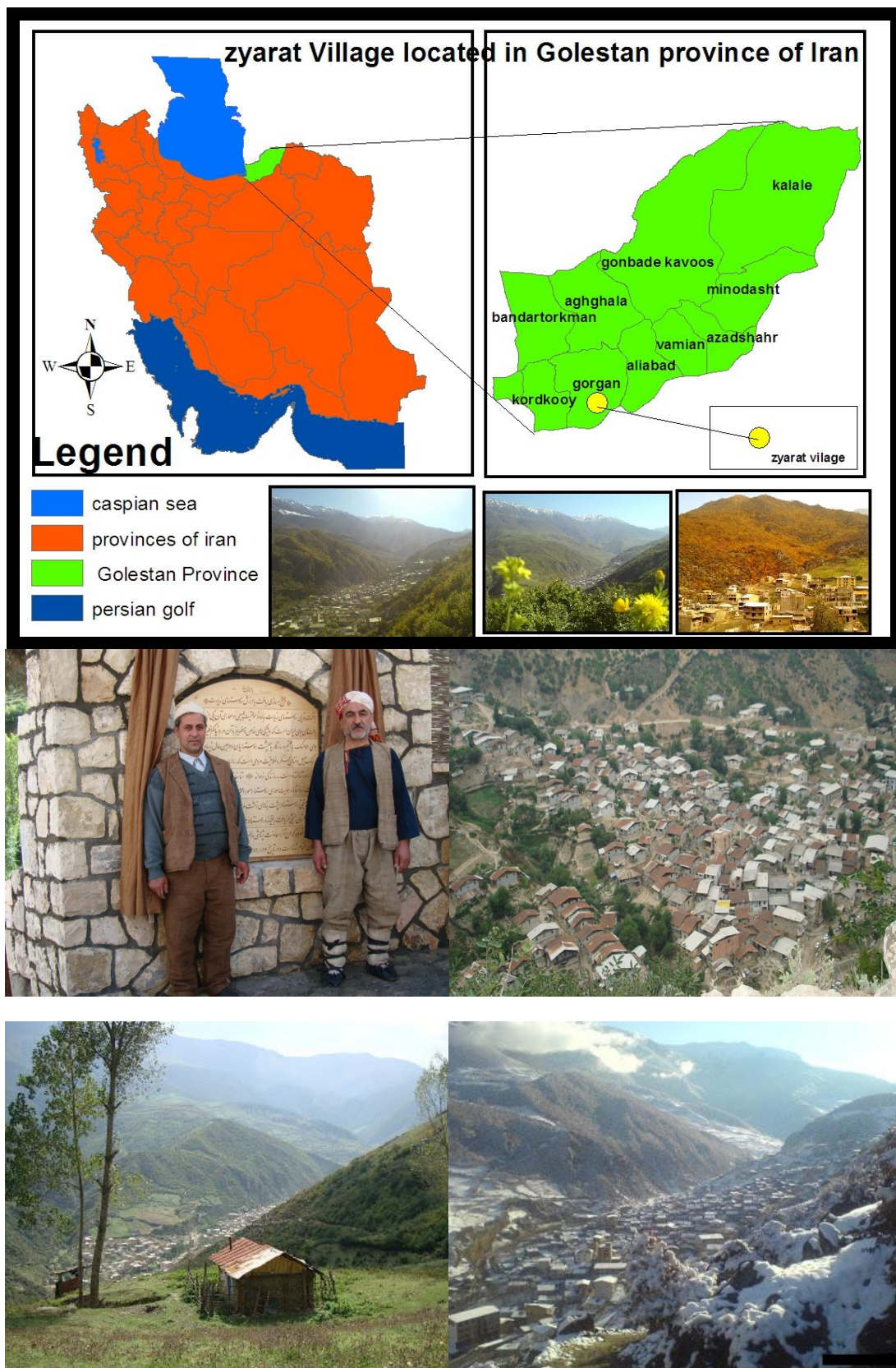


Figure 1: zyarat village geographical situation in Golestan province of Iran

Table 1. Criteria used to evaluate scientific value (Reynard et al. 2007)

Sub-criteria	Evaluation
Integrity	State of conservation of the site which consists of good and bad conservation. Bad conservation may be due to natural factors (e.g. erosion) or human factors.
Representativeness	Existence of index site consists of exemplar phenomenon and landforms compared to other similar sites at the level of region, commune, country (exemplary sites).
Rareness	It serves to illustrate the exceptional landforms in the area.
Paleogeographical value	Importance of the site for the Earth or climate history that study the past geographical condition (e.g. reference site for a glacial stage).

The quantitative assessment of criteria ranges between 0 to 1 that 0 is valueless and 1 represents high value.

Table 2. Criteria used to evaluate Value-Added (Reynard et al. 2007)

Calculation	Values	Criteria
$ECOL = \frac{Ecl + PS}{2}$	Ecologic Value (ECOL)	a. ecologic impacts (Ecl) b. protected Site (PS)
$AEST = \frac{VP + STR}{2}$	Aesthetic Value (AEST)	a. view points (VP) b. Contrasts, vertical development and space structuration (STR)
The highest score on four criteria instead of the average of the four criteria	Cultural Value (CULT)	a. Religious importance (REL) b. Historical importance (HIS) c. Artistic or Literature importance (ART) d. geohistorical importance (GEO)
Qualitative Assessment	Economic Value (ECON)	Economic products (ECO)

## Results

According to the evaluations carried out, the geomorphosite of Ziarat scored (Table 3 & 4). According to the results, the special potentials and capabilities of the region could be identified. The scores achieved by calculation of Scientific and

Additional values (Table 4 & 5) represents Additional value scored highest and have affected other values. Based on the number of tourists and people's attention to this geomorphological site, economic value doesn't scored in proportion to other values specially to the aesthetic value (Figure 2).

Table 3. Geomorphosite assessment concerning the scientific value in Kandovan village

total	Paleogeographical	Rarity	Index of	protection	Criterion
0/6	0/6	0/7	0/6	0/5	Location geomorphic Zyarat village

Table 4. Geomorphosite assessment concerning the Additional value in Kandovan village

total	Economic value	Cultural values				Aesthetic value		Ecological value		criterion Location geomorphic
	Economic production	Historic Land	Artistic and literary	Historical	Religious	Structure	Seeable points	Protected location	Ecological impacts	
0/7	0/6	0/7	0/2	0/6	0/7	0/8		0/7		Zyarat village

## Conclusion

Based on Scientific and Additional values methods, the last evaluation represented that Ziarat village in spite of prominent geomorphological phenomenon such as waterfall, spring, river and etc. is taken into consideration. But this village attracted the attention of tourists of this tourism region for aesthetic, ecologic and religious values. It is not taken into consideration scientifically and economically has low score. Thus, it is necessary to

plan in a way this geomorphosite be introduced better till the tourists be aware of the nature of these geomorphological impacts and the way they are created. And it requires the careful planning also appropriate to attract tourists to improve economic value. Finally, Ziarat village has special conditions geomorphologically which could provide many opportunities for tourism authorities of Golestan province. And It requires to pay more attention to the village and welfare and recreational facilities of the

village be provided. As a conclusion tourism planners and relevant authorities could provide and arrange

their priorities based on the evaluations carried out.



Figure 2. Geomorphological site

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