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Arasbaran ecotourism potential assessment whit emphasis on the scientific and additional values

Neda Mohseni^{* 1}, Shahram Roostaei¹

1- Department of Physical Geography, University of Tabriz, Tabriz, Iran.

*Corresponding Author Email: Nedamohseni63@yahoo.com

Abstract

Development of tourism in recent decades, especially in the first decade of this century has caused the experts to be focused on different aspects of it. One of these aspects is the design of Geomorphologic relation with tourism issues including study of interdisciplinary in recent years. During the last decade, the promotion of geoheritage has developed rapidly due to the creation of geoparks and the development of geotourism. In this context, the assessment of geomorphosites is in need of the inclusion of other values in the evaluation process (cultural ecological economical historical aesthetic ...). In the present study, according to the criteria of economic, social, historical, cultural, aesthetic, ecological and geomorphologic, assessment scientific and additional value method have been used to identify ecotourism potential of Arasbaran area. Arasbaran area is located in south of the Aras River and 60 km to Ahar city and to West of kaleybar city in east Azarbaijan province (IRAN). In this study, we propose a set of definitions and methods for the evaluation of scientific and additional values of geomorphosites Arasbaran. The aim of the proposed method is to combine the assessment of scientific value whith additional for geoheritage conservation and management. The results obtained in this study represented outstanding geomorphosites scientific values, rather than other criteria.

Keywords: Aynali forest, Babak castle, Evaluation, Geomorphosites, Makidi valley, Scientific value.

Introduction

Development of tourism in recent decades has caused the experts to be focused on different aspects of it. One of these aspects is the design og geomorphologic relation whit tourism issues. During the last two decades, several attempts have been made in order to evaluate the guality of the geomorphological heritage in various contexts like environmental impact assessment (Rivas et al., 1997; Coratza and Giusti, 2005), inventories of natural heritage sites (Serrano and Gonzalez, 2005), tourist promotion (Pralong, 2005) or managment of nature parks (Pereira et al., 2007). The geomorphological heritage is constituted of sites of interest called geomorphological sites or geomorphosites (Panizza, 2001). Different terms have been used in the literature (Reynard, 2004), like geomorphological assets (Panizza and Piacente, 1993), geomorphological goods (Carton et al., 1994), geomorphological sites (Hooke, 1994), geomorphological geotopes (Grandgirard, 1997), sites of geomorphological interest (Rivas et al., 1997), and finally geomorphosites (Panizza, 2001). In this paper, we used the term "geomorphosites" for naming sites of particular interest in terms of geomorphological heritage. The importance of geomorphosites is not only related on their scientific value - that is their importance for knowledge of earth history-, but also on the other characteristics and links whit ecology, economy or culture (Panizza and Piacente, 2003). This research was based on the study geomorphosites of the area of Arasbaran that is an important part of the northern slopes of the mountains of Gharahdagh and of aspects features of structural, natural systems and human issues related to the position of area is to be reviewed and evaluated.

Research results in two mediterranean marine area showed the applicability of the schemes proposed in different geological and geomorphological settings and provide tools for the evaluation of abiotic underwater heritage in the two areas (Rovere et al., 2010). In the paper a method for assessing tourist and exploitation values of geomorphological sites in a tourist and recreational context. This method was based on the study of geomorphological sites of the area of Chamonix Mont-Blance and Crans-Montana-Sierre. Result this approach could be used to difine carrying capacity of geomorphological sites as a fonction of their recreational activities and of their evolution in terms of potential and exploitation (Pralong, 2005).

In this paper, we propose a quite simple assessment method that allows us to assess the two levels of values (scientific and additional values) in the area Arasbaran.

Materials and Methods

We have proposed to distinguish two levels of values (Reynard, 2005). The central one that is the scientific value and additional value (cultural, economic, aesthetic and ecological). This assessment method enables a comparison, in the one hand of the tourist value of different sites and categories of the geomorphological sites (Pralong and Reynard, 2005) and on the other hand, of their tourist potential whit their actual use. After presenting the different parts of the assessment method, we compare three point of the geomorphosites Arasbaran (Aynali forests, Makidi valley, Babak castle).

A-Scientific value

This part of the evaluation aims at assessing the scientific value of the site (Grandgirard, 1999) – rareness, representativeness, integrity and palaeogeographic value –The last one is important, because it allows us to evaluate the importance of the site for the knowledge of earth and climate history (Table 1) (Reynard et al., 2007).

Table 1. Criteria used for the assessment of the scientific value						
Criterion	Evaluation					
Integrity	State of conservation of the site. Bad conservation may be due to natural factors (e.g. erosion) or human factors.					
Representativeness	Concerns the site's exemplarity. Used whit respect to a reference space (e.g. region, commune, country). All the selected sites should cover the main processes, active or relict, in the study area.					
Rareness	Concerns the rarity of the site whit respect to a reference space (e.g. region, commune, country). The criterion serves to illustrate the exceptional landforms in the area.					
Palaeogeographical value	Importance of the site for the earth or climate history (e.g. reference site for a glacial stage).					

B- Additional value

The additional value is assessed in four categiries: ecological, aesthetic, cultural and economic value (Table 2) (Reynard et al., 2007).

Results and Discussion

In this paper, to show the relationships exiting between the geomorphology and tourist interests in the some of Arasbaran geomorphosites, especialy tourism history in Babak castle. The aim of the proposed method is to combine the assessment of the central scientific value and additional value. The comparison between scientific and additional values is carried our in order to analyse and discuss the potential and use of the studied geomorphological sites. The focus is on scientific value of Babak castle and other geomorphosites. The results obtained in this study represented outstanding scientific value, rather than other criteria. The inventory geomorphosites is currently used as the basis for the realisation of several tourist and didactic products created in a context of promotion of eco- and geo- tourist in the area.

After identifying the geomorphosites of the region, scoring was based on the criteria listed. The score is between 0 (lowest score) and 1 (highest score). Where the score is zero, Additional and scientific values is

minimal and score one show higher value, compared to other places, so, each of the geomorphosites values expressed whit certain score. Finally, the overall value of the site is determined.

Value	Criteria							
Ecological value (ECOL)	a.Ecological impact (ECI): This criterion measures the importance of the geomorphosite for the development of a particular ecosystem or the presence of a particular fauna and vegetation. b.Protected site (PS): We consider that if a site is protected (e.g. nation)							
	inventory, cantonal or local protection) for ecological reasons (e.g. marshes, alluvial zones), it has a particular ecological value. The "ecological value" corresponds to the arithmetical mean of the "ecological							
	impact" and "protected site" criteria: ECOL= (ECI+PS)/2.							
Aesthetic value (AEST)	 a.View pointes (VP): This criterion takes into account the abservation possibilites. A site covered by forest or very difficult to access has a low scor, where as site visible by several view points has high score. b.The structure of area (STR): the sites whit color contrasts (e.g. contrasts due 							
	to lithological changes), high vertical development (e.g. peaks) or that structure the space (e.g. morainic arcuate ridge that close a valley, braided rivers) will receive a largest score than monotone reliefs (e.g. alluvial plain, large plateau). The "aesthetic value" corresponds to the arithmetical mean of two proposed criteria: AEST= (VP+STR)/2.							
Cultural value (CULT)	 a.Religious importance (REL): sites that have a religious, mythological or mystic value. b.Historical importance (HIS): this criterion covers the history in a broad sense, that is archaeology, prehistory and history, and is assessed by the presence of vestiges. Its importance for tourism history. c.Artistic and literature importance (ART): the peresence of the site in artistic 							
	realisation (paitings, sculptures, etc.) and in books and poems. d.Geohistorical importance (GEO): The role of particular sites in the development og geosciences.							
Economic value (ECON)	Economic products (ECO): Its obtained by a qualitative and if possible quantitative assessment (e.g. number of visitors, benefits) of the products generated by the geomorphosite. Only the incomes produced by the presence of the geomorphosite are evaluated (e.g. number of intrances in a tourist site), but not the potential of use and the indirect incomes related to the presence of the site (e.g. the presence of a hotel in the surroundings of a tourist cave).							

Table 2	ceriteria	used for	the	assessment	of the	additional	value
	Centena	u3eu 101	1110	assessment		auditional	value

Geomorphosites	Scientific value					
Name	Integrity	Represent	Rarity	Paleaogeographical value	Total	
Makidi valley	0.5	0.75	0.75	0.5	0.62	
Aynali forests	0.5	0.5	0.75	0.5	0.56	
Babak castle	0.5	0.75	0.75	0.75	0.68	

Table 4. Criteria and scale of scoring used to assess the additional value geomorphosit

Geomorphosites	Cultural value							
Name	Ecological value	Aesthetic value	Religious	Historical	Artistic Literat	Geohist	Economic value	Total
Makidi valley	0.5	1	0	0	0	1	0.2	0.48
Aynali forests	0.75	1	0	0	0	0.75	0.2	0.53
Babak castle	0.5	0.75	0	1	0	0.75	0.3	0.49

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By comparing the scores, the geomorphosite tourist potential is identified, and planning optimal exploitation to be in these places (Table 3 & 4). The results obtained outstanding scientific value of Babak castle (whit score 0.68) - Due to the high attractiveness of this site of Palaeogeography and its historical and cultural values -, rather than other geomorphosites (Table 3). The lowest registered values concern the economic values (Table 4), because, the number of tourists is difficult to quantify and the accessibility is reduced. This is the main reason for the need to design tourism pathways to facilitate the accessibility. The low values also derive from the fact that although the geomorphosites are included into protected areas their protection degree is very low.

Reynard and et al (2007); in the research about the geomorphosites Blenio valley and Lucomagno area is evaluating scientific value of these. It opens up new prespectives in the area of geoheritage conservation and managment, also Comanescu and Dober (2009); in similar research studies central sector of the Ceahlau national park (Romania). The inventorying and evaluating process was lead to establishing a series of provisions for the superior protection and tourism promotion of the area.

The process of inventorying and evaluating the geomorphosites has a generous and practical purpose namely that of creating a series of geo-tourism products and designing geo-tourism pathways. There is a clear distinction between the different domains specialists' perceptions and the tourist perception, the first accentuating the scientific side and the second ones emphasising the aesthetic and cultural- historical aspects. The geo-tourism products must consider both categories but primarily the mass of tourists is addresses. Unfortunately these geo-tourism products are still in the their incipient phase in Arasbaran region and the present study proposes to emphases this unseen aspect of the relief in the general and specifically the relief form that of tourism valuing, the method through this is done by respecting the conservation and protection norms.

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