

The Prospects for the Development of Geotourism in the Area of the Wadi Rum Desert

Bozena Wojtowicz, Pawel Wojtowicz
Pedagogical University of Cracow, Cracow, Poland

The main objective of this study was to present the possibilities of the development of geotourism in the area of the nature reserve and the UNESCO World Heritage. The scope of the research included the directions of the transformation of the existing development of tourism and the use of the Wadi Rum Desert, in the opinion of the local Bedouin population and their activities involving the promotion of geotourism and the increase of the competitiveness in the further development of tourism. The observations and the records of tourism as well as the diagnostic tests among the Bedouin tribes living in the area of human settlements on the desert of Wadi Rum were conducted. According to the local community, geotourism was a very positive factor in the economic development of the rural settlements and the desert region. It was considered that the most important in the development of geotourism was the preservation and strengthening of the geological heritage of the desert as well as its use in tourism. The young people could see the opportunities to create new jobs, and the increase in the economic development of the region. The challenges that geotourism in Jordan must face are primarily to encourage and make tourists interested in the natural and cultural values of the region. Additionally, the coherent platform for the exchange of the experiences between the spheres of science, business, and government as well as non-governmental organizations should be created.

Keywords: geodiversity, geotourism, sustainable development, tourism

Introduction

Tourism plays a significant role in the economy of the modern world, and the great opportunity for its further development should be perceived in the so-called geotourism. On the global scale, there is the World Network of Geological National Parks (geoparks), which are the model parks supported by UNESCO so as to promote the environmental protection, to propagate the knowledge dealing with the Sciences referring to the Earth, and to support the sustainable development of the local economy. Jordan is characterized by the unique geo-touristic qualities. There are the protected natural and cultural objects/sites, which are included in the UNESCO World Heritage list. Such objects/sites are of great touristic value of the country and give the chance for the continued existence of the local values in the range of the geological and cultural heritage (Petra, the Wadi Rum Desert). Deserts are becoming more and more frequent target of the trips among tourists since they attract tourists by its severity, mysteriousness, seemingly monotonous landscapes, and the possibility of the

Bozena Wojtowicz, associate professor, Institute of Geography, Pedagogical University of Cracow. Email: boz.wojt@gmail.com.

Pawel Wojtowicz, MSc, IT Support Center, Pedagogical University of Cracow.

cognitive, active, and extreme tourism. Nowadays, many countries that have deserts within their borders treat them as an important tourist asset. Jordan has a diverse geological structure and varied relief. There are mainly rocks including basalt rocks and metamorphic rocks, sandstones, limestone, chalk, marls and cherts as well as the Pleistocene and Holocene sediments of the alluvial and aeolian origin.

Wadi Rum - As the Geo-touristic Site

Geotourism in the scientific literature is variously understood, and its meaning over the last several years rapidly evolved. Originally, the term “geotourism” was first used in the literature by Hose (1995) and defined as a mode of action whose overriding objective was to enable tourists to understand the geological and geomorphological processes in those areas which are more attractive and provide aesthetic experience. In a further definition of geotourism, the author has expanded its scope to provide educational facilities and service to the promotion of values of geological and geomorphological positions and their social utility and provide protection (Hose, 2000). On the idea of inanimate nature conservation developed geological tourism, and later geotourism (Martini, 1994; Komoo, 1997; Miskiewicz, 2007). Combining the idea of geoconservation and geotourism in accordance with the principles of sustainable development has contributed to the creation of a network of global and national geoparks (Alexandrowicz, 2006). Previous studies related to the geotourism refer to the selected regions, focusing primarily on defining the concept, showing the abiotic values, and providing opportunities for the development of geotourism, its scope, and relationship with other forms of tourism. The most important studies in the field of geotourism include works of: Hose (1995; 2006); Larwood and Prosser (1998); Buckley (2003); Xun and Ting (2003); Gray (2004); Dowling and Newsome (2006; 2010); Joyce (2006); Amrikazemi and Mehrpooya (2006); Reynard (2008); Panizza and Piacente (2008); Al Musharfi and Lawrence (2008); Dowling (2009); Brozinski (2009); Komoo and Patzak (2008); Sadry (2009); Rodrigues (2009); Farsani, Coelho, and Costa (2011; 2014); and Moreira and Bigarella (2010). The phenomenon of tourism is complex and refers also to geotourism, as has been pointed out repeatedly among others (Hose, 2006; Newsome & Dowling, 2006; Miskiewicz, 2007). Nowadays, more attention is focused on the emotional sensations associated with the observation of objects and geological processes (Kicinska-Swidarska & Slomka, 2004). Quantitative and qualitative research is also conducted considering geotourism as a socio-cultural and economic phenomenon in research work (Allan, Dowling, & Sanders, 2011; Wojtowicz, Strachowka, & Strzyz, 2011; Wojtowicz, 2011; Boys, 2012; Koop, 2013; Mohamad, Jaafar, & Marzuki, 2014; Dryjańska, 2014; Hansen, 2014; Wang & Tian, 2014), but they related to small spaces geotourist in selected tourist areas in the world.

Considering the geological structure, Wadi Rum covers a large plateau built of Ordovician sandstone, which, due to the severe erosion, disintegrated and created the extended ranges and monadnocks, i.e., falling rock in the direction of the flat bottom valleys separating them. Such process also resulted in forming a number of different coloured sand dunes. The area of Wadi Rum creates the geologically fascinating landscape starting from the flat sandy desert covered with the coloured sands up to the high mountains. This area reaches the altitude range from about 900 to 1,000 meters above sea level, and the impressive rocky peaks reach generally a few hundred meters higher. The highest mountain ranges, such as Jabal Rum (1,754 m), Jabal Um-Ishrin (1,753 m), Jabal Kharaz and Jabal Burdah, “overlook” the entire area. They are also the great attractions of this place. They create the sandstone formation Dubaydib (Dubaydib Sandstone Formation, DSF) (Makhlouf, 1998), previously known as Sabellarifex Sandstone (Bender, 1974), including the Ordovician sediments - light brown,

fine-grained, quartz schist arenites that vary from massive pieces the sandstone of the cross-stratification. Such formation can be divided into three units: the lower, middle, and upper ones (Masri, 1988). In the central part, the single structure of sandstone has the geometry of channels. DSF complex is covered with Hiswah Sandstone Formation, and then, it is covered with Mudawwara Sandstone Formation (Masri, 1988).

The Wadi Rum Desert in Jordan is a beautiful and interesting area. The most spectacular red sand dunes in Um Ishrin are next to the towering massif of Jebel um Ishrin with the excellent viewpoints. The weathering forms of sandstone refer to both single monadnocks and characteristic rock bridges (Burdah, Um Frouth, or Little Bridge (see Figure 1)), canyons filled with sand or great massifs (see Figure 2).



Figure 1. Little bridge in Wadi Rum. Source: Bozena Wojtowicz.



Figure 2. The great massifs in Wadi Rum. Source: Pawel Wojtowicz.

Objective of Research

The main objective of this study was to present the possibilities of the development of geotourism in the area of the nature reserve and the UNESCO World Heritage, namely, the Wadi Rum Desert, to evaluate the knowledge of the values in the range of geodiversity and the possibility of their use in the development of tourism in the area inhabited by the Bedouins, the local community's attitude towards the development of tourism and people's impact on the natural and cultural environments and creating new jobs according to the local community. The scope of the research included the directions of the transformation of the existing development of tourism and the use of the Wadi Rum Desert, in the opinion of the local Bedouin population and their activities involving the promotion of geotourism and the increase of the competitiveness in the further development of tourism.

Methodology

The observations and the records of tourism as well as the diagnostic tests among the Bedouin tribes living in the area of human settlements on the desert of Wadi Rum were conducted. Furthermore, the interviews with the Bedouin tourist guides were also carried out in April 2012. The diagnostic investigations were associated with four groups of issues on the basis of observation and self-concept research:

- (1) The ratio of the local community towards the development of geotourism in the protected area for the local sustainable development;
- (2) Tourism and its motives;
- (3) Knowledge of the natural and cultural environments of the desert;
- (4) Geotourism as a new touristic product according to the Jordanian community.

The surveys (interviews) were conducted in April 2012, with the great support of a Jordanian man, namely, Samir, during our stay in Jordan, and after we were away, that is, in Poland (conducting independent interviews and research would be impossible).

The questionnaire included in the surveys (interviews) consisted of 11 open and closed questions. The questions to the respondents included in the form concerned the gender, education, age, occupation, and the place of living. In case of the questions involving the place of living, the respondents could provide the name of the village or select the name of the tribe to which they belonged to.

The analysis of the conditions for the development of geotourism in the nature reserve in the desert of Wadi Rum and the region showed that there were a lot of opportunities for the further development of tourism. The analysis of the tourist capacity indicated that it was currently used in about 37% (to compare, Petra was visited in 2013 by more than 609,044 people, including 498,672 foreign tourists, and the Wadi Rum Desert in the same period of time was visited by 123,821 tourists, among which foreign tourists also dominated (107,136 people)). Tourism in the Wadi Rum Desert, apart from the protective function, should create the leading economic function and the potential for the development of tourism in both cognitive and active forms, which can be possible with the participation of the natives from the Bedouin tribes, especially regarding the fact that the land ownership issues are not regulated in this area. Therefore, such legal problems make it difficult to undertake any action by the government of the Kingdom of Jordan.

Characteristics of the Respondents Stratified

The desert area is inhabited by six Bedouin tribes: the biggest - Zalabia (their village, as the only one, is located within the nature reserve, namely, the village of Rum), Zaweideh (the Disi village near the northern border of the nature reserve), Sweilhieen, Omran, Gedman, and Dbour. The studies included 328 people, 6.3% of whom were women and 93.7% were men. The sample size is representative for the research group, because it includes 10% of the total population of the Bedouins living in the desert of Wadi Rum.

Most of the respondents were from the Zalabia tribe (39%), whose village is located in the nature reserve and the Zaweideh tribe (27.6%), whose Disi village is located near the northern border of the nature reserve. The largest group created the young people between the ages of 16 and 30 (61.3%) - they were mainly guides, since the main burden of the tourist services in Wadi Rum is based on the Bedouins. They organize trips, the guides provide and maintain all kinds of facilities including encampments; they manage the centers for riding (horses, camels) as well as run restaurants and shops. The mountain and desert guides are the people with the greatest experience and knowledge of the local area. Some of them are fluent in many languages. They showed interest in the research but were unwilling to answer the questions in the questionnaire (often happened that the interview was led by the Jordanian - Samira, and the responses were recorded after the completion of the interview not during the course of the research; it mainly applied to the elderly). The smallest group of the respondents referred to the people older than 45 or even over 50 years of age (16.7%), who were relatively unwilling to provide us with any answers and they were quite suspicious. The respondents participating in the studies graduated from the secondary schools (39.8%) and high schools (3.9%), while the rest of the respondents completed just the primary education (48.9%), or were characterized by the lack of any education at all (especially in case of the Bedouin women).

Research Results

One of the questions included in the survey was related to the knowledge of the natural environment of the desert of Wadi Rum (mainly, its origin, geological and tectonic processes and the relief processes occurring today).

The majority of the respondents evaluated the knowledge of the natural environment of the desert as good (75.2%), while the rest referred to it as very good (24.8%). Such knowledge mainly concerned the adaptation to the harsh conditions of life in the desert and the possibility of its use in everyday life. When it comes to the knowledge related to the geological structure and the formation of the geological and geo-morphological structures, it was limited to the fact of naming the formed rock formations; however, the spatial orientation in the desert area was just outstanding. Not all of the Bedouin guides were able to explain what were the geological periods in which the desert and geological formations occurred there.

The next question was designed to get the answers in the range of the knowledge sources they used to gather the information about the qualities and attractions of the desert. It also referred to the future possibilities of their use as a factor in the development of the sedentary in their villages and the region. The local guides as the primary source of information related to the desert environment named the knowledge acquired from the elderly (passed from generation to generation, nearly 56.1%), from guidebooks (19.3%), publications (2.7%), and the knowledge learned at school (21.9%). More than half of the respondents (59.7%) could see the possibility of using their knowledge, mainly, in tourism as tourist guides, in the range of cognitive tourism, including geotourism as well as in creating facilities for climbing and active tourism (41.3%).

Another question included in the survey concerned the reasons of visiting the Wadi Rum Desert by tourists. The most important motives for tourism in the opinion of the Bedouins referred to: the cognitive ones (geology, relief, and culture heritage): 46.9% of the respondents; emotional ones (landscape, climatic conditions, the severity of the existence in the desert, habits and customs there): 21.2%; and the ones involving the activity (active tourism, extreme (climbing) tourism, and adventure tourism (horse riding, camel riding along the stated routes)): 31.9% of the answers (see Figure 3).

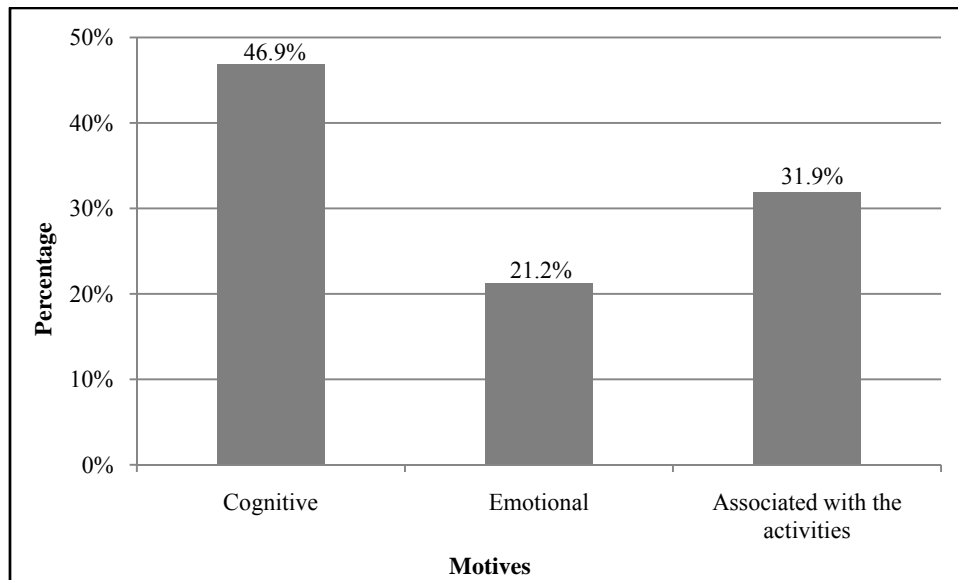


Figure 3. Motives for tourism according to the opinion of Bedouins in the desert of Wadi Rum. Source: Own calculations.

According to the Bedouins, it can prove much interest in the extreme tourism. Almost all of the respondents noticed that tourists visited the nature reserve of the Wadi Rum Desert (46.2%), the most commonly with their families, with a group of friends (38.6% of the respondents), and 15.2% individually. According to the local people, more and more tourists were using the offer of one or two days' stay in the desert to get accustomed to living in the desert, because they could spend the night in the Bedouin village and experience the harsh conditions of life in the desert.

These questions also included the aspects of indicating the favorite cognitive places during the tours/trips and rock climbing sites as well as the aspects of identifying the criteria of tourists' choices for their selection. The most frequently visited places by tourists in the desert of Wadi Rum, according to the local community, were the following: different rock formations (89.1%); Nabatean inscriptions, i.e., Khazali and An Fashiyeh (63.7%); red sand dunes (59.9%); the rock bridges, i.e., Um Fruth and Burdah (87.3%); Barragh Canyon (89.2%); and the house of Lawrence of Arabia (63.3%) (see Figure 4). In addition, the main criteria for their selections were included in the following aspects: favorable conditions for travelling and observation (67.8%); places worth seeing associated with the cultural heritage including Nabatean rock inscriptions (61.9%); the ability to be close to nature (38.9%); and the geological heritage (77.4%) (see Figure 5). Among the climbing destinations, the most attractive in the opinion of the respondents were the sandstone massifs East Face Towers in the massif of Jebel Rum, Jebel Mayeen peak, Jebel Rakabat, the crag of Vulcanics Tower, Rock Bridge in the massif of Burdah and Nassarani.

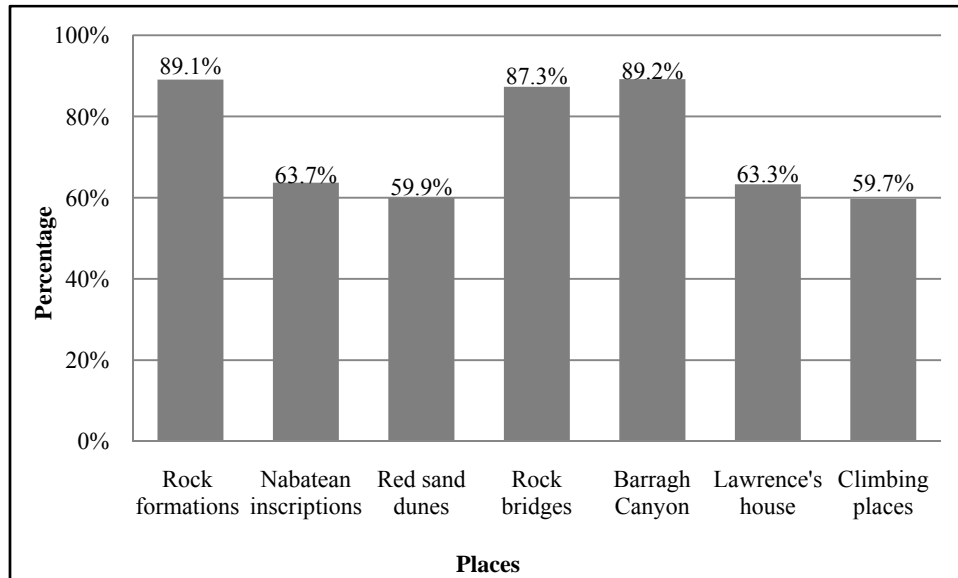


Figure 4. The most popular places among tourists in the desert of Wadi Rum (the respondents could choose more than one answer). Source: Own calculations.

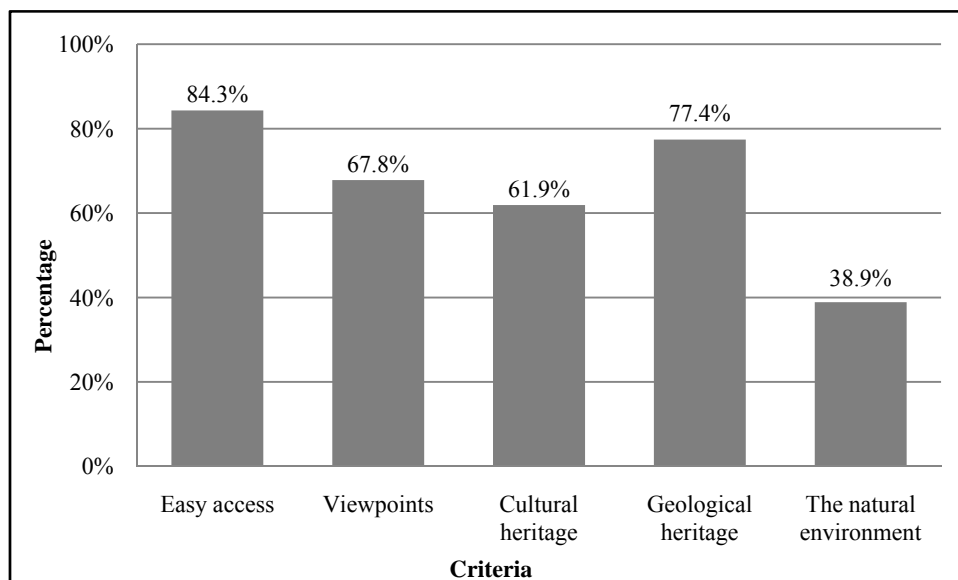


Figure 5. The criteria of selection of the most attractive places in the desert according to the respondents' views (the respondents could choose more than one answer). Source: Own calculations.

The local communities and guides were also asked if they knew what their geoparks were and whether they could see the need for the geopark in the area of the Wadi Rum Desert. In addition, 37.3% of the respondents heard about geoparks, while 53.7% did not know what they were. The definition of geopark was reported only by 5.3% of the respondents. However, nearly half of them saw the need for the creation of the geopark in the area of Wadi Rum.

The respondents were also asked about the possibility of the geotourism development in the studied area, the promotion of rural settlements, the development of tourism in the desert region, and the role and importance of the desert geopark for the inhabitants of the surrounding villages and people leading the nomadic lifestyle.

According to the local community, geotourism was a very positive factor in the economic development of the rural settlements and the desert region (64.3%). The respondents perceived the positive impact of the tourist destinations on the natural environment with the principles of sustainable development (38.1%), practicing various forms of tourism (35.2%), conducting educational activities for the students and the youth (26.7%), increasing the amount of jobs for the local community (41.9%), the development of the tourism infrastructure (38.3%), the increase in the educational level among the local residents (27.3%), and improving the living standards of the population (32.1%) (see Figure 6).

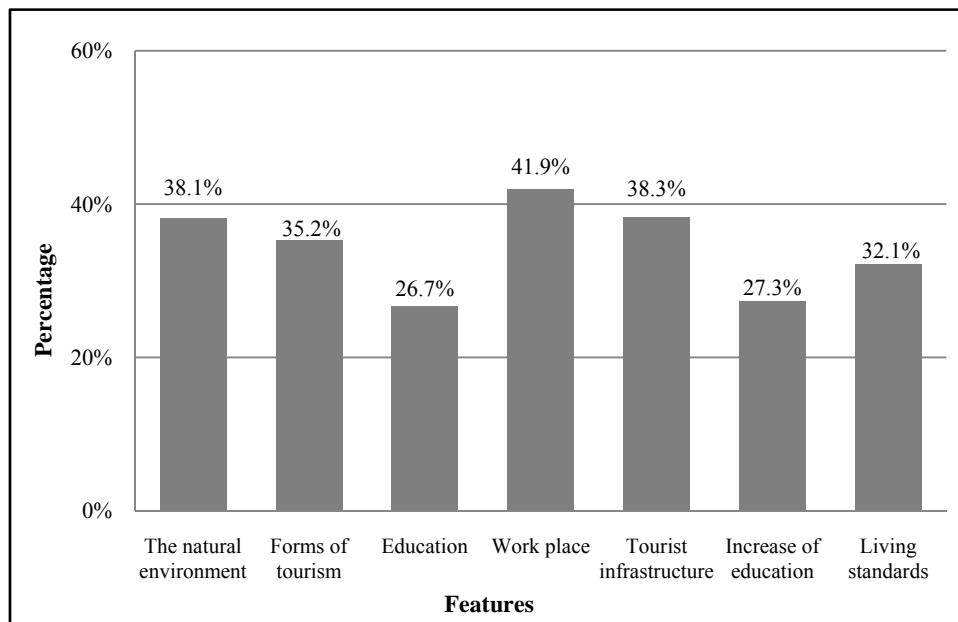


Figure 6. Influence of geotourism on the development of the region in the respondents' views (the respondents could choose more than one answer). Source: Own calculations.

Over 35.7% of the respondents disagreed with the possible positive results, and could see the threat to tradition, their lifestyle, as well as culture and regional identities. The next question concerned the possibility of the development of geotourism as a new touristic product in Jordan according to the local community. It was considered that the most important in the development of geotourism was the preservation and strengthening of the geological heritage of the desert (34.9%) as well as its use in tourism (69.1%) and educational one through the creation of the first center of the Sciences referring to the Middle Earth (35.9%), and the promotion of the activities in the field of the environmental protection (23.4%). The young people could see the opportunities to create new jobs (42.9%), and the increase in the economic development of the region (37.4%) through the creation of a new touristic product (59.1%) and geopark could be referred to them (see Figure 7).

One of the most vital problems in the studies was to evaluate the attractiveness of the tourist attractions in the nature reserve of the Wadi Rum Desert for the region in the development of geotourism. The respondents highly evaluated the tourist attractiveness of the area just after Petra, recognizing it as one of the seven wonders of the world, where more than 57.3% of the respondents rated it, on a 6-degree scale, as 5, and 35.3% of them as 6, the remaining respondents rated it as 4 (7.4%).

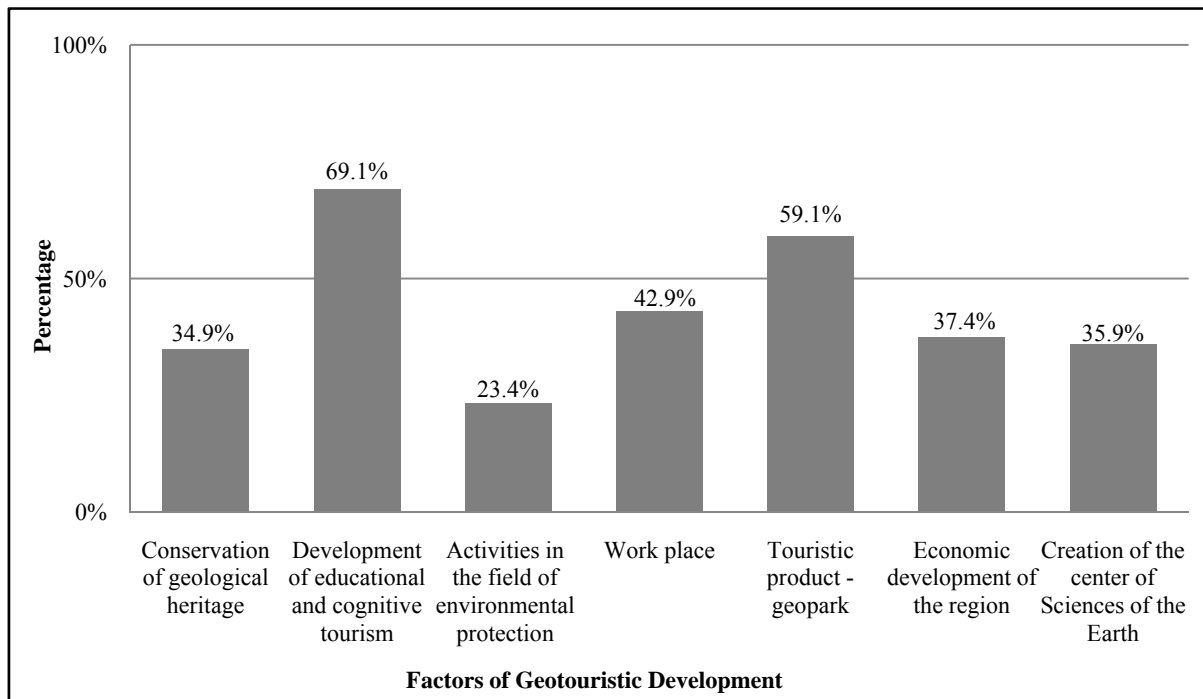


Figure 7. Factors of geotouristic development in the desert of Wadi Rum (the respondents could choose more than one answer). Source: Own calculations.

Promoting the Geodiversity as the Touristic Product in the Tourism Development Based on the Example of the Wadi Rum Desert

The adaptation of the nature for the touristic purposes causes its inclusion in the economic sphere and gives it the specific functions in meeting the needs of tourists as well as the characteristics of the economic categories (Gołębski, 2002). Therefore, geotourism is believed to adapt the elements of the inanimate nature so as to meet tourists' needs. Geotourism encourages small businesses and local action groups to build partnerships in order to promote the heritage of the area and maintain the diversity of the natural environment and landscape so as to ensure the continuity of the possibility of its use for the future generations. It also supports the efforts to diversify the economy and tourism, encourages the innovation, and demonstrates new opportunities of the use, organization, creation, and promotion of new touristic products. Additionally, the promotion of the knowledge related to the natural heritage educates at every stage of the education. Moreover, it protects the interesting and valuable geo-touristic sites as well as prepares them to perform the touristic functions (Słomka, Doktor, Joniec, & Kicińska-Świdorska, 2006). Furthermore, it gives a chance to expose the so-called geo-sites, to shape tourists' awareness, to inform them of the existence of interesting facilities for tourists, which fulfil their requirements and create the good basis for the interesting and valuable spending of the leisure time. The idea of promoting the history of the Earth has emerged from more and more increasing tourists' interest in nature, which can result from the greater experience, greater knowledge about the world, personal observations of the natural forces, education of the society, more and more frequent promotion of the information related to the geological and geo-morphological phenomena in the mass media (Słomka et al., 2006). Such interest initiates the formation of the additional types of tourism, namely, the significant increase in its entirely new industries: qualified tourism and cognitive tourism.

The examples of Jordan show how the values of the inanimate nature allow creating a fascinating offer of the recreational activities, which in the form of geo-sites and geoparks attracts crowds of tourists, and thus, brings substantial economic benefits. Geotourism constitutes the realization of the idea of the objectives of sustainable development, thanks to which, for the first time, tourism is not in conflict with the environmental protection. Instead, it allows exploring the values of the inanimate nature, rather than restricting the access to them through the legal prohibitions under the conditions of the nature conservation (Madeja, Mrowczyk, & Doktor, 2011).

Obviously, the sites have not been indicated in the area, they are only the elements of the Bedouin guides' tours and depend on their knowledge and financial aspects referring to tourists' generosity, they can get more or less thorough knowledge of the inanimate nature, the plant and animal world as well as human life in the desert. Unfortunately, the Bedouin guides do not have the sufficient knowledge of the range of geography and geology, and therefore, they limited themselves only to show the most attractive places in the desert. It was acknowledged while visiting Jordan and the desert of Wadi Rum that there was a lack of information for tourists interested in such issues in the broader sense. Folders and descriptions, which we dealt with, were also limited to the brief general information. The descriptions contained in folders and leaflets, which could be sold by the local Bedouin tribes, or the placement of the information boards on designated geo-touristic routes would fill in the information gap and meet the expectations of tourists.

It seems reasonable, in such situation, to designate, mark, and describe the geo-touristic positions where geotourism could contribute to the detailed presentation of the knowledge on the origin and geological and geo-morphological processes as well as cultural processes that take place in the area. In addition, the hiking trips in the desert would be well-planned and well-considered, moreover, would have the offer, which is in accordance with the interests and expectations of tourists. The created geo-sites should fulfil the following functions:

- (1) Protective, in order to maintain the position in their original state;
- (2) Scientific, they are the subjects of the research in various disciplines of geology;
- (3) Didactic and teaching;
- (4) Touristic, contributing to the economic development of the area.

We believe that there are important reasons for the creation of a geopark in the desert of Wadi Rum. Geopark does not constitute the legal forms of protection of the inanimate nature. The way in which geoparks are managed and their sites are protected is always under the legislation of the particular country (Patzak, 2000; Eder & Patzak, 2004). The main tasks of geoparks include the tasks of preserving and protecting natural objects, as well as the cultural ones, of promoting the knowledge about the history of the Earth, of developing the education and tourism through the use of the natural values in terms of sustainable development, of popularizing the geological knowledge thanks to publications and periodicals (Alexandrowicz, 2006). Wadi Rum can fulfil such role by creating geo-touristic sites more accessible to the wider range of tourists. However, such offer should not necessarily refer only to the cognitive aspects but there is also a great opportunity to use it in the so-called qualified tourism, in particular in the climbing tourism, or horse riding tourism. The region of Wadi Rum is one of the most popular touristic regions in Jordan, also among the foreign tourists. The popular forms of recreation appear to be sightseeing of the surrounding desert areas, camping "under the stars" (custom of the Bedouins), horse riding (Arabians), and rock-climbing, which seems to be fairly difficult. The influx of a large number of tourists in this isolated region contributes to the wealth of the local Bedouins and can also create the opportunity for the development of Jordan's tourism economy.

The Perception of Geological Sites as a Touristic Product in the Tourism Development

One of the fundamental challenges that the tourism sector must face is the creation and development of competitive products, integrated in specific and innovative offers, corresponding, additionally, to the requirements of sustainable development. Only the innovative, multi-faceted, and multi-aspect solutions can help to result in the significant competitiveness on today's tourism market. The outcome of such actions is to create and promote new products and attractions as exemplified by the Jordanian desert of Wadi Rum. It causes the increasing support and commitment in the range of the synergies of various areas of life and science, as well as of the support in the sphere of the process leading to the creation of local and regional touristic products. The effect of actions of geotourism includes, therefore, the creation of the niche and innovative products in the form of geo-sites and geoparks, complementary to the existing touristic offer. The created in such way touristic products are appropriate in the range of the expectations of further, more and more demanding, tourists. The generation of new touristic products is accompanied by the recognizable changes in trends and social habits - the increase of the intensity in the range of spending leisure time, the new forms of its spending (qualified tourism, cognitive tourism) and also the fashion trends in order to lead a healthy lifestyle, the increased emphasis on the education, and/or the growing market of conferences and congresses. All such things create the demand for a valuable offer that would not only promote physical and psychological recovery, but also create the opportunity to "develop mental horizons". The example is shown in the case of setting the Bedouin encampments in Wadi Rum. As stated earlier, the Bedouin tribes, now of both nomadic and sedentary characters, which live in the southern regions of Jordan, especially desert and semi-arid desert areas around Petra and Wadi Rum. The specific conditions in such regions resulted in the formation and development of two complementary types of communities. Staying in their encampment in Wadi Rum can also contribute to the knowledge of cultivated by them old pastoral culture and related to it craft traditions. The Bedouin tribes from the area of Wadi Rum preserve the professional knowledge related to the flora and fauna of the area, with the traditional medicine, breeding camels, producing tents and tracing animals and climbing. Both the extensive knowledge of the environment and the complex set of moral and social rules of behaviour are transmitted verbally from generation to generation.

Therefore, it must be stated that making the effort to increase the number of tourists visiting the desert and the related need for the "authentic Bedouin culture" does not contribute to the progressive destruction of the intangible culture of tribes around Wadi Rum.

Discussion of Geotourism in Wadi Rum, Its Contemporary Challenges and Problems - Demands

The success of geotourism depends on the fact if it would be able to satisfy the modern increasing market of tourism and create the innovative, rich, and coherent offer. Therefore, it faces a number of challenges and issues to be discussed among those involved in its development. The most important issue of today's geotourism is to provide such organization of tourism that geotourism would not become the cause of the devastation of the valuable sites. They should, for that reason, be treated appropriately and adapt to the increased tourist traffic. The example of such application is to arrange the paths, to provide accompanying tourist infrastructure, such as car parks, rest areas, camping sites, garbage cans, toilet, hotels, and catering places. The creation of tourist base is the opportunity for the development of the local entrepreneurship. Moreover, the inventory of the

inanimate objects/sites, according to the criteria, must be carried out by the qualified geological services, which together with the specialists in the range of tourism can create an interesting geo-touristic offer. The special attention must be drawn to the level of detailed information provided to tourists, so it is understandable for them and at the same time would make them more interested. To achieve this, the tourists should not be underestimated. The presented information should, therefore, be reliable and demonstrated in an accessible way (Madeja et al., 2011).

Conclusions

The challenges that geotourism in Jordan must face are primarily to encourage and make tourists interested in the natural and cultural values of the region. While creating all kinds of materials, the attention should be paid to the expectations of tourists, which can be examined by conducting surveys among the potential customers. Currently, the various forms of communication are being established, i.e., information boards, leaflets, brochures, DVDs, geo-touristic guides, catalogs of the geo-touristic sites, geo-touristic maps, mass media guides (Madeja et al., 2011). The important role should be played by the adaptation of geological sites to the tourist function by securing geo-sites (for example, slopes, outcrops), which should be the priority when they become available to tourists. Furthermore, the legal relationship of the properties on which geo-sites occur should be regulated. However, at the moment, such thing would probably be rather difficult for the Jordanian authorities due to the affiliation of these areas to the Bedouins.

Additionally, the coherent platform for the exchange of the experiences between the spheres of science, business, and government as well as non-governmental organizations should be created. Such platform should enable all parties to exchange the ideas and information as well as understand the different groups and their various associations with different interest issues. In such cases, we deal with the rights of local communities, which are often contrary to the rights of the government, which can be reconciled by identifying geotourism as the considerable source of financial benefits. The scientists together with those responsible for the promotion of tourism can create and support such offer to make it become a geo-touristic product. It is to encourage the investors to invest in the related industry services close to the geo-touristic areas and thus contribute to their comprehensive economic development.

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