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Geoturism and participatory action: Conservation Strategy of the Geological Heritage in the Mining District of Tlalpujahua-El Oro, México

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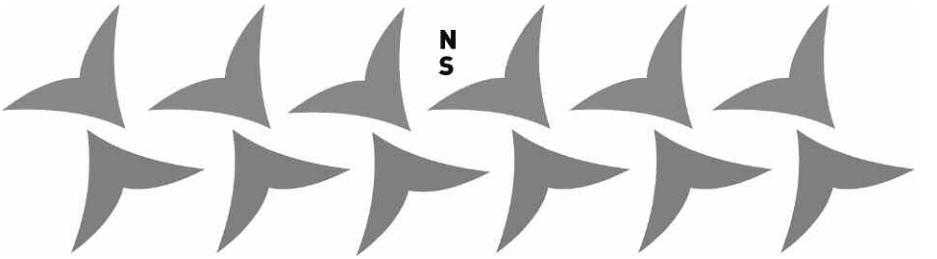
Extended abstract

Geoturism and participatory action: Conservation Strategy of the Geological Heritage in the Mining District of Tlalpujahua-El Oro, México



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Highlights:

1. Because of its potential for economic growth, geotourism represents an option for rural communities.
2. Geotourism and participatory action research complement their approaches and ideals.
3. Geotourism in DIMITO is an example of participatory action for geoconservation.

Abstract: Geotourism has the potential to act out as a strategy for the conservation of the biophysical and cultural features of territory, as well as a strategy to boost development and alleviate the depopulation of rural areas. This paper exposes a situated analysis of geotourism and its implementation, aimed at geological heritage. The studied place is located in the Mining District of Tlalpujahua-El Oro, located in a rural mountain area in central Mexico. Methodology is based on Participatory Action Research (PAR) with local inhabitants, along with the proposal of a geological heritage catalogue in order to deploy geotourism. Both, fieldwork and workshops identified the strengths and opportunities of the site in order to manage geotourism. The results show the sense of belonging and identification of local population regarding geological heritage in the studied area and endorse the suitability of participatory action to launch sustainable tourism projects.

Keywords: Tourism, participatory research, geoparks, community organization.

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Extended summary

Introduction and justification

Geotourism is a modality of ecological tourism focused on the dissemination of Earth Sciences, education and culture, as well as in promoting conservation in a sustainable context (Newsome y Dowling, 2018).

The concept of Geotourism has been approached from Geology and Geography. In the first case, the focus is on the analysis of the physical environment and is based on the identification and promotion of sites of geological interest, which are known as geosites (Hose, 1995; 2005; 2012). The geographical approach integrates not only the elements of a geological nature, but also those of a biological and social nature. In both cases, it seeks to create a meaningful and attractive tourist and educational experience for visitors with diverse interests.

Geotourism is also distinguished by incorporating the participation of local communities. Therefore, this work proposes the development of participatory action research activities (PAR) for its design and implementation. The PAR favours the generation and development of knowledge and provides concrete answers to problems that researchers and collaborators face when they address a problem, question or topic of interest, and seeks to provide solutions, opportunities for change and transformation. In this study, the approach from the PAR allowed us to know and incorporate the customs and traditions rooted in the communities that live in the area.

Objectives, methodology and sources, areas of study

The study area corresponds to the Tlalpujahua-El Oro Mining District (DIMITO, in Spanish) located in central Mexico, about 100 km northwest of Mexico City and covers an area of 329 km². The DIMITO is located on the Mexican Volcanic Belt, which crosses the Mexican territory from west to east at 19º north latitude. The relief is basically mountainous with altitudes ranging between 2,500 and 3,200 meters above sea level. It is a territory with high geodiversity, biodiversity and cultural wealth,

associated with the historical use of occupation; between the 18th and 20th centuries it was a world-class mining area. The mining activity, economic sustenance of the District, stopped six decades ago. Currently, the tourist activity based on its mining past constitutes the main base of the economy of the region.

The objectives of this work are: i) To valuate and disseminate the value of the existing geological heritage within the DIMITO, ii) to promote its conservation, iii) to empower local communities through a geotourism project based on their mining geological heritage.

The work was developed in three phases:

i) Ethnographic exploratory work; it consisted of open interviews with community leaders and the general population;

ii) Inventory of the geological heritage; includes the identification and valuation of sites of geological and geomorphological interest in the territory (geosites and geomorphosites, respectively), and

iii) Participatory work with the local population; it included training of the population and community decision makers in various workshops developed throughout the research.

Results

Twelve sites of geological-geomorphological interest were identified. In these sites it is possible to observe stratigraphic sequences that explain the geological evolution of the study area as well as the current and past processes that make it up. Other emblematic sites refer specifically to mines of global importance, such as the Las Dos Estrellas mine, one of the most productive towards the beginning of the 20th century and which today has a museum. The sites were identified from specialized geological work; in addition, the local population participated in its final location and selection.

Potential sites to implement the first level of geotourism activities resulted from the geological inventory. Through the PAR, tripartite communication was established between local leaders, authorities and academics, which allowed knowledge and feedback to be shared in the study area from different perspectives: from the cosmovision of the local population, from government management and from the scientific point of view.

Participatory work with the local population focused on talks aimed at a first approach on the subject of geoconservation and geological heritage. The geological heritage inventory was a fundamental tool derived from field work; From the workshops with the community, local proposals were made regarding the creation of didactic material to promote Earth Sciences, geoconservation and geological heritage. Also, these workshops gave guidelines for the creation of labels for the products that they offer to the visitors. One of the results emphasizes the perception of the local population about the high geotouristic potential of their environment to promote local development, as well as the positive aspects of participatory work.

In this work, geotourism was revealed as an economic activity that, in addition to promoting Earth sciences, preserves the identity of local populations and contributes to the preservation of biophysical resources, as well as the promotion of the culture of conservation and respect for the elements of the environment. The most significant achievements of the research have been to encourage new economic alternatives for local development and raise awareness among the population about their natural resources. These achievements were based on the PARs, which is found to be a useful approach in socio-environmental work.

Discussion

Among the advantages offered by geotourism, one of the most notorious is that this activity does not alter the identity of local populations, and it helps to preserve the abiotic and biotic features of the territory. The principles of this economic activity focus on promoting the education, respect, culture and conservation of the territories, always considering the well-being of the local population. In addition, unlike other types of tourism, the advantage of geotourism lies in the fact that tourists after making their visit will obtain scientific, cultural, social and economic knowledge of the locality (geoeducation), as well as an act of awareness in the consumption of natural resources and, especially in non-renewable ones.

Conclusions

Geotourism, with proper management strategies, can contribute to the development of rural areas where primary activities have lost strength and the

economic options of residents are very limited. This is the case of many sites formerly dedicated to mining and whose territories are rich in geological heritage. The PAR strategy that has been successful in this and other cases, contains the basis for implementing geotourism from the community itself and fulfilling the ideals that this activity proposes.

Next steps

The methodology proposed in this article can be replicated, respecting the particularities of each case, in other places with similar problems and potentialities. It is suggested to emphasise the accompaniment to the community after the implementation of geotourism and to promote from the beginning an observatory that allows having figures on its development and monitoring the conservation status of the geological heritage.