



## Ecotourism and Sustainable Economy: Case Study of the Pedra do Altar Archaeological Complex in Barra de Santana/PB

### *Ecoturismo y Economía Sostenible: Estudio de Caso del Complejo Arqueológico Pedra do Altar en Barra de Santana/PB*

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**Abstract:** Tourism is defined as a dynamic activity that can rapidly change places and encourage local and social development. In this sense, to transform a place into a tourist destination, planning and investment are important, so that it is recognized as a heritage and cannot suffer irreversible damage. Objectives: To analyze the potentiality of the Archaeological Complex of Pedra do Altar as ecological tourism through the understanding of the cultural heritage as a new source of tourist attractions and economic development for small towns, the identification of ecological trails related to the economy for sustainability and preservation of natural space and the relationship of Ecological Economy, Payment for Environmental Services and Tourism in the global/local scale. Methodology: The research is a case study regarding the potential of ecological tourism that the Archaeological Complex Pedra do Altar in Barra de Santana/PB exerts, for this, it was performed a survey of works related to the proposed theme in the last 5 years (2017 - 2022), the capture of images in the locality, the preparation of maps of use of the study area and the construction of alternatives that enable ecological tourism and payment for environmental services in the locality. Final considerations: The private organization charges a fee, which can be considered a PES, because it reverts to the maintenance of the site to better serve tourists, however it is not institutionalized. The visitors recognize tourism as a profitable and sustainable activity for local development, however, it is necessary to rethink the activity based on the conceptions of ecological economy, together with public management.

**Key-words:** *Tourism; Economy; Pedra do Altar.*

**Resumen:** El turismo se define como una actividad dinámica que puede modificar rápidamente los lugares y fomentar el desarrollo local y social. En este sentido, para transformar un lugar en destino turístico son importantes la planificación y la inversión, para que sea reconocido como patrimonio y no pueda sufrir daños irreversibles. Objetivos: Analizar la potencialidad del Complejo Arqueológico de Pedra do Altar como turismo ecológico, a través de la comprensión del patrimonio cultural, como nueva fuente de atracción turística y desarrollo económico para pequeñas ciudades, la identificación de sendas ecológicas relacionadas con la economía para la sostenibilidad y la preservación del espacio natural y la relación de la Economía Ecológica, el Pago por Servicios Ambientales y el Turismo en la escala global/local. Metodología: La investigación es un estudio de caso sobre el potencial de turismo ecológico que ejerce el Complejo Arqueológico Pedra do Altar en Barra de Santana/PB, para ello, se realizó un levantamiento de obras relacionadas con el tema propuesto en los últimos 5 años (2017 - 2022), la captura de imágenes en la localidad, la elaboración de mapas de uso del área de estudio y la construcción de alternativas que posibiliten el turismo ecológico y el pago por servicios ambientales en la localidad. Consideraciones finales: La organización privada cobra una cuota, que puede ser considerada un PSA, ya

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que revierte en el mantenimiento del sitio para una mejor atención a los turistas, sin embargo no está institucionalizada. Los visitantes reconocen al turismo como una actividad rentable y sustentable para el desarrollo local, sin embargo, es necesario repensar la actividad desde las concepciones de la economía ecológica, junto con la gestión pública.

**Palabras clave:** *Turismo; Economía; Pedra do Altar.*

## **INTRODUCTION**

Ecotourism has been highlighted by the role it plays in the global economy. It is tourism when it is characterized as a socio-economic activity that provides opportunities for local development through the generation of employment and income, and that enables a series of other activities, directly or indirectly. Ecotourism is directed towards environmental conservation and the rational use of natural resources aimed at a sustainable economy. The economic relevance of the activity is expressed by national and international institutions and organizations by figures and in numerical terms and is based, above all, on the neoclassical conception of the economy (PINHO, 2018).

From the economic perspective tourism acts through the principles of supply and demand, the use of economic indicators corroborates its economic prominence, as is the case of the participation of tourism in the GDP (Gross Domestic Product) of a country (PINHO, 2018). Tourism is a leisure opportunity that has developed by capitalist logic, in which all agents and actions (people, spaces, services, etc.) are commodities and to enjoy them the tourist is "one of the essential 'raw materials' of tourism" who pays a sum (PINHO, 2018).

The natural resources called tourist attractions enter into the exchange value and commodity. Thus, the factors that cause changes in the environment by tourism are: the implementation of infrastructure and equipment, and the consumption of tourists, in order to generate income and continuity of tourism in localities. The modifications in the geographic space by tourism consumption, most of the time is only noticed through the excess of natural attractions, as they cause the degradation of a trail, movement of traditional populations, or change in the landscape, misuse of space, etc. However, the regulation and inspection of the activity is necessary to ensure sustainable local development.

For Rodrigues (2003), in the process of sustainable local development, the smallest administrative unit is the municipality, starting from the existence of local authorities with political legitimacy conferred, which through electoral processes for the organization of public services and the regulation of matters of local interest. Thus, the economic aspects and their relations are addressed, both in terms of the community's internal potential and the region.

In the case of Archaeological Sites as ecotourism, it has been arousing the interest of local communities, businessmen and tourists. Archaeological Tourism or Archaeotourism, tourist activity in

archaeological sites where both tourists and the local population can notice the importance of the historical past of the city or tourist destination (RODRIGUES, 2017). And in addition, to value the natural resources and become socioculturally aware.

Tourism is defined as a dynamic activity that can rapidly change places and encourage local and social development. In this sense, to transform a place into a tourist destination, planning and investment are important, so that it is recognized as a heritage and cannot suffer irreversible damage. For this, public agencies need to plan the places and agents to dispose of the tourist activity, so that they are sustainably developed (RODRIGUES, 2017).

Thus, payment for environmental services (PES) programs make ecotourism viable as an economic instrument. PES has the ability to complement and strengthen the command and control instruments used by Environmental Law, by seeking to promote structural and attitude changes through the use of engagement techniques aimed at creating incentives for actions of preservation, conservation, awareness of the sustainable use of ecosystems and their services (FABRI et al, 2018).

The benefits of environmental services can be identified at various levels and scales of analysis. At the local level there is the impact of control services, such as the supervision of solid waste disposal, preservation of natural resources, maintenance of riparian forests, etc. It is important to highlight that payment for environmental services is guided by other principles, such as the social function of property, the dignity of the human person, and the principle of the protector-recipient - expressly provided for in Article 6 II, of Law 12,305/2010, which established the National Solid Waste Policy.

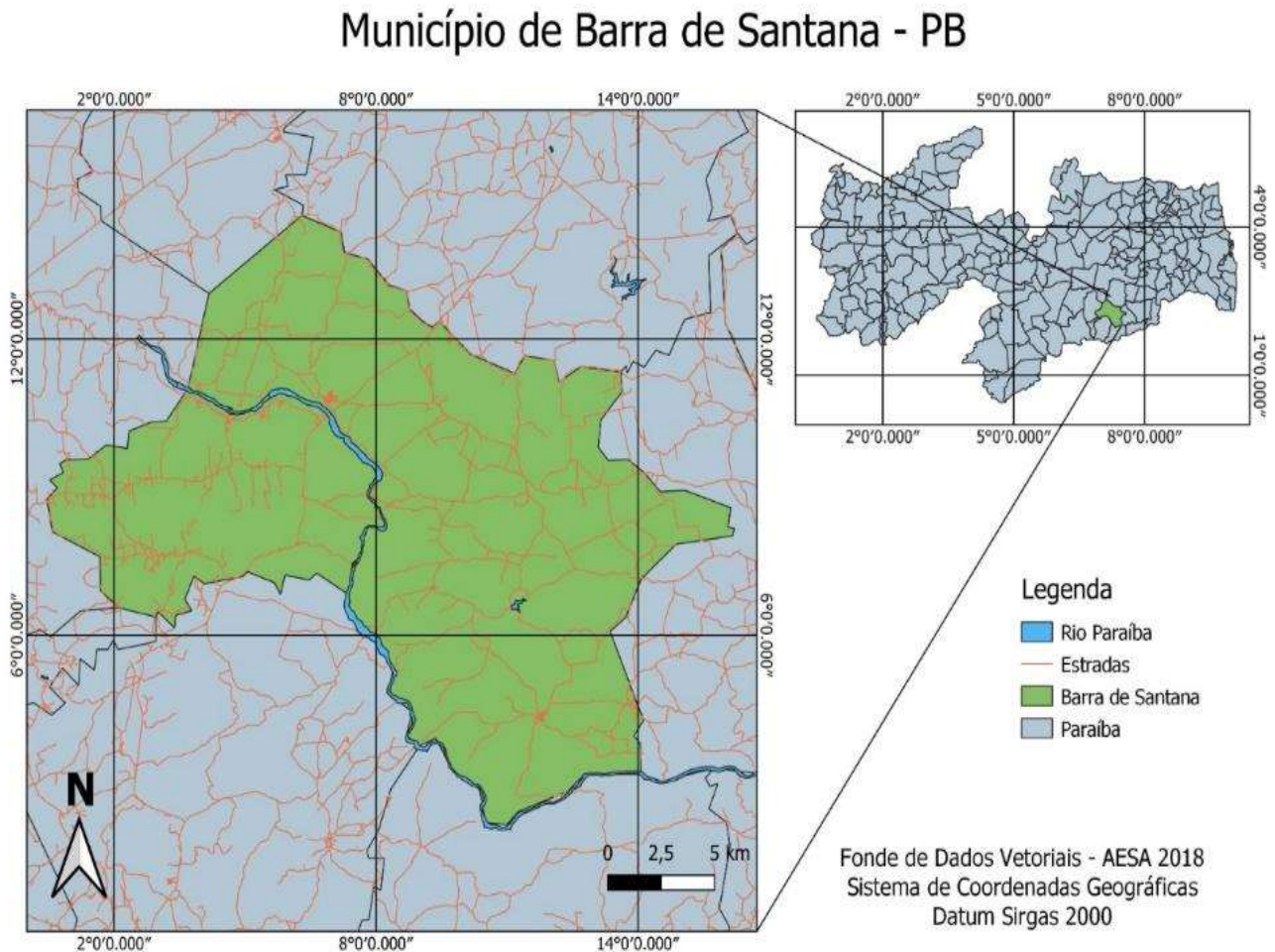
## **METHODOLOGY**

The research is an exploratory case study, when it refers to the search for a little explored object of study, which needs to highlight or add information about situations where there is little clarity, or little explored. In this case, we will study the possibility of the Pedra do Altar Archeological Complex, located in the city of Barra de Santana/PB, becoming a potential for ecological tourism and adding value through Payment for Environmental Services that can guarantee the preservation and investment for tourists and the local population.

## **RESULTS AND DISCUSSIONS**

The Archaeological Complex Pedra do Altar is located in the municipality of Barra de Santana, in the metropolitan region of Campina Grande and is about 133 km from the capital of Paraíba, João Pessoa. Its altitude is 350 m, with geographical coordinates: Latitude: 7° 31' 29" South, Longitude: 35° 59' 53" West (LOPES; SANTOS, 2022).

**FIGURE 01:** Map of the Municipality of Barra de Santana/PB.



**SOURCE:** Authors (2022).

Observing the map above (Figure 01), it is noted that the Paraíba River runs through the municipality and this fact enables the local population to develop subsistence economic activities such as livestock and agriculture with irrigation expansion, so common in the inland municipalities of Paraíba (FRANCISCO et al, 2022).

This municipality presents high cultural value, since fossil fragments of more than one kind of animals were found in the rural area, belonging to the megafauna of the Pleistocene period and a vast archaeological site belonging to the so-called OLD Cariris and natural tanks formed in rock fractures (LOPES; SANTOS, 2022; ALMEIDA et al, 2022).

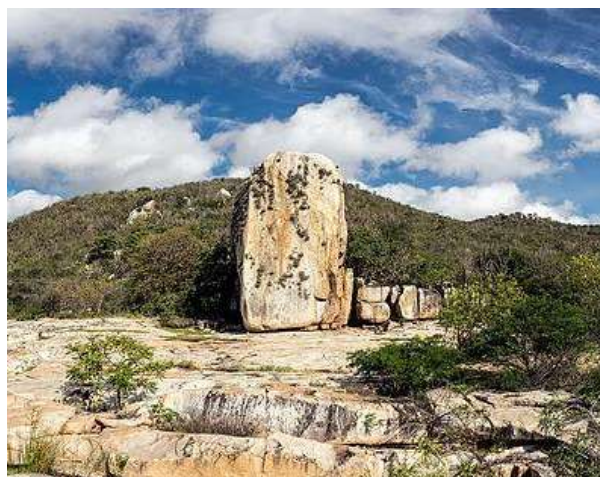
**FIGURE 02/03:** Waterfall and natural ponds.



**SOURCE:** Authors (2022).

The archaeological complex Pedra do Altar is characterized as a cultural heritage known as rock art, which is a historical/geographical/environmental wealth of greater complexity to conserve. The damage and conservation have been the object of study worldwide, in the face of vandalism by graffiti, which is one of the most severe damage that affects these sites, since this damage is immense, rapid, and difficult to repair. Thus, the graffiti of a site has a synergistic effect on other graffiti artists, creating an incentive for new graffiti (ALMEIDA et al, 2022).

**FIGURE 04:** Pedra do Altar.



**SOURCE:** Site Prefeitura de Barra de Santana (2020).

Sítio Pedra do Altar contains a huge rock that measures more than 11 meters high and nine meters wide, forming a huge block of rock in the form of a parallelepiped (a hexahedron), with natural stone

wedges at the base on the right side (south side). The rock sits on a slab on the right bank of the Paraíba River, thus forming a landscape of great scenic beauty. In the locality, the graffiti are scattered in various parts of the matacão, but are especially concentrated on the south face, in which a huge panel, compactly covered with symbols in red paint, measuring 4 m wide and 2.20 m high is presented (ALMEIDA et al, 2022).

**FIGURE 05:** Rock Painting on Pedra do Altar.



**SOURCE:** Site Prefeitura de Barra de Santana (2020).

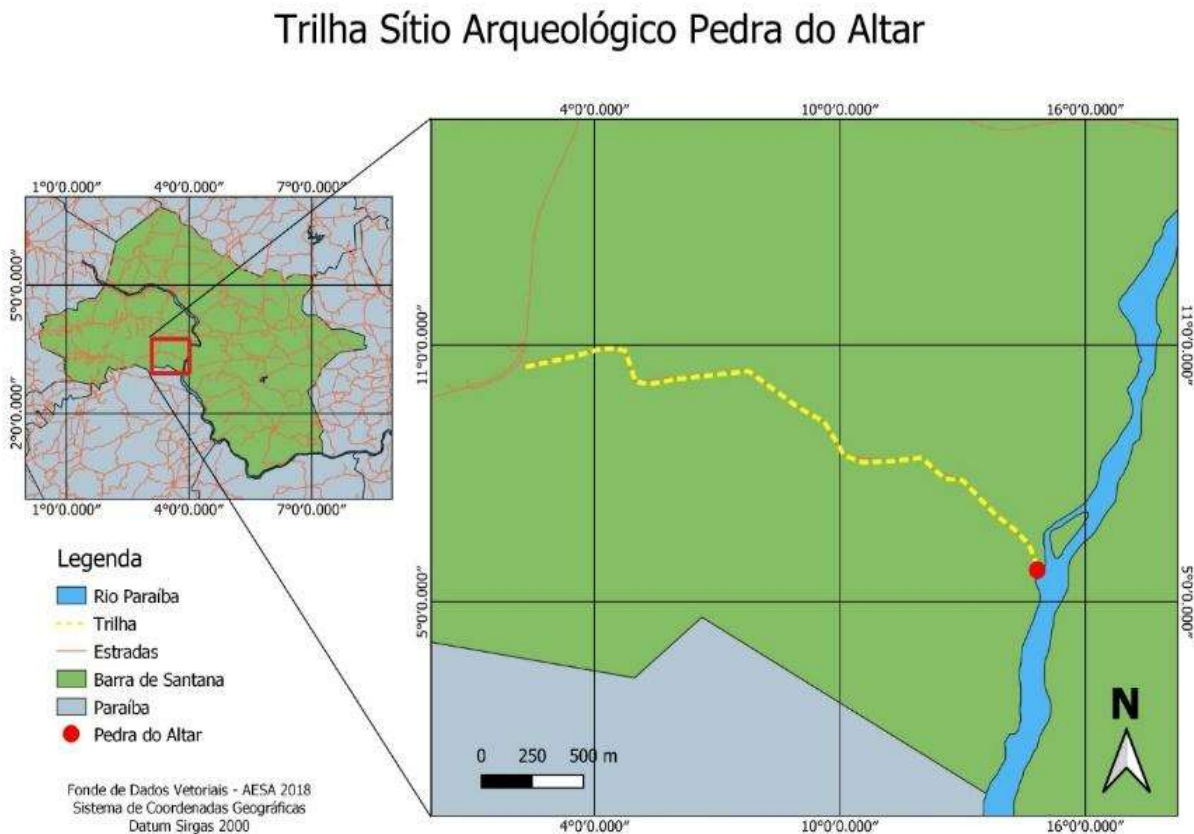
Almeida's research (2022) states that after analyzing 44 archeological sites in Cariris Velhos, 20% of them suffered and suffer vandalism, six of them with names and letters made with ink and three with engravings on the rock, while four others present small graffiti, made with synthetic paint. The vandalisms are found next to the cave paintings, and do not overlap with them, however, the graffiti are relatively recent (ALMEIDA et al, 2022). Thus, it is concluded that from the moment that the locality becomes more publicized and turned to visitation, more the area is used for various purposes and without supervision, which can lead to vandalism and misuse of space.

Sitio Pedra do Altar is an example of a panel that shows, in several elements, removal of small parts, probably with the objective of removing portions of the panel. Due to the great beauty, easy access to the site, water and rapids, this site showed, when this work was being carried out, traces of fire in a distance of less than two meters from the panel, which endangers the conservation of the rock art specimen (ALMEIDA et al, 2022).

The Pedra do Altar area is used for bathing in the waterfalls, camping, zip-lining, etc. The access is through the entrance of a private property, for which a fee of R\$10.00 is charged to use the space from 9 am to 5 pm, or R\$20.00 for camping. This amount is paid to the owner of the location who makes improvements to the space with awareness (signs, notices, collection of waste left by visitors, etc.) and entrance control (through wristbands). At the entrance there is a restaurant that serves breakfast and lunch (which can be taken to the swimming area at the desired time).

From the entrance to Pedra do Altar, it is a 1km drive and a 2km trail that follows the path of the waterfall. The trail is level 5, considered steep, but of light complexity.

**FIGURE 06:** Pedra do Altar Trail Map.



**SOURCE:** Authors (2022).

In view of this, one realizes the enormous local potential for Ecotourism, Sustainable Economy and Ecological Trail. The tourist can have contact with nature, with the history of the ancestors (Tapuias and Cariris Indians) and with an environmental product, by paying a small fee that enables the conservation of the place, without exempting the tourist from taking care of the space.

Certain that the economy of the municipality of Barra de Santana is centered on the raising of goats and cattle (mainly for milk production) (BARROS, 2020), Ecotourism in the Archaeological Complex Pedra do Altar becomes a new economic bias for the community. An economy based on sustainability and local development. Regarding indices of sustainable development focused on the cultural dimension in the metropolitan region of Campina Grande, they show the municipalities of Barra de Santana, Gado Bravo and Santa Cecilia are at a critical level and Campina Grande is at an acceptable level (GOMES JÚNIOR et al, 2021).

Given this, the aggregate sustainable development index considers that the municipalities that belong to the Third Geo-Administrative Region of Paraíba, are still far from a sustainable development and sustainability situation. That is, public policies and investments are needed in areas such as education, health, economy, environment, culture, institutionality, among others (GOMES JÚNIOR et al, 2021). In this sense, the development of an economy focused on ecotourism generates income, education, culture, etc.

## **CONCLUSIONS**

The promotion of sustainable development is not a simple process, as it takes into consideration social, economic, and environmental aspects. When a certain population needs alternative economic activities to survive, the sustainable use of available natural resources is essential. Ecotourism is characterized as an alternative source of sustainable income, which does not require much investment to generate employment and income.

Therefore, the exploitation of the tourist potential existing in the Archeological Sites around the Paraíba River is one of the sustainable activities observed in the region called OLD Cariris. However, there is the need to implement a policy of utilization of these attractions reverting them into an economic activity, reaching objectives such as preservation, conservation and historical valuation. The researchers made a photographic survey and an in-loco visit to verify the tourist potential of the Archeological Complex Pedra do Altar and it was noticed that the space is used by several people on weekends and holidays. However, greater supervision is required, because many visitors enter the site through other accesses.

The private organization charges a fee, which can be considered a PES, because it reverts to the maintenance of the site to better serve tourists, however it is not institutionalized. Visitors recognize tourism as a profitable and sustainable activity for local development, however, it is necessary to rethink the activity from the concepts of ecological economy, along with public management.



By way of conclusion, it is known that natural resources are finite and the misuse and accelerated consumption will compromise the well-being and use of the next generations. In this way, tourism activities along with other sources of income can manage sustainability in small municipalities that have few options for their inhabitants, generating income, economy, culture, etc.

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