

Learning in the Biosphere Reserve in Entlebuch, Switzerland: Environmental Sustainability and Social Management

Aprendizaje en la Reserva de la Biosfera de Entlebuch, Suiza: Sostenibilidad medioambiental y gestión social

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Abstract

The present study corresponds to the second stage of an investigation on the diagnosis and proposal for the application of destination criteria from an environmental approach in rural communities in the State of Morelos, with the objective of designing strategies for permanent intervention through training, on the use and management of solid waste for sustainable use and strategies for the reduction and recovery of recyclable waste, including environmental awareness campaigns. The Academic Body CAMOR 145-Management of Tourist and Cultural Heritage-CONACyT, responsible for the research, has defined two major initiatives, one of training through the visit to the Biosphere Reserve in Entlebuch, Switzerland and another of action, through the organization of a congress oriented towards the definition of social management needs, with a view to proposing activities for the application of the tourism sustainability criteria proposed by the Global Sustainable Tourism Council (GSTC) in order to provide guidance to communities on management strategies and safeguarding of the tourist heritage in their regions.

Environmental, Criteria, Biosphere, Sustainability, Diagnosis

Resumen

El presente estudio corresponde a la segunda etapa de una investigación sobre el diagnóstico y propuesta para la aplicación de criterios de destino desde un enfoque ambiental en comunidades rurales del Estado de Morelos, con el objetivo de diseñar estrategias de intervención permanente a través de la capacitación sobre el uso y manejo de residuos sólidos para su aprovechamiento sustentable y estrategias para la reducción y recuperación de residuos reciclables, incluyendo campañas de concientización ambiental. El Cuerpo Académico CAMOR 145-Gestión del Patrimonio Turístico y Cultural-CONACyT, responsable de la investigación, ha definido dos grandes iniciativas, una de capacitación a través de la visita a la Reserva de la Biosfera en Entlebuch, Suiza y otra de acción, mediante la organización de un congreso orientado a la definición de necesidades de gestión social, con el fin de proponer actividades para la aplicación de los criterios de sostenibilidad turística propuestos por el Consejo Global de Turismo Sostenible (GSTC) para orientar a las comunidades sobre estrategias de gestión y salvaguarda del patrimonio turístico en sus regiones.

Medio Ambiente, Criterios, Biosfera, Sostenibilidad, Diagnóstico

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Introduction.

In the year 2022, to deal with the harmful effects that the COVID-19 pandemic had on tourist activities in the rural communities of Morelos, the first stage of a research was carried out whose objective was to obtain elements for the promotion, development, and economic reactivation of the tourism sector (Juárez-Salomo, 2022). This first study was focused on the analysis and application of tourism cultural sustainability criteria, proposed by the Global Sustainable Tourism Council (GSTC) to provide guidance to three Morelos communities, Tepoztlán, Tlayacapan and Chalcatzingo, centered on management strategies and safeguarding of the tourist heritage in each entity, with emphasis on cultural aspects.

As one of the most relevant findings of the named study, the urgent need to address not only cultural issues was detected, but also the need to influence in a timely manner aspects of social management for the application of environmental criteria, considering a permanent intervention for training on the use and control of solid waste for sustainable practices and strategies for the reduction, recovery, and use of recyclable waste, including environmental awareness campaigns focused on the 3R (reduce, recycle and reuse). Thus, from the Academic Body CAMOR 145-Management of Tourist and Cultural Heritage-CONACyT, responsible for the investigation, action initiatives were defined.

To act proactively and with the intention of continuing with the research work, two strategic objectives were defined that aimed, the first, at deepening management initiatives for environmental protection and, the second, at opening of spaces for training and reflection for the definition and implementation of sustainability criteria regarding environmental aspects.

The first initiative began in March, when international collaboration links were established with the UNESCO Biosphère Entlebuch, an instance that contributed to the nomination of the aforementioned environment as a reserve (MAB-UNESCO, 2002, p.30) and inhabitants of the region, and a field visit to the biosphere reserve in a rural Swiss community was promoted, in order to have advice to, on the one hand, learn about the operation of environmental and waste management strategies and, on the other.

Conceive initiatives for research and monitoring, education, training and community participatory decision-making that can be replicated in related projects in rural environments, for that matter, in the State of Morelos.



Figure 1 Biosphère Entlebuch. Renggli, Franz, 2010

The second initiative corresponds to the organization of events such as the Social Congress of Rural Heritage 2023, permanent workshops, start-up, and pilot areas in two of the communities that were part of the first stage of the project (Tepoztlán and Tlayacapan) where themes and spaces were considered critical for raising awareness and dissemination of the challenges of rural communities regarding environmental criteria and socioeconomic sustainability.

It should be noted that, even when it is evident that the government and economic conditions are not like the European country of reference or to the cases that are presented at the congress from other Latin American countries, initiatives have been sought that have an impact on the construction of reference frameworks and inspiration for the design and implementation of dissemination and social management activities, promoting both specific learning about criteria and social initiatives, as well as the involvement of communities at various levels in management issues of protected areas in order to influence sustainability, moving from reflection to action.

Thus, in this article two main lines are addressed that look at the development of current and future actions in a comprehensive and systemic way: environmental sustainability and social management.

Economic growth, care for the environment and the well-being of society.

In the most recent decades, environmental sustainability has come to form a priority element in social management projects, especially considering the common planetary destiny. The 2030 Agenda for Sustainable Development and the Sustainable Development Goals (UN-ODS, 2017) for example, have determined specific actions and criteria to ensure planetary sustainability.

By conceiving sustainability to develop an environment that considers and satisfies the needs of the present without compromising the capacity of future generations, then the work of prospective planning is both urgent and challenging, since it requires a high degree of awareness and, above all participatory action, since it is not enough to know what can happen with the existing natural resources, the action of various organizations and actors is also required to counteract the devastating inertia of the ecosystems.

Regarding sustainability, Randy Durband, CEO and Luigi Cabrini, president of the GSTC, argue that a key part of insisting on sustainability is the need for solid long-term management, which helps companies and destinations to be more resistant. In this sense it is accepted that sustainability "...means continuing to function and prosper in perpetuity, through all kinds of conditions... this pandemic can serve as a moment in time when we all step back and reflect on our long-term goals and how to apply the principles and practices that enable us as organizations... to maintain happy, healthy and purposeful lives" (GSTC, 2016).

In the sense proposed by Durband and Cabrini, sustainability in combination with management commits the actors in the search for a balance between economic growth, care for the environment and social well-being.

Talking about social and community management implies reflecting on the generation of both diagnostic and preventive initiatives, which allow timely action on rural environments; It is important to underline that the understanding of the problems and the definition of alternatives require not only theoretical analysis, but also inspiring initiatives that allow us to see how strategies work in real scenarios.

The case of Entlebuch represents a clear example of how, after an ecological tragedy that occurred in the 80s, it has achieved a dizzying tourism development carried out through integrating strategies, with a conscious, innovative, and strategically planned development approach, in accordance with the environmental protection philosophy of the canton of Lucerne and the country.

Finally, it should be emphasized that the growth raised from the care of the environment and society, must arise based on responsible actions that consider the risks and impacts of the alternatives to be adopted, since it must not be forgotten that social action manifests commitments and a harmonious relationship with the communities that must be characterized by respect and empathy (Euroinnova, 2023).

Environmental Sustainability Criteria and their link with social management

When returning to the list of GSTC criteria (2022), it is important to point out that these have a double aspect: 1) On the one hand, they are oriented to the review of the initiatives of the tourism industries (hotels, restaurants and related services) and on the other b) considers tourist destinations (zone or geographical area visited by tourists), and for this it is based, in turn, on four fundamental pillars as stated in figure 2:

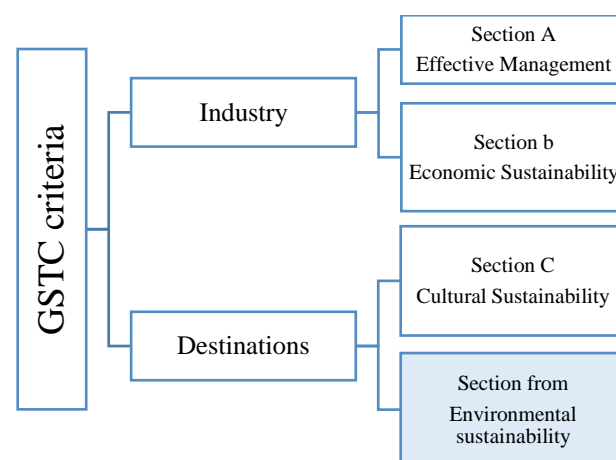


Figure 2 GSTC Tourism Environmental Sustainability Criteria

Own Elaboration, 2023

In a very summarized way, the mentioned criteria are defined as:

- a) **Efficient management:** Oriented towards sustainability, it seeks the use and continuous supply of resources, especially natural ones, to cover the needs of the present, without compromising the needs of future generations.
- b) **Socioeconomic sustainability:** These are financially profitable economic and social practices that are sustainable.
- c) **Cultural sustainability:** Respect for cultures and incorporation of the customs and traditions that characterize the contexts to be visited; and Environmental sustainability: Conservation of the environment through co-responsibility initiatives.

Considering the four pillars, according to the GSTC, it is possible to achieve sustainable tourism in the long term, safeguarding the resources that attract visitors (natural and cultural attractions, community experiences) since this type of tourism, when managed and markets effectively, it can also give companies a competitive advantage by proactively responding to current consumer trends.

Market research for one project shows a growing demand for experiential travel; more visitors are looking for an authentic connection to the local culture, food, customs, heritage, and people in the destinations. At the individual business or organization level, implementing sustainability practices is a key part of ensuring smooth and efficient operations (GSTC, 2022).

As previously mentioned, there are two service approaches, industry, and destinations, the second being the one that has been considered for this research, specifically from an environmental perspective that considers the elements illustrated in Table 1:

GSTC Destination Criteria
SECTION D: Environmental Sustainability
D(a) Conservation of natural heritage
D1 Protection of vulnerable environments
D2 Management of visitors to natural sites
D3 Interaction with wildlife
D4 Exploitation of species and animal welfare
D(b) Resource management
D5 Conservation of energy
D6 Water management
D7 Water quality
D(c) Waste and emissions management
D8 Wastewater
D9 Solid waste
D10 Greenhouse gas emissions and climate change mitigation
D11 Low-impact transportation
D12 Light and noise pollution

Table 1 GSTC Tourism Environmental Sustainability Criteria

Own Elaboration, 2023

Considering the previous criteria, it is clear to observe that each one depends on collaboration and social participation at different levels, in the idea that the application of the criteria is in well-conceived industries or tourist destinations, promotes both internal and external positive impacts.

A positive link between environmental sustainability and adequate social management internally leads to greater commitment of workers with the activities and implementation of the sustainable management system, by carrying out (evaluated) training on roles and responsibilities.

Awareness of the impact on the development of the destination contributes to achieving customer satisfaction, decreases employee turnover rates, promotes a favorable work environment, allows flexibility in schedules, as well as devising incentives for good performance of functions.

The benefits of the company's external relations and communications positively encourage greater participation in the organization, sustainable planning and management, local, national, and international credibility, use of logos, access to other certifications, greater projection, and possibilities of collaboration. branding and to show an example that, for that matter, is a biosphere reserve in Central Europe.

Biosphere Reserves, Entlebuch as a reference

The Biosphere Reserve concept, initially developed in 1974, was specified and reinforced in 1995, at the second world meeting of Biosphere Reserves. The results of this meeting were included in the Seville Strategy and the Statutory Framework of the World Network of Biosphere Reserves, documents that today continue to be the referential basis of the Network (UNESCO, 2017).

As one of the members of exemplary development, is the Entlebuch biosphere reserve, a nature environment at the foot of the Swiss Alps that includes the great valley of 395 km² where the Little Emme river crosses, between Bern and the Swiss canton. from Lucerne. It was in 2001 that the region, hitherto little known internationally, became, after the Swiss National Park, the second UNESCO biosphere reserve in Switzerland (figure 3). On May 25, 2002, the inauguration ceremony of the Entlebuch Biosphere Reserve (UNESCO, 2003) was held.



Figure 3 Alp Risch, Entlebuch. Renggli, Franz, 2012

From a tourist point of view, the Entlebuch biosphere not only offers calm and relaxing landscapes in untouched nature; At present, but many tourist activities have also been developed, including themed hiking, such as fairy tales or energy, Kneipp spa that provides the benefits of bathing in water and even mud, satellite-guided hiking, or excursions with a guide, among many other possibilities. In addition to the many leisure activities, the historical and cultural richness allows to enjoy the traditional crafts of the charcoal makers in Romoos or the pilgrimage center of Heiligekreuz (UNESCO, 2003).

In the so-called "Wild West" of Lucerne, the largest swamps in Switzerland abound and a fauna and flora of both national and international importance characterized by its pre-alpine marsh and limestone landscapes of almost 400 square kilometers that are home to the majestic peak of the Schratzenfluh.

In truth, the tourist experience in Entlebuch may seem idyllic but, although it is not believed, according to the diagnoses carried out by UNESCO, the Man, and the Biosphere Program (MAB) and testimonies of some inhabitants of the region, the development of the image and tourist activities have not been free of setbacks. There are approximately 17 thousand people living in the biosphere reserve and 36% of the population is linked to the primary sector.

According to the Reservation Bulletin, there is a shortage of attractive, modern jobs for highly educated people in Entlebuch, and many young people are forced to migrate to larger cities. Therefore, regional development has been one of the main concerns of the biosphere reserve in question. The Swiss government, the canton of Lucerne, and local and environmental groups have made financial contributions to the development of the region, at an estimated annual cost of SFr 1 million, thereby creating jobs (MAB-UNESCO, 2002).

In addition to the situations mentioned, political and cultural resistance led to the nomination as a reserve being achieved after a long process, since the democratic government system, combined with the initial skepticism of the local inhabitants, stopped the process. It was not until the vote in favor of the presentation was achieved, in the year 2000, by 94% of the inhabitants of the eight communes that the project advanced (MAB-UNESCO, 2002).

At present and thanks to the determined work of the villagers, the Entlebuch Biosphere Reserve represents an opportunity to promote sustainable tourism, a way of cultivating natural resources, and a market for quality regional products, and some young farmers have given the commercial potential offered by being part of the biosphere reserve (MAB-UNESCO, 2002).

Training in social management of natural resources

To carry out an informed approach to the present investigation, in the first instance, various sources related to the subject were reviewed and defined, first on how to evaluate sustainability through the GSTC criteria for the tourism field and, second, various publications generated within the Program on Man, and the Biosphere (MAB) were reviewed.

The MAB (started at the beginning of the 70s), is an Intergovernmental Program created with the objective of establishing a scientific base to improve the relationship of people with their environment, promotes interdisciplinary research in natural and social sciences and management training of natural resources on the conservation and sustainable use of biodiversity (MAB-UNESCO, 2002).

Through the resources provided by MAB, it has been possible to better understand the environment, including global change, and to encourage a greater commitment of science and scientists to the development of policies related to the rational use of biological and cultural diversity (MAB) (UNESCO, 2002).

Thus, through the experiences of countries around the world, the most appropriate practices are currently analyzed to proceed with the design of training, dissemination, and research groups to continue contributing to the management and care of the planet's natural heritage.

Considerations for tourism development in biosphere reserves

Regarding the protection of the environment, the World Tourism Organization (UNWTO) openly promotes the promotion of responsible, sustainable and accessible tourism with an emphasis on compliance with the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (UN -ODS, 2017) whose scope is universal, offering leadership and support to the tourism sector in order to expand knowledge and promote tourism policies around the world, leading its steps towards a responsible tourism activity that serves as a driving force for economic growth, inclusive development and environmental sustainability.

Currently made up of 156 countries, the UNWTO encourages the application of the Global Code of Ethics for Tourism, to maximize the socioeconomic contribution of tourism and at the same time minimize the possible negative impacts that it could have (UNWTO-OAS, 2022). Therefore, from a positive point of view, responsible tourism has proven to be an ally of sustainability, as it is linked to social, cultural, and environmental development initiatives.

Tourism seen in a negative light (if not properly managed) can lead to loss of local identity and values, through the commodification of cultures and unwanted changes to meet tourism demands, develop a negative attitude of the host community, and even gradually destroy the environmental resources on which it depends (One Planet, 2021). As a measure to prevent the depletion of natural resources, pollution, and the degradation of the territory and its ecosystems, eyes are directed towards sustainable tourism, whose base is intentional respect for the various ecosystems, ensuring that the activities of the industry and tourist destinations produce the least possible impact on the environment and local cultures (Seateros, et.al. 2019).

Sustainable tourism seeks the generation of jobs and income, proposing strategies to act respectfully with the lives of the inhabitants, especially safeguarding native cultures. In line with the UNWTO and the Environment Program of the United Nations Organization, sustainable tourism broadly considers the economic, social, and environmental impacts, both in the present and in the future, taking into account the needs of visitors, the industry, ecosystems and host communities (WTO-UNEP, 2019).

Methodology

To carry out this research, a first stage of research carried out in 2022 was taken as a background, carried out with the purpose of obtaining elements for the promotion, development and economic reactivation of the tourism sector (Juárez-Salomo, 2022) through the application of tourism cultural sustainability criteria, proposed by the Global Council for Sustainable Tourism, providing guidance to three Morelos communities, Tepoztlán, and Tlayacapan, on management strategies and safeguarding of tourist heritage in each entity, with emphasis on cultural aspects.

In this second stage, the focus of attention is the environmental sustainability criteria of the GSTC but, in addition to the applicability analysis, two strategic objectives were established:

A) The deepening of management initiatives for environmental protection through field visits to a European biosphere reserve (in addition to the Latin American reserves already visited) and B) The opening of spaces for training and reflection for the definition and implementation of sustainability criteria regarding environmental aspects.

As part of the second initiative, permanent events and workshops are organized where, through various strategies such as focus groups, questionnaires, interviews, among other resources, elements are obtained to prepare specific proposals for the communities that were part of the study in the first stage of the project (Tepoztlán and Tlayacapan) where critical issues and spaces for raising awareness and dissemination of the challenges of rural communities regarding the criteria of environmental sustainability were considered.

Results

Regarding the initiative of a field visit to the Entlebuch Biosphere Reserve, what was reviewed in the documents was contrasted with the observations in the area because, although life in Switzerland resembles a bucolic postcard image where lakes, mountains, snowy landscapes and clean air characterize the environment, like many countries, this European nation has had to make enormous efforts to protect its environmental heritage for which, in recent years, the Federal Council and the people of Switzerland have implemented a series of concrete measures. From the observations and documents reviewed for this research stage, the following points are recovered (FDFA, 2020):

Protection of natural resources

Strategies for the reduction and recovery of recyclable waste are favored, including environmental awareness campaigns favoring the use of renewable energies in the exploitation and production of resources (see figure 4).

Concentrating urbanization

The Land Planning Law, accepted by the people of Switzerland in 2013, has two main objectives: to use available space more efficiently and to combat the excessive spread of built-up areas as strategic measures to preserve agricultural land.



Figure 4 Widen, Entlebuch. Renggli, Franz, 2013.

Waste management

The policy on waste and products is based on the principles of the green economy, promoting the recycling of primary products, and reducing both their demand and the production of waste.

Contribute to the fight against global warming

As measures to limit the increase in atmospheric temperature to less than 2°C, the focus has been on reducing greenhouse gas emissions. Coupled with the action plan adopted in 2014, the carbon tax has been increased substantially, especially for the construction and transportation sectors.

Preserving water quality

Known as the “water tower of Europe”, Switzerland is rich in many lakes and rivers, such as the Rhine and Rhone, and in the Little Emme Biosphere Reserve that are located on its territory.

Purification stations built since the 60s and 70s, guarantee a very high quality, having eliminated micro-contaminants caused by phytosanitary products from agriculture and adding a new step in the treatment of wastewater in more than one hundred water treatment plants. With the measures adopted, it is expected to improve river water by 2030, including the benefits that the new constructions underway and the renovation of existing water treatment plants will bring (FDFA, 2020).

Long-term maintenance of biodiversity

As a measure for the protection of biodiversity, specific protection laws were established, to safeguard the more than 50,000 living species, since currently, due to urbanization, more than 30 % of the species studied are threatened (FDFA, 2020).

Air Quality

The quality of the air in Switzerland has been improving permanently since in the last 25 years the emission of fine particles in the cities has been reduced by more than 50% due to the use of clean energies and its regulations towards the industry, where the The Confederation imposes strict regulations on CO2 emissions through the installation of high-performance filters and catalytic converters in vehicles (FDFA, 2020).

Land use for environmental balance

Even though urbanization and natural reforestation have reduced the total area of fertile land available, the Federal Council supports agricultural producers by providing incentives for the acquisition of tools to limit permanent damage caused by land use, and it trains specialists who advise construction companies on large development projects (FDFA, 2020).

In addition to the measures stated, during the field visit, it was possible to collect testimonials and images from merchants, producers, and visitors to the region, and a following document is being prepared that specifically states how the environmental sustainability criteria are met in the region: what are the challenges for its application and what have been the learnings and; on critical spaces for reflection, it is expected to have results by the end of this year.

Conclusions

Although it is possible to think that countries like Mexico are far removed from environmental protection conditions such as those shared in this article, it is important to mention that the great environmental measures in Switzerland were only adopted at the end of 1986, when a fire broke out in a Warehouse belonging to the chemical company Sandoz in the Schweizerhalle industrial zone, on the outskirts of Basel.

Around 1,351 tons of pesticides and agrochemicals were burned when "...this accident painted the Rhine River red, killed thousands of fish and engulfed the city in acrid smoke. It was one of the worst environmental disasters in Europe and made global headlines" (swissinfo.ch and agencies, 2016).

Similarly, in Switzerland there are still challenges to comply with the laws, but, learning about real cases where ways of action have been found despite the challenges, invite us to think ambitiously in the future, especially when witnessing the excessive loss of territory of countries that have devastated a portion of its biodiversity and natural resources in ecocides of unfortunate magnitudes.

A large part of the problems that nations face to take care of their resources is due to irresponsible socioeconomic processes, causing to a great extent the discouragement of those who fight for the environment, since the demands for protection face situations aggravated by poverty, lack of vision long-term and viable technological and productive alternatives, and even to political or business interests that have led to the overexploitation of natural resources.

Finally, the reason for insisting on issues such as the one presented here is the conviction that respect for the environment improves quality of life, preserves biodiversity, and helps promote ecological tourism. In fact, the Federal Office for Territorial Development has identified the landscape as one of the key factors in any development project (FDFA, 2020).

At a time when nature tourism takes precedence over any other project, including those that have to do with energy, industry, or transport, it is essential to respect and protect the landscape and resources by and for the inhabitants of the present and future generations.

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