unesco

GEOTOURISM FOR UNESCO GLOBAL GEOPARKS

—

A TOOLKIT FOR DEVELOPING AND MANAGING TOURISM

GEOTOURISM FOR UNESCO GLOBAL GEOPARKS

—

A TOOLKIT FOR DEVELOPING AND MANAGING TOURISM

LATIN AMERICA AND THE CARIBBEAN & THE ARAB STATES

Published in 2024 by the United Nations Educational, Scientific and Cultural Organization | 7, place de Fontenoy, 75352 Paris 07 SP, France.

MTD/GEO/2024/PI/01

AUTHOR: Jad Abou Arrage

UNESCO PROJECT TEAM: Elsa Sattout, Serena Heckler, Facundo Berriel Olivera, Denise Gorfinkiel, Kristof Vandenberghe

WEBSITE: *www.geo-schemas.org*

CONTACT INFORMATION

Ecology & Earth Sciences Programme **UNESCO Regional Multisectoral Office in Cairo** 6th October City 12564 Greater Cairo, Egypt cairo@unesco.org *www.unesco.org/cairo*	**Ecology & Earth Sciences Programme** **UNESCO Regional Office in Montevideo** Dr. Luis Piera 1992, piso 2 11300 Montevideo, Uruguay *www.unesco.org/montevideo*

ENGLISH EDITOR: Serena Heckler

GRAPHIC DESIGNER: Lucia Stagnaro

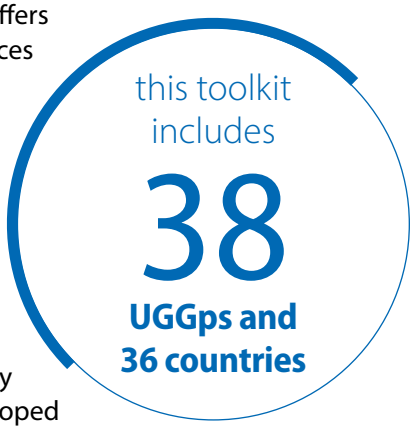
COVER PHOTO: UGGp Caminhos dos Cânions do Sul, J. Furlanetto.

SHORT SUMMARY

Geotourism for UNESCO Global Geoparks

This toolkit, *Geotourism for UNESCO Global Geoparks*, is a comprehensive guidebook designed to assist destinations, communities, and stakeholders in developing and promoting sustainable geotourism initiatives in UNESCO Global Geoparks (UGGps), aspiring UNESCO Global Geoparks and geopark projects.

This practical resource provides step-by-step guidance on creating authentic and enriching geotourism experiences while preserving the geological, cultural, and environmental integrity of the area. From identifying unique geological features to engaging with Indigenous Peoples and local communities (IPLCs) and designing educational programs, this toolkit offers valuable insights, case studies, and best practices for successfully harnessing the potential of geotourism to drive economic growth, enhance visitor experiences, and conserve the natural and cultural heritage of the region.



It is aimed at stakeholders with a wide range of technical expertise and experience in different sectors: tourism, marketing, local government, geosciences, education and community outreach. While some sections may seem basic to the expert or professional, it is hoped that, whether you are a UGGp manager, destination manager, tourism professional, or community leader, this toolkit serves as a resource to unlock the benefits of geotourism while fostering sustainable development and preserving the beauty and significance of your geological landscapes.

unesco

"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

FOREWORD

ERNESTO FERNÁNDEZ POLCUCH, Director, UNESCO Regional Office in Montevideo

NURIA SANZ, Director, UNESCO Regional Multisectoral Office in Cairo

In 2015, UNESCO's General Conference adopted the Statutes of the International Geoscience and Geoparks Programme (IGGP), defining UNESCO Global Geoparks as "single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development". This vision of integrated and participatory local management, with its focus on strengthening dynamic and thriving natural and cultural territories, lies at the heart of the 2030 Agenda, with its focus on people, planet, prosperity, peace and partnerships.

Geological heritage is an indispensable source of knowledge for humanity as it faces the impacts of climate change, the challenges of a growing population and finite natural resources. The Earth can yield knowledge to inform national and multilateral scientific agendas. The earliest forms of life on Earth have left traces in this universal geological record. Lava, minerals, petrified forests, glacial moraines, and plant and animal fossils have much to teach us about the transformation of life on the planet and the impacts of humans since the Pleistocene Epoch. This remote past comes to life when it is protected, valued by the stewards of territories and, where appropriate, researched. The Earth's past is the story of our past. Its legacy deserves research and care. One way to do this is to ensure that local communities in UNESCO Global Geoparks around the world value this heritage.

The Araripe UNESCO Global Geopark (Brazil) boasts a vast and rich fossil heritage from the Lower Cretaceous period, which holds a record of the birth of the Atlantic Ocean when ancestral Gondwanaland split. The Araripe UGGp has worked to raise awareness of this geology as the shared heritage of life on Earth. It has also worked to share the benefits with local communities by celebrating their culture and developing a local tourist market, all of which further valorize the geological heritage in the territory.

The M'Goun UNESCO Global Geopark (Morocco) in the central High Atlas Mountains includes famous and spectacular footprints of dinosaurs as well as tectonic structures from the Jurassic period. It has worked with the Association of Teachers of Life and Earth Sciences to develop environmental education as well as economic initiatives for local communities supporting the production of herbs, teas and spices that are native to the territory.

The success stories of these special territories, as well as others across the regions, are shared in networks of like-minded local governments, geologists, educators and businesses who recognize the potential of UNESCO Global Geoparks to catalyse territorial pride and a sense of identity as well as conserve geological heritage. Since 2015, the Latin American and Caribbean Geoparks Network has grown from just two geoparks to thirteen in seven countries. With dozens more territories in 13 countries preparing their applications for UNESCO designation, the IGGP is the fastest-growing UNESCO programme in Latin America and the Caribbean.

We are therefore extremely grateful to the Spanish Agency for International Development Cooperation (AECID), which funded the UNESCO project *Management Schemes for UNESCO Global Geoparks in Latin America, the Caribbean, and the Arab States*. The contents of this publication will encourage the Arab States to prepare candidates for new geosites that deserve global attention.

The *Geo-Schemas* project —to use its acronym— was implemented from January 2021 to December 2023 and identified key areas in which capacity-building and tools most effectively enhance UGGps in both regions, one of which was the development and implementation of tourism strategies.

Building upon the experience of success stories in both regions, such as Grutas del Palacio (Uruguay), Kütralkura (Chile) and M'Goun (Morocco) UGGps, the *Geotourism for UNESCO Global Geoparks Toolkit* is designed for use by UNESCO Global Geoparks, but it may also be used by aspiring UNESCO Global Geoparks, geopark projects or other protected areas.

The Toolkit aims to support the development of geotourism strategies and action plans aligned with national tourism policies, as well as local agendas for the 2030 agenda in the two regions and around the world. It is aimed at stakeholders who may have little to no experience with developing sustainable tourism strategies, but some sections, tools or guidelines may serve as useful resources even for experienced UGGp managers.

As directors of UNESCO Regional Offices in Latin America and Arab States, we are immensely proud to support this exchange of knowledge. We hope that this toolkit inspires and contributes to tourism initiatives for natural, cultural, economic and social well-being in the spectacular territories of UNESCO Global Geoparks. We know that UGGps will only reach their full potential through green, inclusive, and local economic development. This toolkit provides a step-by-step guide for building a sustainable tourism industry based on these principles.

ACKNOWLEDGEMENTS

This Toolkit was prepared by the UNESCO Regional Office in Montevideo and the UNESCO Multisectorial Regional Office in Cairo with support from the Spanish Agency for International Development Cooperation.

The author and UNESCO project team are grateful for the valuable input provided by the members and representatives of the Member State National Commissions for Cooperation with UNESCO, National Geoparks Committees, the GeoLAC Network, the AUGGN Network, UNESCO Global Geopark stakeholders in the following countries: Egypt, Libya, Mauritania, Morocco, Tunisia, Brazil, Bolivia (the Plurinational State of), Chile, Colombia, Ecuador, México, Nicaragua, Paraguay, Peru, and Uruguay. We hope that this toolkit reflects a small portion of their passion and innovation.

ACRONYMS

AECID	Spanish Agency for International Development Cooperation
APGN	Asian Pacific Geoparks Network
AUGGN	African UNESCO Global Geoparks Network
aUGGp	Aspiring UNESCO Global Geopark
DMO	Destination Management Organization
ECC	Effective Carrying Capacity
ECSTPA	European Charter for Sustainable Tourism in Protected Areas
ENG	European Network of Geoparks
FAO	Food and Agriculture Organization of the United Nations
FPIC	Free Prior Informed Consent
GEOLAC	Latin American and Caribbean Geoparks Network
GGN	Global Geoparks Network
GMP	Geotourism Management Plan
GMS	Geotourism Monitoring System
GSTC	Global Sustainable Tourism Council
IGGP	International Geoscience and Geoparks Programme
INSTO	International Network of Sustainable Tourism Observatories
IPLCs	Indigenous Peoples and Local Communities — two major stakeholder groups in UNESCO Global Geoparks
IUCN	The International Union for the Conservation of Nature
LAC	Latin America and the Caribbean
MAB	Man and the Biosphere Program
MC	Management Capacity
OUV	Outstanding Universal Value
PCC	Physical Carrying Capacity
PPPs	Public-Private Partnerships
RCC	Real Carrying Capacity
SDGS	Sustainable Development Goals
UN	United Nations
UGC	User-generated Content
UGGp	UNESCO Global Geopark
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
USPs	Unique Selling Propositions

OBJECTIVE AND STRUCTURE OF TOOLKIT

Welcome to the UNESCO Global Geoparks (UGGp) Geotourism Toolkit, a resource designed to empower UGGp and aspiring UNESCO Global Geopark (aUGGp) managers to develop sustainable and responsible geotourism. This toolkit aims to equip you with the tools, guidelines, processes, tips and practices necessary to create enriching and immersive geotourism experiences for UGGp visitors while safeguarding their geological, natural and cultural heritage. The toolkit intends to engage UGGps, tourism service providers, local communities, Indigenous Peoples, and all relevant stakeholders in collaborative and joint initiatives that contribute to geological heritage conservation, optimization, and valorization. It also allows a better understanding and monitoring of geotourism impacts.

Even though the toolkit specifically addresses geotourism in UGGps and aUGGps, most of the concepts, tools, guidelines and exhibits presented in the toolkit can be equally applied by stakeholders that want to promote tourism with a focus on geological heritage while tapping on its interlinkages with natural and cultural resources. The toolkit invites stakeholders to adopt a participatory approach and encourages the development of a touristic journey that meets a set of criteria and voluntary standards to be qualified as "sustainable". In this sense, this toolkit can be more generally regarded as a roadmap to initiate, or further promote, the planning and development of geotourism in UGGps, aUGGps and geopark projects.

The primary objective of this toolkit is to provide UGGp managers with the knowledge and resources to promote geotourism in a way that enhances the visitor experience and conserves the geological, natural and cultural assets of UGGps. By utilizing the tools, and following the guidelines and tips, UGGp managers will be better equipped to develop a sustainable geotourism offer and to ensure balance between socio-economic development and environmental conservation.

This toolkit is structured to provide you with a user-friendly and step-by-step approach to geotourism planning and management. After a general introduction on UGGps as sustainable tourism destinations, the toolkit is divided into nine steps focusing on specific aspects pertaining to geotourism planning, development, promotion and monitoring. All nine steps may be useful or you may choose to select only those steps that address the needs of the UGGp's management strategy.

Each step contains a set of tools, tips and exhibits to help UGGp managers and other stakeholders sustainably manage geotourism and maximize its benefits at subnational and national levels.

- **TOOLS** present actionable step-by-step tasks with their description to assist UGGp managers in planning and managing geotourism as well as guidelines for making informed decisions and taking appropriate actions for sustainability.
- **TIPS** provide practical advice and recommendations that offer insights for achieving better results under each section.
- **EXHIBITS** are examples of good practice from UGGps around the world.

TABLE OF CONTENTS

LIST OF TOOLS

LIST OF FIGURES

LIST OF TABLES

LIST OF EXHIBITS

01

INTRODUCTION: UNESCO GLOBAL GEOPARKS AS SUSTAINABLE TOURISM DESTINATIONS

© G.L. DANTAS DE MEDEIROS

Sustainable tourism relies on balancing economic growth, social inclusion, cultural heritage preservation, and environmental protection. Among sustainable tourism forms, geotourism has emerged as a global phenomenon in the last two decades, focusing on protecting natural and cultural heritage while promoting socio-economic development through sustainable practices and geological heritage preservation, interpretation, and education.

1. The Genesis of Geoparks

As Jones writes, the Geoparks concept was introduced in 1991 at the Digne Convention. The concept aimed to protect geological heritage and promote sustainable local development through a global network of territories with significant geological value. In the year 2000, representatives from four European territories met to address regional economic development through the protection of geological heritage and the promotion of geotourism, as a result of this meeting, the European Geoparks Network was created (EGN)[1].

In 2004, the Global Geoparks Network (GGN) was established, bringing together European and Chinese geoparks[2] under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO) to enhance the value of designated geoparks and foster regional economic development. Subsequently, the GGN's success led to the creation of regional geopark networks in Asia (the Asian Pacific Geoparks Network – APGN), Latin America (the Latin American and Caribbean Geoparks Network – GEOLAC), and in Africa (the African UNESCO Global Geoparks Network – AUGGN), further expanding the global geoparks movement[3] **(FIGURE 1.1)**.

1. Jones (2008)
2. The main goal of the first European and Chinese geoparks, was to link geological heritage with tourism in rural areas that were trying to create new perspectives to inspire young people to stay in their home territory.
3. Global Geoparks Network (n.d.); Frey (2021); Du & Girault (2018); Gonzalez-Tejada, et al. (2017); UNESCO (2014); Jones (2008)

FIGURE 1.1 — Timeline of Geoparks Programme

Source: Global Geoparks Network (n.d.)

Since November 2015, geoparks have been recognized under the "UNESCO Global Geoparks" (UGGp) label through the International Geoscience and Geoparks Programme[4] (IGGP).

As of 2024, the Global Geopark Network comprises 213 UGGps in 48 countries[5]. The prerequisites for a territory to become a UGGp include geological heritage of international value, a legally recognized management body with a comprehensive plan, visibility for promoting sustainable, inclusive, local economic development through geotourism, and networking with IPLCs and other UGGp[6]. In addition to the UGGps, areas with important geological heritage around the world are considered as aspiring UNESCO Global Geoparks (aUGGps) in the process of having their proposal evaluated by UNESCO, and geopark projects , which are in the process of preparing a proposal before submitting it to UNESCO.

4. The International Geoscience and Geoparks Programme (IGGP) is part of the UNESCO portfolio of activities and programmes to support research and capacity development in the Earth Sciences, in line with the 2030 Sustainable Development Agenda. The Programme consists of two sub-programmes (pillars): The International Geoscience Programme (IGCP) and UNESCO Global Geoparks (UGGp).
5. A full list of UGGps is available at *https://en.unesco.org/global-geoparks/list*
6. Crofts R. , et al. (2020)

2. UGGp components and functions

The three main areas of activity of a UGGp are (i) geo-education for sustainability, (ii) geotourism and local development, and (iii) research and conservation of geological heritage. In this sense, UGGps create a sense of local ownership in the creation/development of economic, tourism, territorial and social value in a given geographical area. On the other hand, they may have great tourism potential if grounded in development strategies for the welfare of the community and enhancement of the territory, promoting a sense of belonging and collaborative work[7] (FIGURE 1.2).

7. Fernandes, Castro & Tracana (2021); Johunis Talib & Abdul Rahsid (2021); Ngwira (2020)

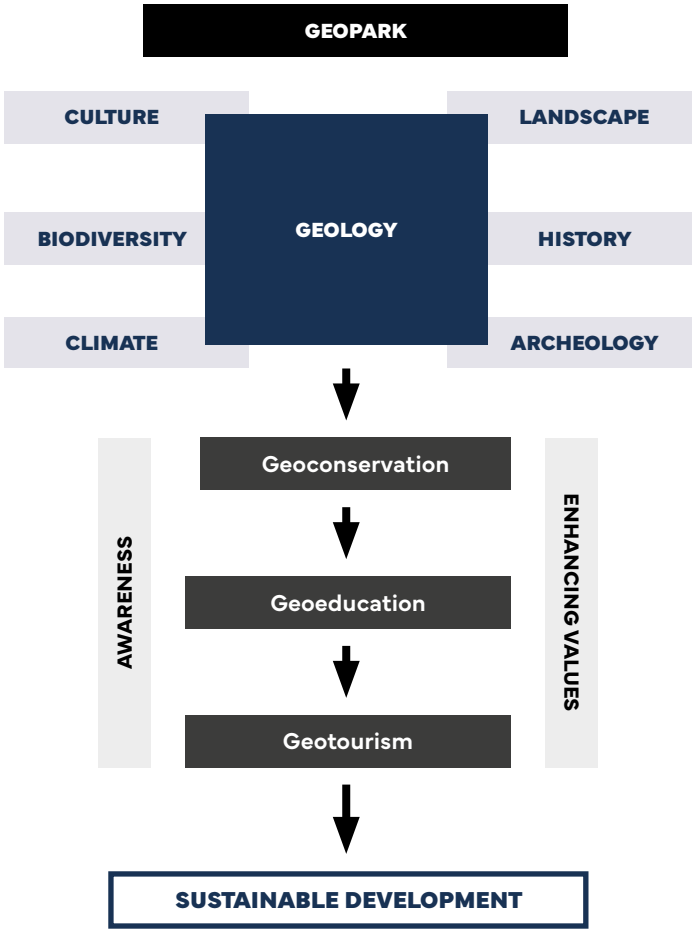


FIGURE 1.2 — UGGp components and functions

Source: Adapted from Woo (2014, pg. 4)

3. Geotourism scope and dimensions

The scope of geotourism includes a wide range and scale of geological and geomorphological features, from mountains and coasts to small rock exposures and the built environment. These may occur in a variety of locations from natural areas to urban environments and include both UGGps and geosites, as well as buildings and monuments with geological associations[8]. The nature and scope of geotourism is based on a three-pronged approach with three components[9] **(FIGURE 1.3)**:

1. "**Form**" describing the various geological landforms, rocky outcrops and materials. Landscapes of geotourism interest are mountain ranges, rift valleys, great escarpments (cliffs), volcanoes, karst landscapes and arid (dry) areas. Within a landscape, there may be characteristic landforms or a variety of landforms (for example, volcanic, glacial or fluvial geomorphic features). A hierarchy of features of geotouristic interest also exists. They may range from individual landforms through to rock outcrops, rock types, sediments, soils and minerals.

8. Gordon (2018)
9. Dowling & Newsome (2006)

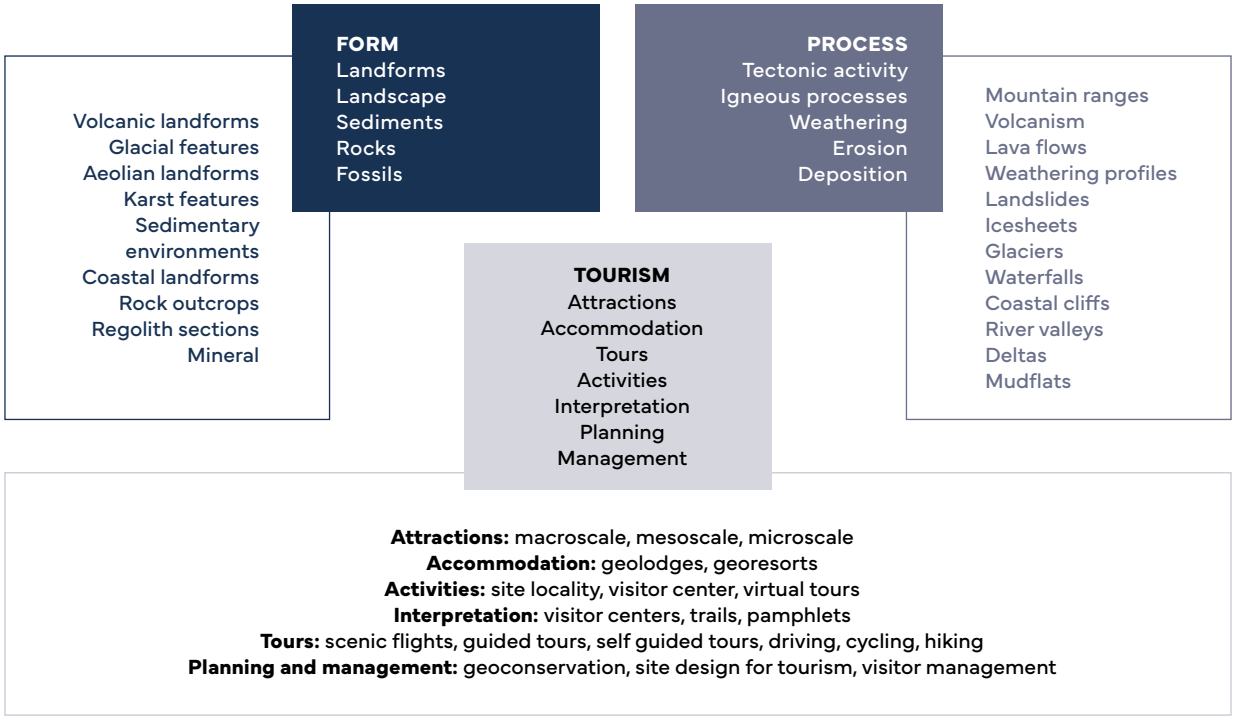


FIGURE 1.3 — The conceptualization of the nature and scope of geotourism

Source: Dowling (2013, pg. 61)

2. "**Process**" conceptualized in relation to how the dynamic Earth is formed. It involves geologic and geomorphological activities like volcanic eruptions, the action of running water, sediments that are being weathered, liberated and moved from one site (eroded and transported) to another (deposited).

3. "**Tourism**" as a social dimension including visits to geosites in the form of self-guided driving, hiking trails and geotrails, vista points, bus tours, boat trips and scenic flights. Geosites that are selected and developed for geotourism may have accommodation facilities and attendant infrastructure. Services designed to enhance the visitor experience and journey could be purpose-built access roads, interpretive visitor centers, museums, geor-estaurants, guided and virtual tours.

Geotourism centers on geology while integrating sustainability principles across both natural and human-modified landscapes, setting it apart from ecotourism, which places greater emphasis on natural environments. However, both forms of tourism share a commitment to responsible travel, environmental education, cultural and natural preservation, and generating economic benefits for IPLCs[10].

Many geosites draw adventure enthusiasts, presenting them with exhilarating activities such as rock climbing, abseiling, canyoning, white-water rafting, cave exploration, glacier trekking, mountain biking, paragliding, visits to active volcanoes, boat journeys to the base of majestic waterfalls or other outdoor activities (FIGURE 1.4). Moreover, the organic relationship between geology, soil formation and agriculture, has been recently reflected in new innovative forms of tourism such as geo-gastronomy, geotourism and agro-tourism, as well as geo-vintnery and wine related tourism.

10. Gordon (2018), Jorgenson & Nickerson (2015), Dowling (2013), Newsome & Dowling (2010)

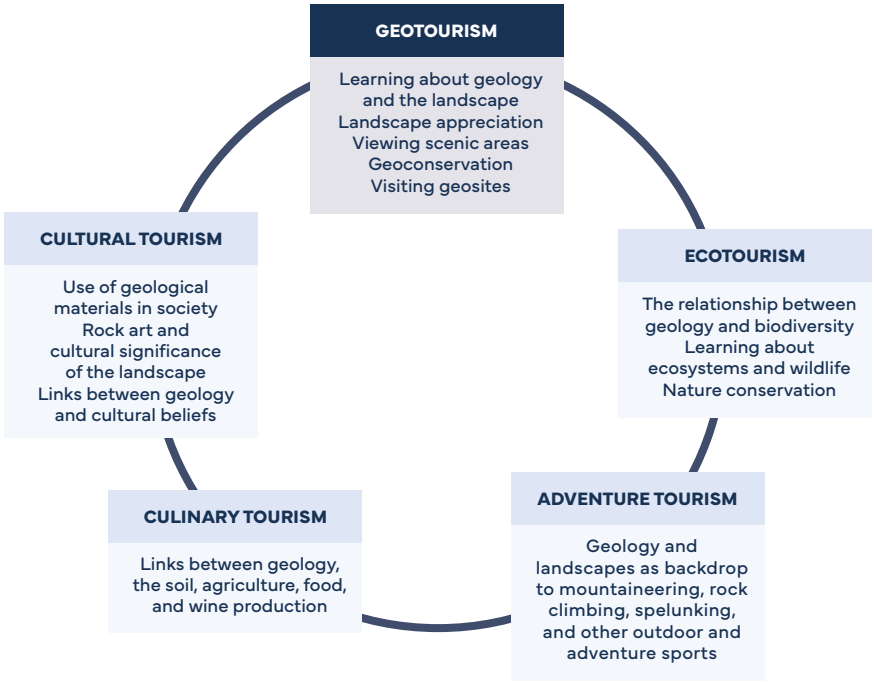


FIGURE 1.4 — The relationship of geotourism with other forms of tourism

Source: Dowling (2013, pg. 60)

Community engagement with geotourism fosters a sense of belonging among locals and offers visitors authentic insights into daily life[11]. IPLCs are empowered through full and effective participation, education and capacity-building, equipping them with knowledge of the UGGp and tourism-related skills. In this context, geotourism underscores the importance of understanding the geological and climatic factors that shape environments, influencing both past and present cultural landscapes. This holistic approach enhances residents' and visitors' connections to the environment[12].

Given the expanding literature and its development as an applied science, geotourism can be viewed through four dimensions: geodiversity, biodiversity, cultural influences, and socio-political factors, as shown in **FIGURE 1.5**.

11. Tran Nhi Bach (2021)
12. Newsome & Dowling (2018), Olson & Dowling (2018)

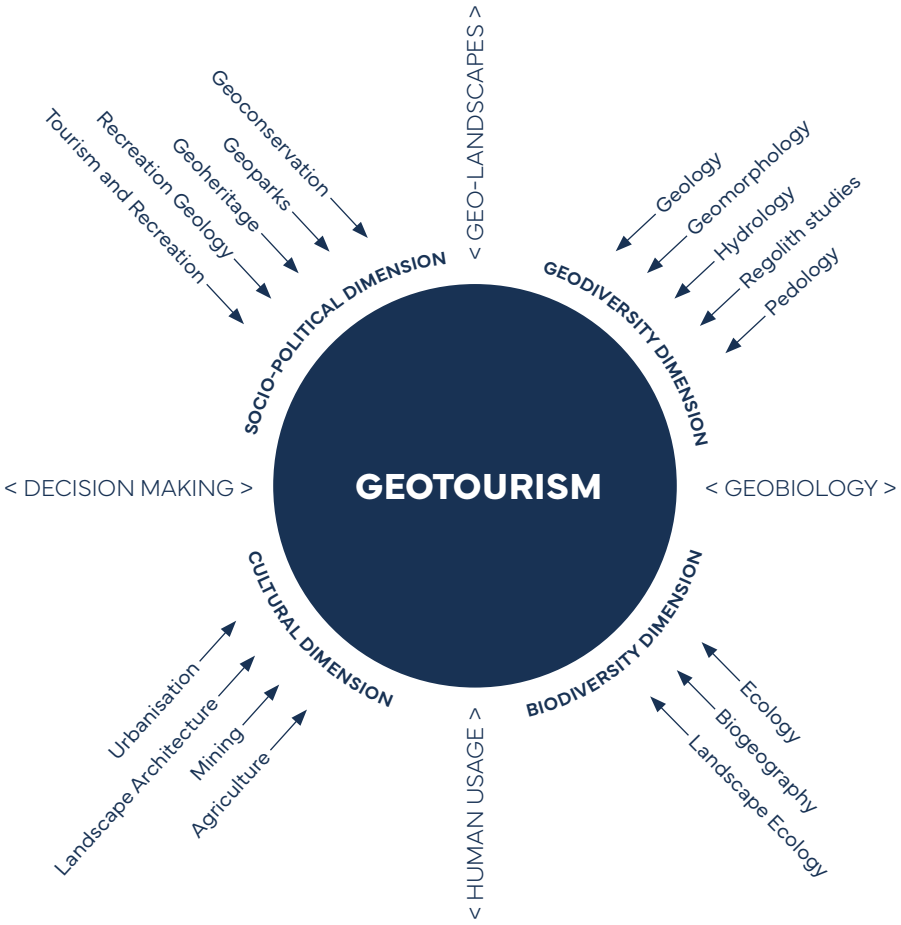


FIGURE 1.5 — The four major dimensions and extended subject content of geotourism.

Source: Newsome & Ladd (2022)

4. Geotourism Benefits

Geotourism has become a driver for geoconservation and also a form of tourism with the potential to contribute to sustainable, local, inclusive economic development and promote territorial sustainability[13]. In this sense, geotourism is an activity that focuses on the proper organization and management of geosites and on the generation of environmental, community and economic benefits[14]. The key to capitalizing on the potential benefits offered through geotourism development in UGGps is to maximize the opportunities and minimize the adverse impacts through the protection of natural heritage **(TABLE 1.1)**.

The conservation and economic benefits of tourism are recognized in the UGGp model and have been successfully realized in several regions, although at some of the popular sites visitor management challenges have also emerged[15]. Highlighting the connection between geological diversity, biodiversity, and cultural heritage can boost geotourism, enhance economic development, and improve the well-being of local communities. In addition to socio-cultural benefits, geotourism can create new job opportunities and generate income for conservation. The contribution may be through financial means, scientific investigation, or educational manuals, and can also improve the quality of life for the host community by increasing infrastructure and increasing visibility of the territorial brand. Thus, geotourism contributes to the overall development of Indigenous Peoples and local communities in terms of health, education, and prosperity[16]. Likewise, geotourism helps to preserve and develop local cuisines based on distinctive ingredients supplied by local and indigenous farmers and can support traditional cultural celebrations and performing arts that would otherwise disappear[17]. Nevertheless, the lack of reliable tourism data in geotourism destinations is a challenge to the monitoring and evaluation of its impacts, especially in developing countries.

13. Fernandes, Castro & Tracana (2021); Wang, et al. (2019); Wang, Tian & Wang (2015); Farsani, Coelho & Costa (2011)
14. Newsome & Dowling (2018)
15. Leung, Spenceley, & Hvenegaard (2018)
16. Fernandes, Castro, & Tracana (2021)
17. Zangmo, et al. (2014)

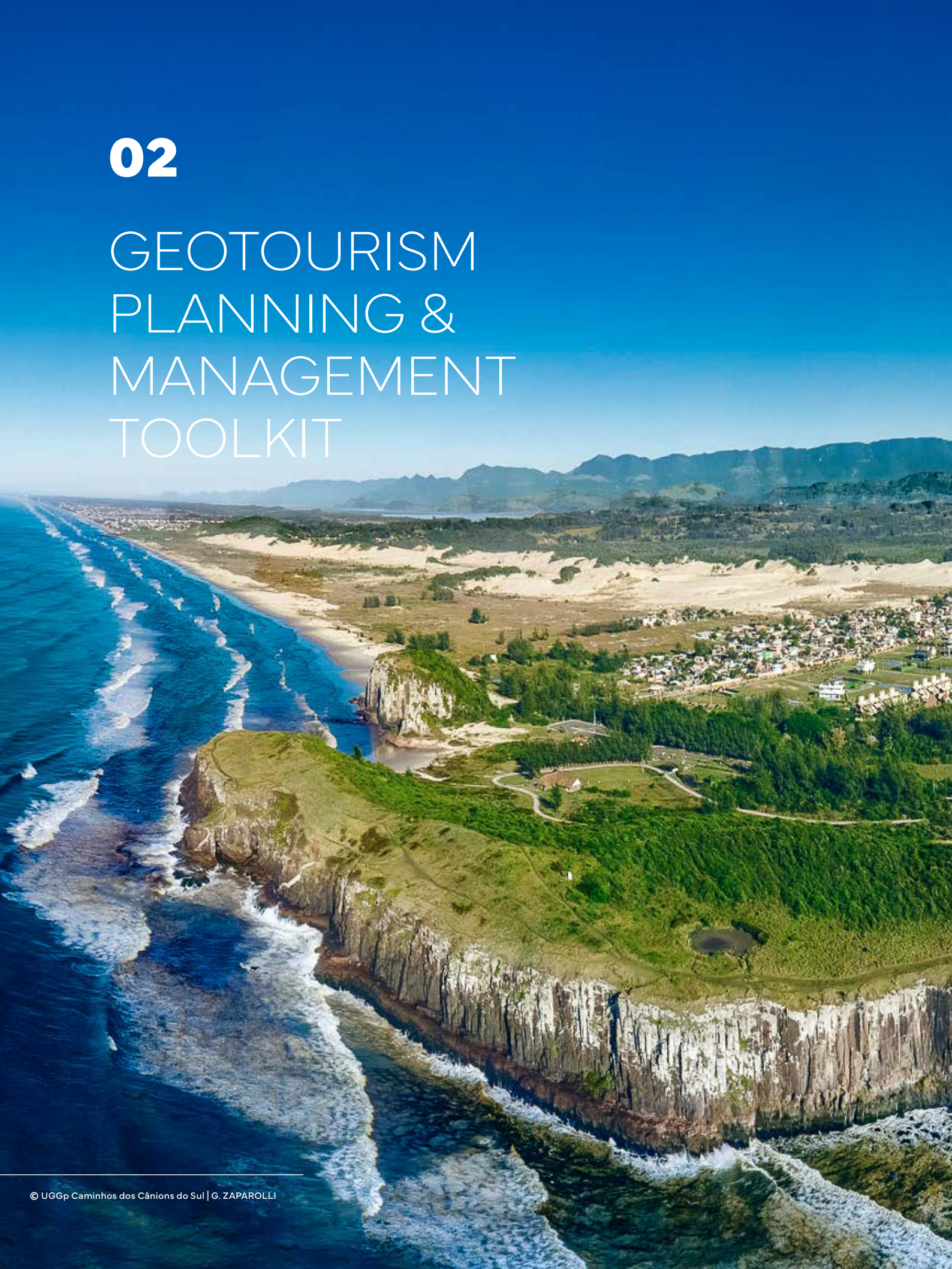
TABLE 1.1 — Potential Benefits of Tourism in UGGps and Protected Areas.

Source : IUCN (2010); Spenceley, et al. (2015); Leung, Spenceley & Hvenegaard (2018); Olson & Dowling (2018)

TYPE	POTENTIAL BENEFITS
ENVIRONMENTAL	• Provide public education on conservation issues and needs. • Transmit understanding and greater appreciation of natural values and resources through experiences, education and interpretation. • Create awareness of the value of natural resources and protect resources that otherwise have little or no perceived value to residents, or are considered a cost rather than a benefit. • Support research and development of good environmental practices and management systems to influence the operation of travel and tourism businesses, as well as visitor behavior at destinations. • Support environmental and species monitoring through citizen science volunteers. • Ensure positive externalities from the conservation of biodiversity associated with geodiversity. • Provide learning sites to understand better the ecological and geological dynamics to define carrying capacities of the sites.
ECONOMIC	• Generate economic benefit to a nation, region or community to strengthen the commitment to conserve the natural area and its wildlife. • Increase jobs and income for local residents. • Stimulate new tourism enterprises and diversify the local economy. • Improve local facilities, transportation and communications with greater sustainability. • Encourage the local manufacture and sale of goods and provision of services. • Access new markets and foreign exchange. • Generate local tax revenues. • Enable employees to learn new skills. • Provide financial support to protected areas through payment of tourism fees and charges. • Foster innovation and new start-ups led by youth communities. • Promote and sustain creative economy while preserving traditional knowledge and practices.
SOCIO-CULTURAL	• Improve living standards for local people. • Encourage people to value and take pride in their local culture and protected areas. • Support environmental education for visitors and local people, and foster greater understanding of cultural heritage values and resources. • Establish attractive environments for destinations, for residents as much as visitors, which may support other compatible new activities (e.g. service or product-based industries). • Improve intercultural understanding through social contact. • Encourage the development and conservation of culture, local healthy food, crafts and the arts. • Promote aesthetic, spiritual, health and other values related to well-being. • Improve physical health through recreational exercise (e.g. walking, cycling). • Contribute to mental health by reducing stress and fatigue. • Raise the profile of conservation at local, national and international levels. • Interpret values, conservation issues and management issues for visitors.

02

GEOTOURISM PLANNING & MANAGEMENT TOOLKIT



Geotourism planning and management should adopt an inclusive approach to ensure that geotourism management plans (GMP) are integrated into national and international strategies and plans. The GMP should account for international multilateral environmental agreements (MEAs), relevant UN processes, such as the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework, the Sustainable Development Goals and others **(FIGURE 2.1)**. The GMP should aim to harmonize geoconservation goals with tourism development, leading to sustainable economic growth and increased awareness of geological heritage. This requires a thoughtful, collaborative and inclusive approach bringing together all relevant stakeholders from the public and private sectors who work on geoheritage preservation, natural resources conservation and management, and sustainable tourism development.

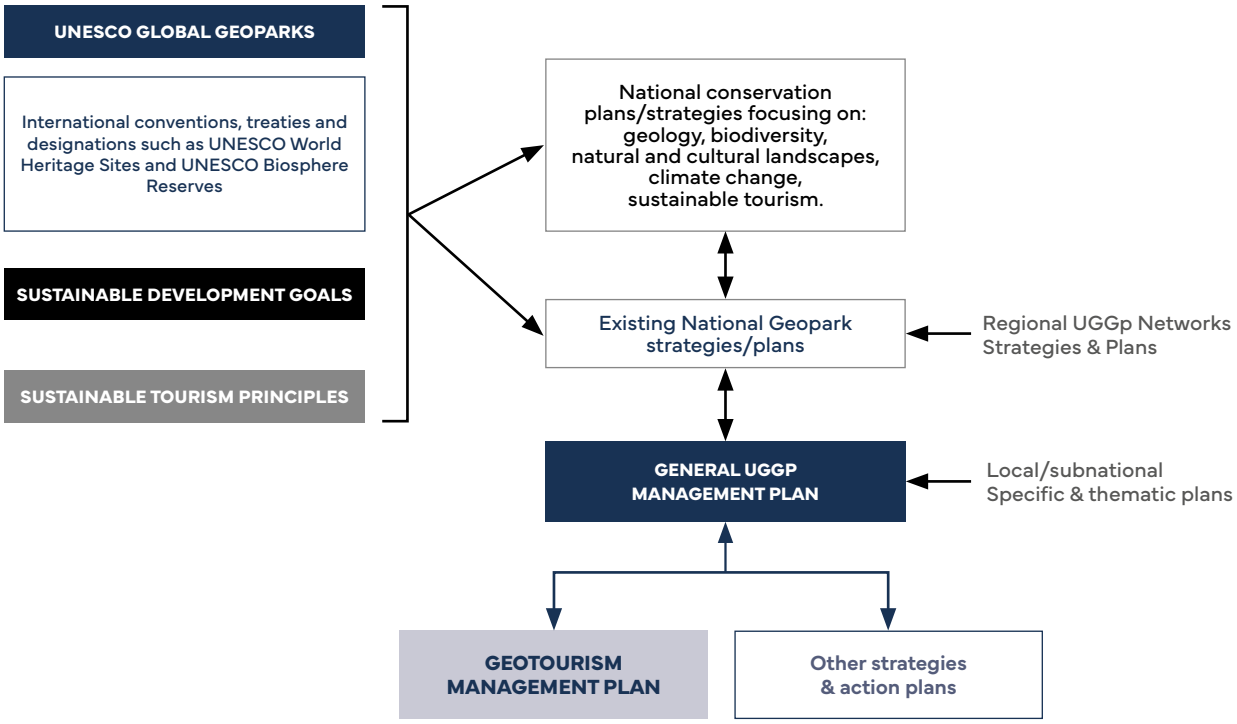


FIGURE 2.1 — Integration of GMP with national and international conservation plans.

UGGp managers and geotourism planners should design geotourism strategies and action plans for a period ranging from five to ten years. Such strategies have to be dynamic and adaptive to be continuously improved based on new insights and changing circumstances about sustainability issues and tourism trends. Thus, elaborating and implementing a GMP requires ongoing collaboration, adaptability, agility and commitment to sustainable practices and community engagement.

FIGURE 2.2 summarizes the different steps to develop and implement a GMP. Each of the steps is further described in its own section, along with corresponding tools, examples and case studies.

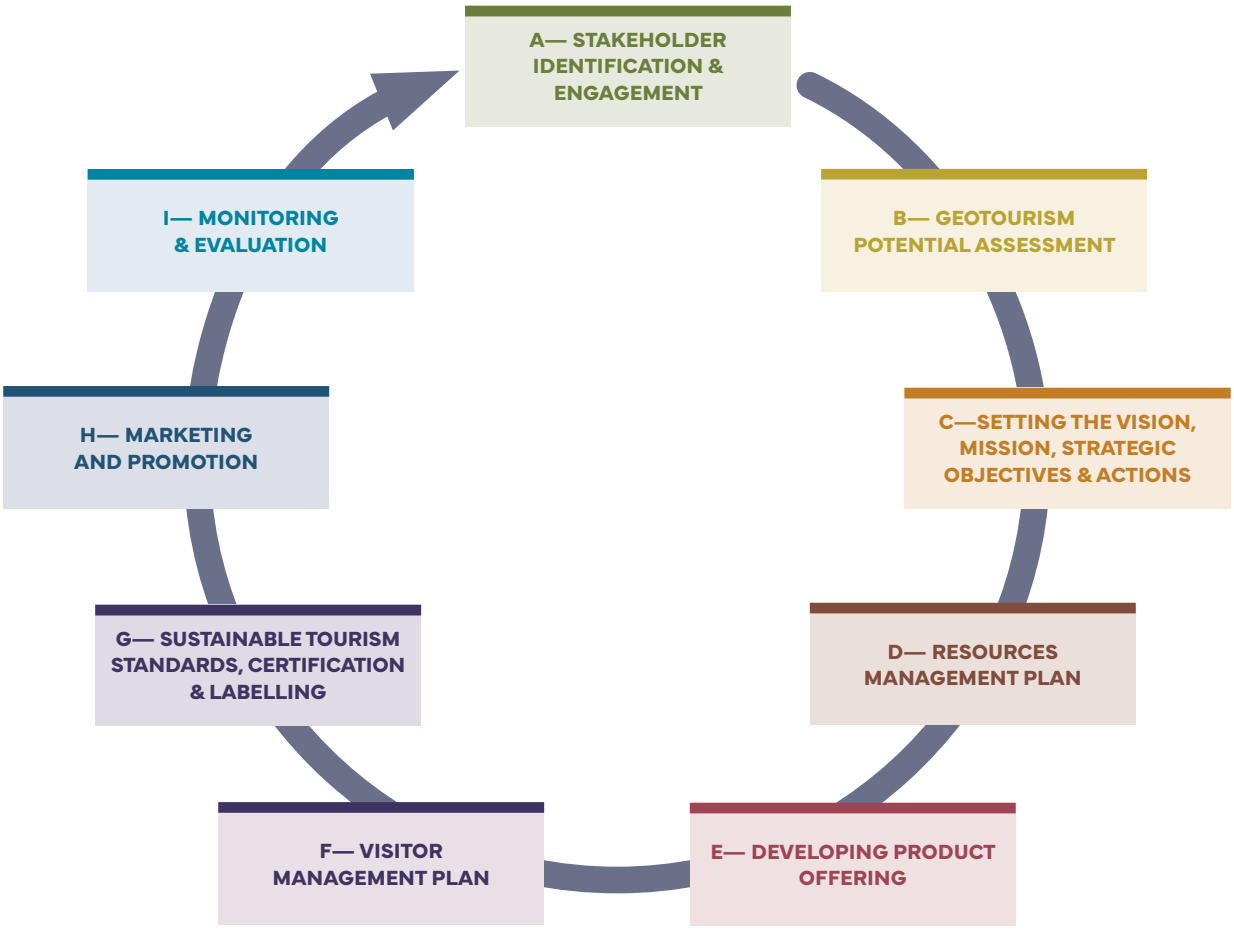


FIGURE 2.2 — Nine-step guide to develop a GMP

EXHIBIT 1

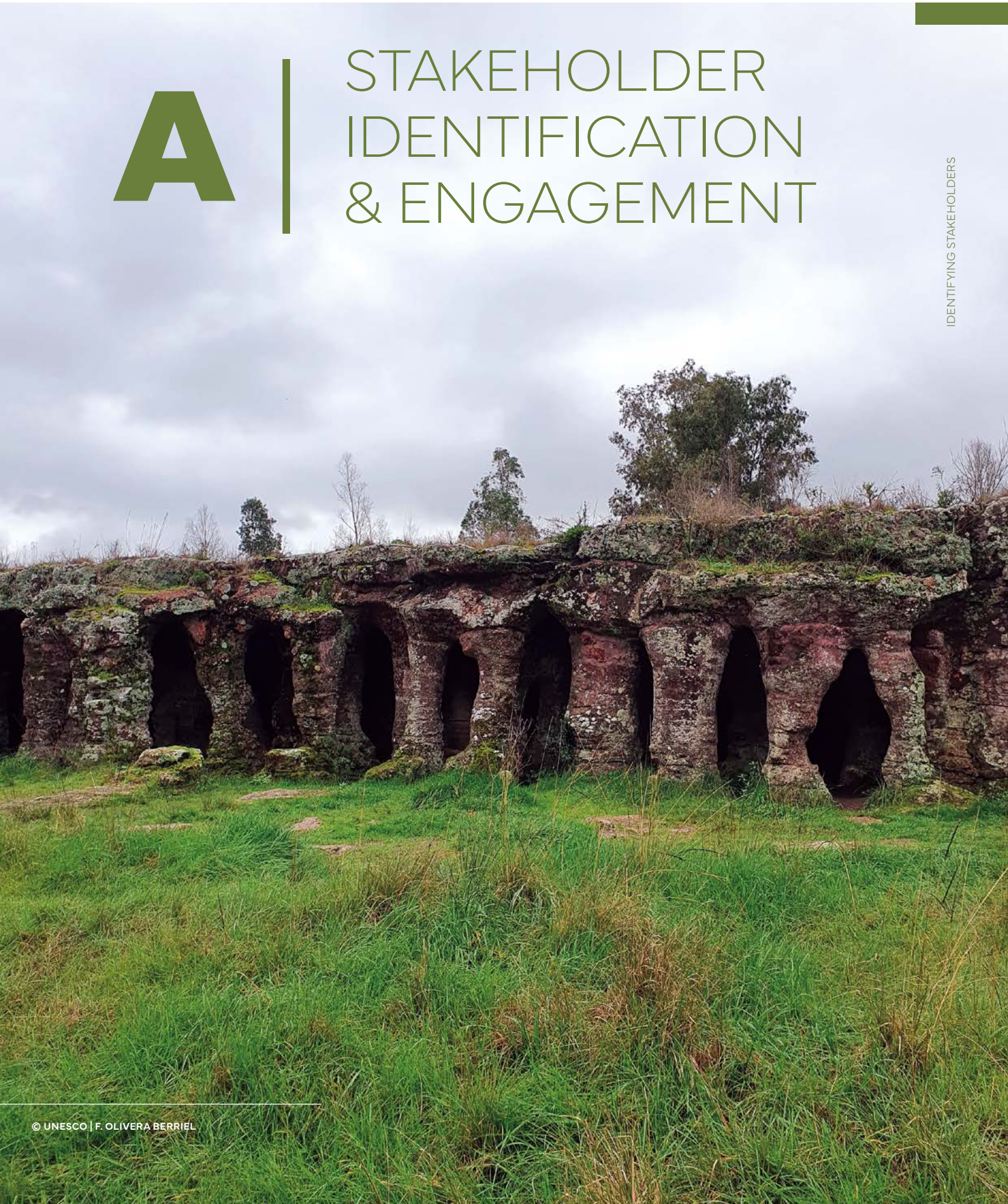
Geotourism Management Plan
Success Factors

Source: (Atlantic Geoparks, n.d. *www.geoparktoolkit.org/governance/*)

"To be successful, it is suggested that [geotourism] action plans have the following:

- **Ownership:** one person must be responsible and accountable for tracing progress, keeping team informed, ensuring timely action and adjusting the actions.
- **Actions steps** should be clear and actionable.
- **Responsibility:** each action should have a responsible entity/person.
- **Support:** determine who will support the person responsible. This can be multiple people.
- **Informed:** keeping the right people informed for each action is critically important. Key people need to know the progress of each action to see how they affect other actions and objectives.
- **Metrics and budget:** each action must have a budget and metrics tells us that the action is complete.
- **Timeline and Milestones:** actions should have a duration, start date and end date."

A | STAKEHOLDER IDENTIFICATION & ENGAGEMENT



A— Stakeholder Identification & Engagement

Planning and managing geotourism in a sustainable way requires a bottom-up approach which allows the involvement and participation of Indigenous Peoples, local communities, and tourism-related businesses in the decision making process. It also requires linking the geotourism strategy to the mission and vision of the UGGp and building a story to be told to tourists about the UGGp together with the relevant stakeholders. Thus, it is recommended that UGGp managers start by leveraging their partnerships and networks across the territory to build engagement and ensure ownership of the geotourism management plan from the very start of the process. This includes working with key stakeholders, including Indigenous Peoples, to develop a storyline so that all tourism stakeholders can contribute to telling the story of their territory as they would wish to share it with visitors. In this way, the resulting strategy prioritizes local economic development.

Tool A.1 offers an overview of key steps in this process, while the remainder of step A provides tools, key terms and exhibits to build stakeholder groups for geotourism.

>>

—

TOOL A.1
IDENTIFYING STAKEHOLDERS & ENGAGING INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

Sources: Jamal & Getz (1995); Ashley & Roe (1998); Farsani, Coelho & Costa (2011)

STAKEHOLDER IDENTIFICATION	• **Identify key stakeholders:** make a list of individuals, organizations, and groups that have a stake in the development of geotourism. These may include government agencies, local businesses, non-governmental organizations (NGOs), academic institutions, Indigenous Peoples' organizations and governments and local civil society organizations. • **Categorize stakeholders:** categorize stakeholders based on their level of influence and interest in the geotourism project. This can help prioritize engagement efforts. • **Map stakeholder networks:** Create a stakeholder map to visualize relationships, connections, and potential collaborations among stakeholders.
FREE PRIOR, INFORMED CONSENT AND LOCAL COMMUNITY ENGAGEMENT	• **Community assessment:** conduct a thorough assessment with Indigenous Peoples and local communities to understand their cultural, social, and economic dynamics. Identify their needs, aspirations, concerns, and existing knowledge about the UGGp, its geological features, and tourism in general. • **Indigenous Peoples:** Where Indigenous Peoples are involved, ensure free, prior, informed consent and full and effective participation in accordance with their rights and the UNESCO policy on engaging with Indigenous Peoples (see **TOOL A.2** and **FIGURE A.3**). • **Community meetings and workshops:** organize community meetings and workshops to introduce the geotourism project, explain its potential benefits, and gather community inputs. Encourage open discussions and address any questions or concerns. • **Participatory planning:** involve Indigenous Peoples and local communities in the planning process, allowing them to contribute ideas and suggestions for geotourism activities, infrastructure, and interpretation. • **Capacity building:** provide training and capacity-building programs that empower IPLCs to actively participate in geotourism initiatives. This can include skills development in guiding, interpretation, and entrepreneurship. It can also involve supporting existing businesses to become more sustainable or more respectful of indigenous and local knowledge and culture. • **Cultural sensitivity:** respect and incorporate indigenous and local cultural values and practices into the geotourism project. Ensure that activities and interpretation align with the Indigenous Peoples' and communities' traditions and beliefs. Include capacity-building on safeguards for collective and individual property rights. • **Benefit sharing:** develop clear protocols and agreements for how the geotourism project will benefit Indigenous Peoples and local communities economically, socially, and environmentally. Examples of useful tools include bio-cultural community protocols and national instruments for implementing the Nagoya Protocol on Access and Benefit-Sharing.

FIGURE A.1 — Tourism stakeholder roles

Source: Adapted from UNWTO (2013)

Tourism is a multi-faceted activity with many different stakeholders engaged in it or affected by it, directly and indirectly. FIGURE A.1 represents the main stakeholders and their roles in the planning, development, management and delivery of sustainable tourism in general and geotourism in particular.

One of the main strategic objectives of a UGGp is to stimulate sustainable development and green, inclusive and equitable economies, mainly through the promotion of geotourism. UGGps should mobilize and engage all relevant stakeholders in a comprehensive bottom-up process[1]. Within this framework, geotourism focuses on building positive relationships between different stakeholders. They include the tourism industry and its service providers (outdoor companies, tour agencies, restaurants, food & beverage services and accommodation providers), territorial planners and investors, UGGps and protected areas managers, national governmental entities, regional and local governments, local authorities, non-governmental organizations, Indigenous Peoples, their autonomous authorities and organizations, local communities, researchers and scientists, universities, and the tourists/visitors themselves. Indigenous Peoples and local communities play a major role in geotourism, both in stimulating the process of geo-heritage valorization and expansion of the destination, and in increasing the quality of the tourist experience through geotourism operations and the provision of knowledge, services, facilities, and products[2].

FIGURE A.2 is a template of the stakeholder mapping and analysis matrix according to two main factors: a) their level of interest in geotourism; and b) their level of influence on geotourism. Based on these two factors, stakeholders can be grouped in four categories:

- **Engage Closely:** Key stakeholders to prioritize and engage closely with.
- **Meet their Needs:** Stakeholders who are not top priority, but the outcome should still meet their needs.
- **Keep Informed:** Stakeholders who are not as influential in the process but still need to be updated.
- **Less Effort:** Stakeholders to engage when necessary.

1. González, Palacios & Quelal (2022)
2. Fernandes, Castro & Tracana (2021)

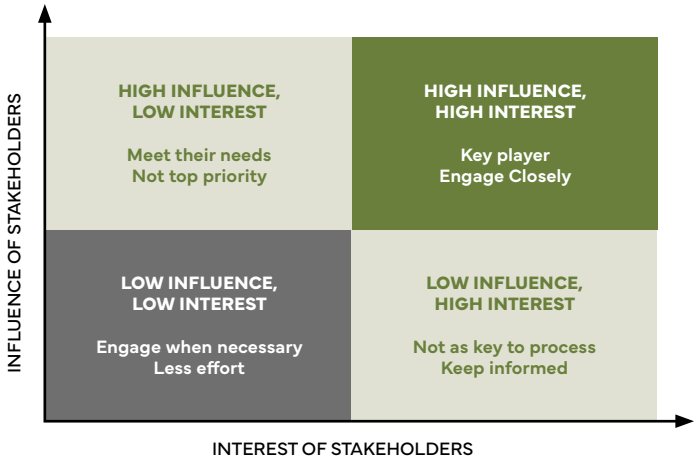


FIGURE A.2 — Stakeholder mapping and analysis matrix

Source: Adapted from *https://projectizing.com/stakeholders-analysis-powerinfluence-interest-matrix/*

Once all the stakeholders are added to the matrix, it is possible to see who would be most positively or negatively impacted by a decision or action related to the geotourism planning and management. As a result, UGGp and geotourism managers will have better stakeholder communication channels and problem-solving scenarios.

Depending on the UGGp's management structure, a range of options is available to engage with businesses. For example:

- Some UGGps have developed partnership schemes allowing enterprises to use the label "Geopark Partner" once they have signed up to a "Code of Good Practices" and, in some instances, paid a subscription to retain membership;
- Other UGGps have developed promotional campaigns through the establishment of "quality labels". These indicate that these businesses or products have achieved a standard of quality and sustainability, which align with certain established values and principles.

EXHIBIT A.1
The Code of Practice for Sustainable Tourism in the Burren and Cliffs of Moher UGGp, Ireland

Source: *https://www.burrengeopark.ie/* (accessed on 22 September 2023)
https://www.burrengeopark.ie/geopark-life/geopark-code-of-practice

"The Code of Practice for Sustainable Tourism is a framework for building sustainable tourism practices into tourism operations. It is also a framework for partnering with the Burren and Cliffs of Moher UGGp and for working with other tourism operators in the Geopark region. The Code is based on 6 principles that help a business move towards sustainable tourism practices:

1. **Working Together:** We collaborate with all stakeholders to collectively develop the Geopark as a sustainable tourism destination.
2. **A Cared-for Landscape:** We actively participate in conserving our natural and cultural heritage.
3. **A Well-Understood Heritage:** We offer quality information and interpretation to communicate our stories and the unique character of our place to guests.
4. **Vibrant Communities:** We work to ensure that tourism makes a positive social contribution so that it benefits our community as well as our guests. We aim to make our services available to the widest possible audience.
5. **Strengthened Livelihoods:** We contribute to the local economy by maintaining and supporting local employment, including of Indigenous People, by sourcing services and produce locally wherever possible, and by engaging with other businesses in promoting our region as a sustainable tourism destination.
6. **Sustainable Environmental Management:** We work to an Environmental Action Plan, which includes targets for improvement that are reviewed annually. We have effective systems for monitoring and adequately managing our waste, water, wastewater and energy."

TIPS
for Stakeholder Identification & the engagement of Indigenous Peoples and Local Communities

1. Remember that effective stakeholder engagement is an ongoing process that requires continuous communication, collaboration, and adaptation based on feedback and changing circumstances. Indigenous Peoples and local communities should be active partners in the geotourism development, and their perspectives should be integrated into the geotourism planning process and its implementation.
2. Stakeholders should not be considered in isolation and the relationships between them should be understood to include complex local relationships and potential conflicts that can have negative impacts. A fundamental requirement for sustainable tourism is for the various stakeholders to work effectively together in the planning and management of the sector. This should be based on the development of effective coordination and partnership structures at the international, national, and destination levels (UNWTO, 2013). This may require changing plans or even mediation.
3. Indigenous territories that coincide with UNESCO Global Geoparks have governance structures and representatives that must be part of the process from Step A. This should include working with formally chosen representatives to carry out free, prior informed consent processes with indigenous communities, supporting full and effective participation of indigenous representatives in all decision-making spaces, including indigenous women.

TOOL A.2
FREE, PRIOR INFORMED CONSENT WITH INDIGENOUS PEOPLES AND LOCAL COMMUNITIES[3]

Free, prior informed consent (FPIC) is a right, embedded in the universal right to self-determination and recognized in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). It allows Indigenous Peoples to give or withhold consent to a project that may affect them or their communities and it is required prior to the approval and/or commencement of any project that may affect the lands, territories and resources that Indigenous Peoples customarily own, occupy or otherwise use in view of their collective rights to self-determination and to their lands, territories, natural resources and related properties. In other words, any project that involves developing geological sites or cultural heritage that are customarily owned, occupied, or developed by Indigenous Peoples cannot begin until FPIC has been negotiated. It should be emphasized that FPIC enables Indigenous Peoples to negotiate the conditions under which the project will be designed, implemented, monitored and evaluated.

Although Indigenous Peoples have a right to FPIC, it is also increasingly recommended to carry out FPIC processes with local communities to ensure participation by all affected communities and demographic sectors to increase community engagement and, by improving inclusive decision-making processes, improving project outcomes in the long-term. FPIC processes, when properly implemented, require human and financial resources, as well as time. However, it is important to keep in mind that not only is FPIC a human right and, often, the law, but the process may also may be key to the long-term success of a tourism management plan, especially to ensuring that the plan supports the economic ambitions of those who are often most economically marginalized.

As FPIC is a rights-based process, the state is the primary duty-bearer, and some countries have FPIC protocols in place, which should be followed. In those cases where the state does not yet have a protocol in place or where complementary guidelines may be helpful, the United Nations Food and Agriculture Organization (FAO) has developed a *manual and toolkit for implementing FPIC processes* in English, French, Spanish, Arabic, amongst other languages.

The FAO FPIC Manual lays out a 6-step process for FPIC that should be tailored and adapted for each process **(FIGURE A.3)**. Many UGGps that include Indigenous Peoples and that coincide with indigenous territories have already completed some of these steps, lessening the time and resources required to complete the process for each individual project.

3. This section is adapted from FAO (2016).

Project Identification	**1.** Identify Indigenous Peoples' concerns and their representatives	DOCUMENT THE PROCESS
	2. Document geographic and demographic information through participatory mapping	
Project formulation	**3.** Design a participatory communication plan and carry out iterative discussions through which project information will be disclosed in a transparent way	
	4. Reach consent, document Indigenous Peoples' needs that are to be included in the project and agree on a feedback and complaints mechanism	
Project implementation	**5.** Conduct participatory monitoring and evaluation of the agreement	
Project closure	**6.** Document lessons learned and disclose information about project achievements	

FIGURE A.3 — Six steps in implementing free, prior informed consent process (from FAO. 2016, pg. 19)

In the case of many UGGps, special attention should also be paid to the full and effective participation of Indigenous Peoples' representatives on multi-stakeholder decision-making bodies. For instance, UGGp management committees, tourism clusters, destination management organizations and the technical committee that carries out the geotourism potential assessment should all include Indigenous Peoples' representatives.

Because of the communal nature of Indigenous Peoples' decision-making processes, FPIC must occur with indigenous communities to ensure the full and effective participation of their representatives on these bodies. It also ensures that the representatives have the tailored and culturally appropriate support that they require to be able to fulfil their roles appropriately. To give one example, step 3 in FIGURE A.3—the design and implementation of a participatory communication plan— is often overlooked, but is crucial to ensure the on-going flow of accurate information to all sectors of Indigenous Peoples' communities, including youth, women, the elderly, and persons with disabilities, in an appropriate language. Without such communication, which requires dedicated resources embedded in the tourism strategy, conflicts can arise, and Indigenous Peoples may withdraw their consent. They may also lose confidence in the ability of their representatives to represent their priorities and perspectives in decision-making contexts. An FPIC agreement, which is an on-going process that lasts throughout the course of the project, can also be seen as a framework for ensuring appropriate and on-going full and effective participation.

—

TOOL A.3
INTEGRATION OF GEOTOURISM INTO THE TOURISM VALUE CHAIN

UGGps as tourism destinations should engage with the wider tourism economy in order to harness the strength and diversity of stakeholders, to form linkages, and to accrue benefits.

It is important to understand the characteristics and dynamics of the tourism value chain and how economic activities in the tourism industry differ from other industries to understand how UGGps can accomplish this in the context of the tourism economy. In most economic activities, the product reaches the consumer through a series of linkages known as a value chain. In tourism, however, the flow is often opposite: the consumer travels towards the end product/service/experience through a chain of businesses including travel agents, outbound tour operators, airlines, inbound tour operators, local tour operators, and tourism service providers (FIGURE A.4).

At the destination level, the relationships are mostly horizontal between tour operators, service providers and the destination itself. Geotourism products should be developed through these horizontal linkages under a common vision and shared values. The shared vision can be further developed and articulated as a shared narrative. This includes sharing of benefits between multiple local stakeholders and the sharing of information and know-how. The vertical linkages represent marketing and sales channels that facilitate access to markets. The stronger the linkages – either vertical or horizontal – the more competitive the destination will be, and the more optimized its benefits will be to IPLCs and its diverse stakeholders whether they work directly or indirectly in the tourism industry.

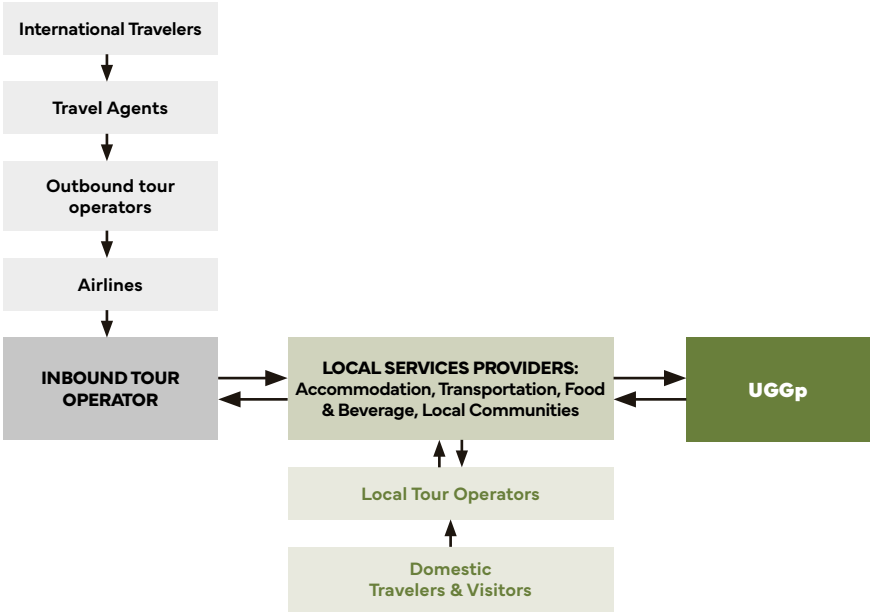


FIGURE A.4 — The structure of a tourism value chain

TOOL A.4
FORMATION OF UGGP TOURISM CLUSTERS

A tourism cluster is a group of stakeholders composed of tourism service providers (e.g., local tour operators, hotel and restaurant owners, tour guides, tourism shops, tourism attractions, museums, craft makers, farmers and local food and beverage producers of food and wine, cooperatives, transportation providers, etc.) and any other community member or organization involved in tourism planning and management (e.g. municipalities, local authorities, community leaders, local associations, indigenous organizations, youth clubs and groups, cooperatives, etc.) within a limited geographic area such as a UGGp. Community involvement can be through the formation of tourism clusters. A tourism cluster composed of engaged and diverse stakeholders can play an important role in sustainable geotourism development. Thus, all participants in a tourism cluster should:

- Be willing to collaborate and invest in geotourism development.
- Agree to and share the vision of developing one or more geotourism products following the UGGp objectives.
- If interested in having their products promoted through the UGGp, agree to meet all applicable regulations and standards regarding sustainability, quality and safety.

Tourism clusters are local networks of interconnected tourism-related businesses, services, and organizations that collaborate to enhance the overall tourism experience in a destination. These clusters foster collaboration, resource sharing, and innovation among businesses, resulting in improved competitiveness and sustainable development within the tourism industry.

Each UGGp is unique and will go about forming a geotourism cluster in its own way. Some may build on an existing structure, while others may form a new structure.

- **Forming a geotourism cluster from an existing structure:** UGGps, especially those that coincide with other site-based protection and tourism management models (such as World Heritage Sites, national protected areas, Biosphere Reserves, indigenous territories, etc.), may already have an existing structure for the territory covered by the UGGp. In this case, they may find it more effective to use these existing structures as a foundation and adjust according to the principles of geotourism.
- **Forming a new geotourism cluster:** For UGGps without an existing structure already in place, the geotourism cluster formation process can face challenges in terms of stakeholder mobilization and engagement, legal aspects, financial, technical and human resources. Creating alliances between the potential cluster and public-private stakeholders working in the conservation, tourism and community sectors is an important consideration for securing the long-term sustainability of the cluster.

TIPS
for Engagement with a Network and Cluster Formation

- Secure professional facilitation and co-ordination services.
- Invite the views of as many local tourism businesses as possible.
- Allow time for people to ask questions, understand and be inspired.
- Allow time for relationships and trust to build between tourism businesses.
- Set realistic objectives for progress that can be clearly measured and reported on.
- Enable tourism businesses to feel real ownership of the Network and its activities.
- Create opportunities for tourism businesses and policy-leaders to meet and collaborate.

FIGURE A.5 — Steps to form a geotourism cluster

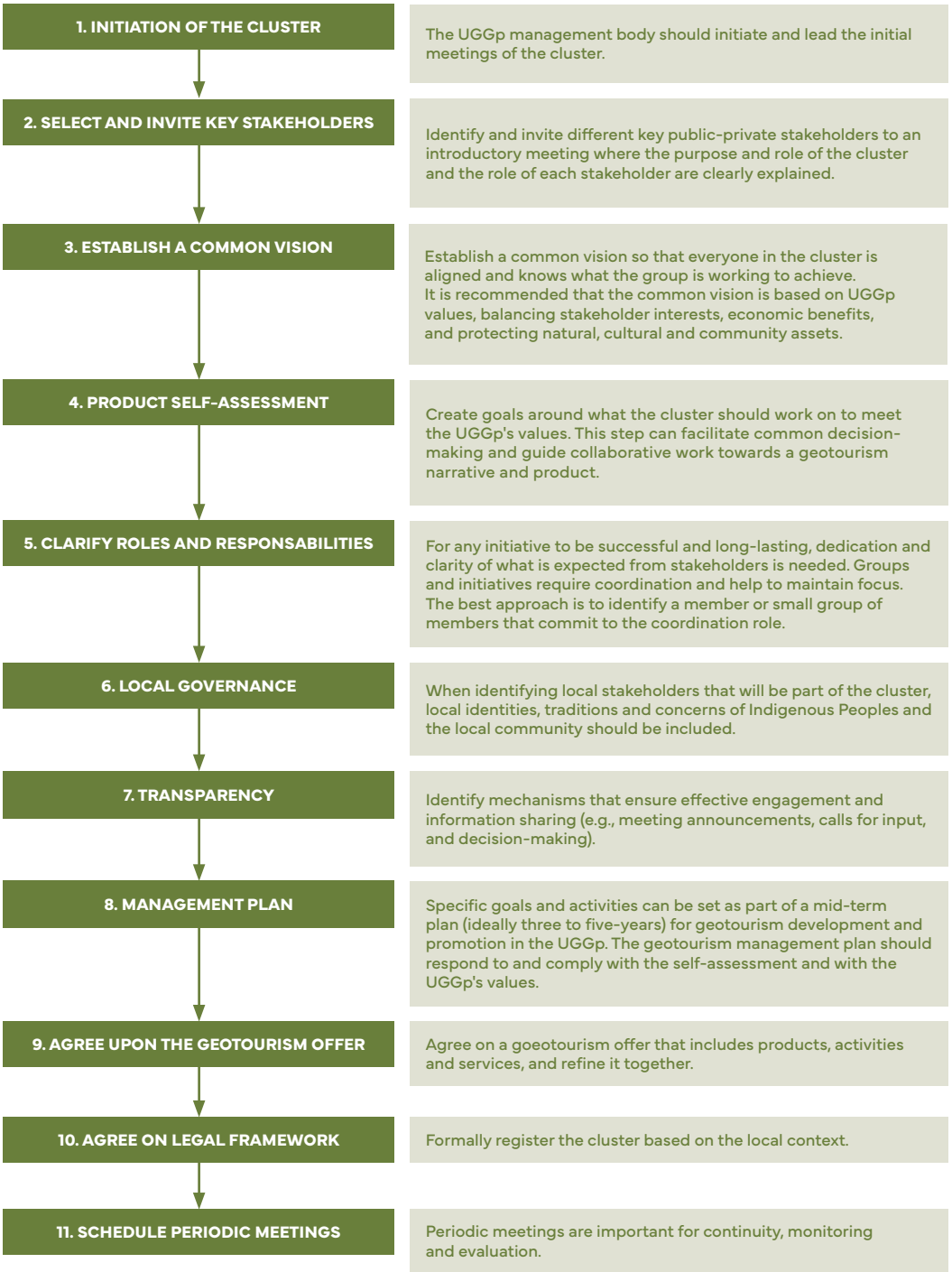


EXHIBIT A.2

Successful formation and management of a tourism cluster in the National Park of "Colline Metallifere Grossetane" – Tuscan Mining UNESCO Global Geopark, Italy
(This section from Noll, et al. 2019, pp. 30-31)

"The local tourism cluster of the National Park of 'Colline Metallifere Grossetane' in the Tuscan Mining UGGp (Colline Park) (*www.parcocollinemetallifere.it*) offers an example of how to involve a diverse set of stakeholders in the management of a destination and what a collaborative tourism product development process looks like. A participatory decision-making committee was created to support the park management body in planning its tourism offer and managing tourism flows based on the European Charter for Sustainable Tourism in Protected Areas (ECSTPA)[3]. This consists of around 60 members drawn from local entrepreneurs, public administrations and associations. On behalf of the UGGp, Colline Park initiated the creation of the tourism cluster by inviting the park management body, an association of local guides, a representative from the food and beverage and accommodation sectors (in rotation every six months), a local Inbound Tour Operator (ITO), and an ECSTPA facilitator to participate. One aspect that made the Colline Park cluster unique was the extent to which the park management body and ITO closely collaborated to create the tourism product, each bringing its unique strengths and expertise. The park's active role ensured that environmental conservation was taken into consideration in the design of the product and that the park's "inspirational" story and awareness of environmental issues played an important role in the traveler experience. The ITO's professionalism and expertise ensured that the tourism product had a market-centric perspective, was commercially viable and that the itinerary was well executed.

Key success factors:

- A shared vision, a joint definition of tourism-related goals specific to a protected area, and agreement to embark upon a collaborative process to negotiate and resolve issues.
- The involvement of a broad set of stakeholders resulting in paying special attention to a cooperative learning approach and conflict negotiation techniques.
- A recognition that the process of involving stakeholders must be guided by a skilled facilitator."

3. ECSTPA is a set of guidelines and principles developed by the EUROPARC Federation in collaboration with various stakeholders. The charter aims to promote sustainable tourism practices and the protection of natural and cultural heritage in protected areas across Europe. For more information about the ECSTPA: *https://www.europarc.org/sustainable-tourism/*

TOOL A.5
TRANSITION FROM TOURISM CLUSTERS TO DESTINATION MANAGEMENT ORGANIZATIONS

According to the UNWTO a destination management organization (DMO) is "the leading organizational entity which may encompass the various authorities, stakeholders and professionals and facilitates partnerships towards a collective destination vision"[5]. The following are the main characteristics that can inform their creation:

- DMOs can stem from non-formal groups which evolve to become formal entities, such as tourism clusters. Tourism clusters can be initiated or supported by the UGGp and composed of multi-sector stakeholders including public and private sector entities, as well as community representatives.
- DMO governance structures vary from a single public authority to a public-private partnership model. To a lesser extent entirely private models are found. The governance models of DMOs differ according to the areas to be covered and they increasingly require new ways of thinking and collaborating.
- DMO functions may vary from national to local levels, depending on the current and potential needs, as well as on the decentralization level of the public administration.
- The DMO should emerge as a key player in the development, management, and marketing of tourism at destination level, although its mandate and scope of action will be determined by its context, maturity of the destination, level of decentralization, priorities in the destination, resources and other factors.
- The starting point should be to assess the destination's current situation for which a consultation process should be conducted whereby all key stakeholders in the destination participate: both public and private, Indigenous Peoples and civil society organizations (local community and residents, academia, NGOs, among others).
- Once the scene is set, the DMO will be positioned to fix a road map and formulate a strategy for the destination adapted to the needs, competences and priorities resulting from this participative process.
- The successful performance of the DMO will be determined by its capacity to obtain the credibility and trust of all stakeholders in the destination and beyond its boundaries.

5. UNWTO (2019a)

TIPS
for a Transition from Tourism Clusters to DMOs and their management

Source: Ritchie & Crouch (2003); Page & Connell (2020)

Transitioning from a tourism cluster to destination management organization (DMO) within a UGGp involves a shift from informal collaboration to a more structured and coordinated approach. Moreover, creating a DMO within a geopark requires careful planning, collaboration, and commitment from all stakeholders. By following the below tips, UGGp managers can navigate the transition process smoothly and effectively and can enhance sustainable geotourism development.

- Stakeholder buy-in and awareness: communicate the benefits of transitioning to DMO to all stakeholders and highlight how a DMO can enhance destination branding, marketing, and overall tourism development.
- Capacity building: provide capacity-building programs for key stakeholders on DMO concepts, roles, and functions.
- Awareness raising: foster a clear understanding of how a DMO can contribute to sustainable tourism growth in the UGGp.
- Leadership and governance: establish a clear governance structure for the DMO, including a steering committee representing various stakeholder groups, and define roles, responsibilities, and decision-making processes within the DMO to ensure effective leadership and governance.

- Collaborative planning: engage stakeholders in collaborative and inclusive destination planning process to set goals, strategies, and action plans aligned with the UGGp vision and the geotourism management plan.
- Resource mobilization: secure funding and financial resources for DMO operations through a mix of public and private sector contributions, grants, and partnerships, and work to attract investments and boost local economies.
- Collaboration with IPLCs: continue engaging and involving Indigenous Peoples and local communities in decision-making and planning processes to ensure their full and effective participation throughout the process, and highlight how DMO activities can contribute to community development and empowerment.
- Communication and transparency: maintain open communication channels between the DMO and stakeholders, keeping them informed about developments, progress, and challenges, and build trust through transparency and active engagement.

Functions and Responsibilities of DMOs

The different and varied roles and responsibilities in destination management (FIGURE A.6) are handled in different ways in different destinations, but some common elements and approaches can be found. These elements should be ideally included in a DMO's remit when it is created.

Some central DMO functions may include:

- Strategic planning
- Formulation and implementation of the destination's tourism policy
- Market intelligence (data gathering and analysis, market research, etc.)
- Tourism product and business development
- Digitalization and innovation
- Monitoring
- Crisis management
- Training and capacity building
- Promotion, marketing and branding
- Funding and fostering investments

FIGURE A.6 — The main functions and responsibilities of a DMO

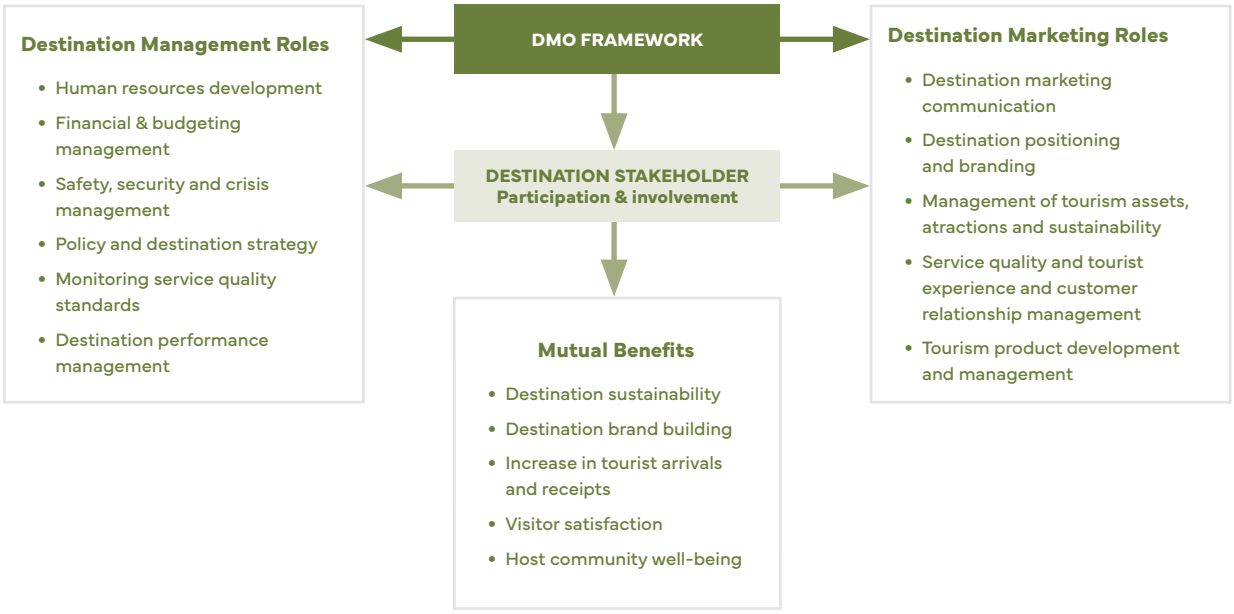


FIGURE A.7 — Destination management and marketing organization (DMO) framework

EXHIBIT A.3

English Riviera UNESCO Global Geopark (ER UGGp) and the English Riviera Business Improvement District Company (ERBIDCo), United Kingdom of Great Britain and Northern Ireland

Source: *https://www.englishriviera.co.uk/*

LOCATION: South Devon, England.

FEATURES/DESCRIPTION: Diverse range of geological, natural, and cultural heritage sites.

DMO MODEL: English Riviera UGGp is part of the DMO known as the English Riviera Business Improvement District Company (ERBIDCo).

Key marketing and promotion of the English Riviera UNESCO Global Geopark is a collaborative responsibility between core partner ERBIDCo, the area's Destination Marketing Organisation (DMO), and the UGGp marketing officer employed by Torbay Council. Since designation, the ERBIDCo has integrated the UGGp into its work, ensuring its promotion in destination marketing initiatives such as *www.englishriviera.co.uk*, the main destination website and social media. The annual, online, destination guide and tour visitors guide, alongside additional campaigns, promotional films and digital displays in key cities in the UK are also used to promote the UGGp. The ERBIDCo also runs the main English Riviera Visitor Information Centre which is open all year, dealing with visitor enquiries, displaying information and able to sell books, guide books and maps etc. This work is further supported by the geopark marketing officer who runs the ER UGGp specific social media sites, press releases, ensures the ERUGGp website is current with events and latest news. For many years this work was managed via separate annual marketing plans. However, in 2022 a geopark marketing strategy was developed, which brought these key lines of action together.

As a working document the Marketing Strategy will be reviewed at least annually to ensure it is fulfilling its remit to increase the ER UGGp's audience reach and to raise awareness of the UNESCO Status. The aim of the Marketing Strategy is to:

- Bolster core audiences, to generate income and become more sustainable and resilient

© Torbay Coast & Countryside Trust | MOTION GRAPHIX, T. SMITH

© ENGLISH RIVIERA BID COMPANY LTD.

- Represent and serve the communities in which we sit, demonstrating that we meet Local Authority priorities
- Share our Geopark with a broad audience, meeting our engagement and learning targets
- Extend the audience's reach and raise awareness of UNESCO status.

Objectives relevant to these aims are covered within the Action Plan.

The English Riviera has had to adapt to changing market needs, with the impact of Covid-19, climate crisis and the cost-of-living crisis providing new challenges. The current destination management plan (DMP) works to address this through making the UGGp one of the key growth priority themes and, as the vision states, a golden thread that runs through the visitor experience. The specific theme related to the ER UGGp recognises that UNESCO Global Geopark designation is an international mark of quality and distinctiveness. As UGGps are concerned with the connection between a landscape and people, the ER UGGp essentially tells the story of the English Riviera and the story of its landscape. The DMP highlights that using existing and new experiences and locations to tell those stories in original and imaginative ways is a key opportunity. For instance, through integrating the 'story of the landscape' into themes such as heritage, culture, food and drink and leisure will highlight and reinforce the UGGp designation. Sustainable tourism, geotourism and slow tourism initiatives can support the protection and interpretation of the landscape and can also reinforce the UGGp designation.

B | GEOTOURISM POTENTIAL ASSESSMENT

B— Geotourism Potential Assessment

An assessment of geotourism potential (GPA) in a UGGp is a step-by-step process to identify, select, classify, and document geological sites, in order to determine which ones have potential to be transformed into geotourism attractions and points of interest. This is a technical process involving geological and tourism experts, as well as key stakeholders, such as indigenous stewards of the sites, local landowners, and others.

Tool B.1 presents an 8 step strategy for such assessments, while the remainder of Step B provides tools, definitions and case studies to help carry out a GPA.

>>

TOOL B.1
EIGHT STEPS TO ASSESS GEOTOURISM POTENTIAL

Sources: Newsome & Dowling (2005); Brilha (2016); Farsani, Coelho & Costa (2011)

STEP	TASKS
1. PRELIMINARY RESEARCH & PLANNING	• Review existing literature, geological maps, and reports about the area to gain an understanding of its geological and geomorphological features. • Identify potential stakeholders, partners, and experts who can contribute to the assessment process.
2. STAKEHOLDER ENGAGEMENT	• Involve Indigenous Peoples and local communities, experts, and relevant organizations in the assessment process to ensure a holistic understanding of the geosites' values and potential impacts, as well as ensuring FPIC from the sites' stewards . • Seek feedback and input from stakeholders to refine the assessment and classification throughout the process.
3. IDENTIFICATION OF GEOSITES	• Conduct field surveys to locate and document potential geosites. Use geological maps, GPS technology, and field observations to pinpoint interesting features. • Document the geological, geomorphological, and paleontological attributes of each potential geosite. • Consider the scientific, educational, and cultural significance of each geosite.
4. SELECTION OF GEOSITES	• Develop criteria for evaluating the significance and suitability of each potential geosite. Criteria may include geological importance, accessibility, safety, educational potential, and cultural relevance. • Score each potential geosite against the established criteria to prioritize and select the most valuable ones.
5. GEOSITE CLASSIFICATION	• Classify selected geosites based on their characteristics. Common classifications include geological formations, landforms, and paleontological sites. • Assign categories such as scientific, educational, scenic, recreational, or cultural to each geosite based on its primary values.
6. GEOSITE ASSESSMENT & DOCUMENTATION	• Prepare detailed documentation for each geosite including: geological descriptions, historical and cultural context, accessibility information, and potential visitor experiences. • Develop maps, photographs, and diagrams to enhance the understanding of each geosites' features. • Carry out environmental, social and cultural impact assessments
7. VISITOR MANAGEMENT & INTERPRETATION	• Develop strategies for visitor management, including trail design, signage, and visitor facilities, while minimizing environmental impact. • Design interpretive materials, such as brochures, guidebooks, and digital resources, to educate visitors about the geological significance of each geosite.
8. MONITORING & CONSERVATION	• Establish a monitoring system to assess the condition of geosites over time and identify any potential threats or degradation. • Implement conservation measures to protect and preserve the geosites' geological and cultural values.

Key term

Geosites (synonyms: geotopes, Earth science sites, geoscience sites)[1]

Definition:

Geosites are specific "areas" or sites of scientific interest based on geology or geomorphology that can serve various purposes such as research, conservation, education, tourism, and sustainable development.

Characteristics:

- Geosites may be considered as portions of the geosphere of particular importance for understanding the Earth's history. Geosites can cover a few square meters to several square kilometers in size and have geological and scientific significance. Their geological characteristics (mineral, structural, geomorphological, physiographic) meet one or several criteria for classifying them as outstanding (valuable, rare, vulnerable or endangered).
- The different geosites that exist in a specific region represent its geological history and give an overview on the events and processes that shaped its landscape.[2]
- Geosites include important geographical development stages of volcanic eruption, erosion and sedimentation in the history of the earth and geomorphological characters of volcanic and fault zones. Moreover, geosites possess geologically important information of solid earth science, ore deposits, geological engineering, geomorphology, glacial geology, ground water, mineralogy, paleontology, petrology, sedimentology, speleology, stratigraphy, structural geology and volcanology.[3]

1. Rozenkiewicz, Widawski and Jary (2020)
2. Wartiti, et al. (2009); Beraaouz, et al. (2019); Carrión-Mero, et al. (2020); Suzuki & Takagi (2017); Reynard (2009)
3. Koh, et al. (2014)

Geosite functions:

- Testimonies of climate changes, tectonic evolution and the related changes in the history of life at the surface of the Earth. Models to reconstruct ancient processes, and of past climates, environments and geographies.
- Spaces/places to observe recent (Quaternary) and current processes and geological features.

Due to these functions and characteristics, geosites are considered to be heritage sites that should be conserved for future generations.

Geosites are integral components of geoheritage and can be classified as potential resources for geotourism, whereas only the ones of the greatest scientific value that, at the same time, are adequately prepared for the demands and impacts of tourism can be referred to as actual geotourism resources that can be transformed into the attractions that constitute the basis for creating geotourism offers (FIGURE B.1).

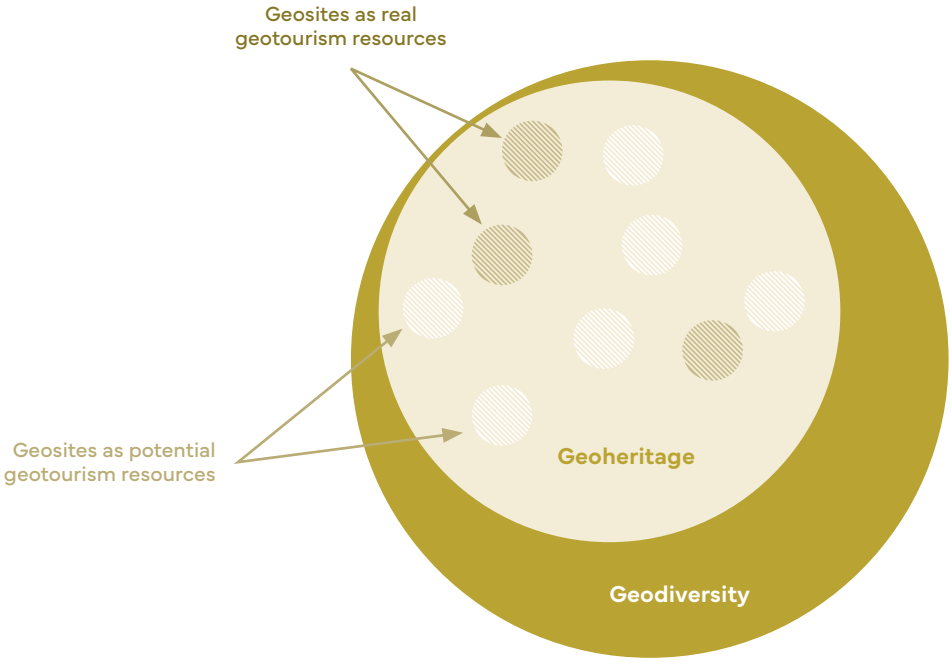


FIGURE B.1 — Interrelations between the basic 'geo-concepts'

Source: Rozenkiewicz, Widawski & Jary (2020, pg. 4)

TOOL B.2
IDENTIFICATION OF GEOSITES

The identification, classification, evaluation, mapping, protection and promotion of geosites add value to geotourism through the interaction between the cultural and natural aspects of the landscape (TABLE B.1)[4]. Geosites can be identified through the application of the singularity principle, *i.e.*, a place becomes a geosite due to some specific property it retains, which is acknowledged and valued by experts, and which is unique and therefore relevant for the understanding of the Earth's history and dynamics[5].

Geosites are characterized by diverse natural features, such as rocks, fossils, minerals, landscapes, soils and unconsolidated sediments, the natural rock landforms or landscapes and the dynamic processes that shape the physical environment, and the features that form the foundation for habitats and species (e.g. species adapted to caves)[6].

The identification of geosites, their geomorphological context, their importance and some cultural components (archaeological, historical, and architectural) constitute determining factors that can contribute to their economic and touristic valuation and, consequently, to their conservation[7].

4. Pereira & Farias (2020)
5. Rocha & Duarte (2022)
6. Ferron, et al. (2010)
7. Rais, et al. (2021)

FIGURE B.2 — Totoro Peak, Seridó UGGp, Brazil
(© G.L. DANTAS DE MEDIEROS)
Source: http://geoparqueserido.com.br/?page_id=7837

FIGURE B.3 — Bizungo Falls, Caminhos dos Cânions do Sul UGGp, Brazil
(© CAMINHOS DOS CÂNIONS DO SUL ARCHIVES)

FIGURE B.4 — Adala Volcanic Canyon, Kula-Salihli UGGp, Türkiye
(© Kula-Sahlili UNESCO Global Geopark)
Source: https://kulasalihligeopark.com/en/jeositler/

FIGURE B.5 — Larvik - Norway's national rock type in Larvik – Larvikite, Gea Norvegica UGGp, Norway
(© Gea Norvegica Geopark | M. HOLTE)
Source: https://www.geoparken.com/geo-sites/larvik

TABLE B.1 — Geosite typology and categorization

Source: Adapted from Ferron, et al. (2015); Chen, Lu & Ng (2015)

TYPE	DESCRIPTION
CAVERN	A natural underground cavity of sufficiently large size produced through the dissolution of the calcium carbonate making up the rock by surface waters containing dissolved carbon dioxide gas.
CAVE	A natural cavity of variable depth carved into bedrock, produced by geodynamic processes.
PALEONTOLOGICAL (FOSSILIFEROUS)	An outcrop or group of outcrops of surficial material or sedimentary rocks containing the remains, traces or imprints of geologically ancient or prehistoric preserved plants, animals, or bacteria.
MINERALOGICAL	An outcrop or group of outcrops containing one or more types of minerals of interest due to their composition or crystalline form.
LITHOLOGICAL	An outcrop, group of outcrops or natural monument made of rock that is interesting due to its composition, geological evolution, or phenomenology.
STRATOTYPE	An outcrop or group of outcrops representing a stratigraphic unit that constitutes a standard for defining and recognizing this unit or the boundaries of this unit.
CULTURAL	Geological elements linked to social heritage that has historical, archaeological, folkloric, or spiritual value.
LANDSCAPE	A parcel of land that was shaped by geological or geomorphic processes and which provides an interest due to its intrinsic aesthetic quality or it's relation to the Earth's evolution.
GEOSYSTEM	A parcel of land with an assemblage of rocks, soils or surficial deposits that, by their nature and association, constitute a geologically distinct environment.
ECOSYSTEM	A parcel of land where flora or fauna depend on a specific geological environment.
METEORITE IMPACT	An outcrop, group of outcrops or a parcel of land showing physiographic, lithological or structural features caused by the impact between a solid body from space and the Earth's surface.
GLACIAL STRUCTURES AND LANDFORMS	An outcrop, group of outcrops or a parcel of land showing physiographic features, deposits, or erosional marks associated with the passage of glaciers.
VOLCANOES	Active, dormant and extinct volcanoes, volcanic landscape and landforms, volcanic rock and soils, and volcanic cultural remains.
GEOTHERMAL	A geothermal system consists of three elements: a heat source covered by insulating rock to trap the heat, and a fluid to transport heat to the surface.
HYDROLOGY	Properties of the earth's water and its movement in relation to land, includes the water cycle, ground water systems, surface water and water bodies (sea, rivers, streams, lakes, springs, waterfalls, wetlands).
TECTONIC	Relating to the structure of the surface of the earth and the way it is formed, changed, and moved by forces inside it: the motion of the earth's tectonic plates.
MINING	The totality of surface and subsurface mining works, transport facilities, machinery, documents, or objects related to former mining activities with a historical, cultural, or social value.

TOOL B.3
CATEGORIZATION OF GEOSITES

Geosites can be categorized based on the following features[8]:

- Scientific feature: geosites constituting the most representative results of the processes and factors which shape the Earth's crust, leading to land formation;
- Cultural-artistic feature: geosites that are the source of artistic inspiration (painting, sculpture, and photographic art), material support for some works of art or natural framework for movie-making;
- Historical-archaeological features: geosites with a strong relationship with historical/archaeological elements (citadel, fortifications , historical industries based on geological features, such as mining or quarrying, etc.);
- Spiritual features: geosites with spiritual significance;
- Instructive-educational feature: the geosites that depict or aid in the understanding of the natural processes and mechanisms which led to their occurrence, as well as illustrating principles relating to environmental stewardship, especially in protected areas.

8. Kubalíková (2013); Kubalíková & Kirchner (2016)

The IUCN suggests an alternative set of criteria for geosite selection based on three primary categories of utilization: scientific, educational, and geotourism/ recreational purposes (TABLE B.2).

TABLE B.2 — IUCN criteria for the selection of geosites

Source: Crofts et al. (2020)

TYPE OF USE	CRITERIA
SCIENTIFIC STUDY	**Representativeness:** how well the geosite illustrates an Earth process or feature and makes a meaningful contribution to the understanding of the topic, process, feature or framework.
	Integrity: the present conservation status of the geosite, taking into account both natural processes and human factors.
	Rarity: the number of geosites representing similar geological features.
	Scientific knowledge: the extent of scientific information already published about the geosite.
EDUCATIONAL	**Educational potential:** the capacity of a feature to be easily understood by students of different educational levels (primary and secondary schools, universities).
	Geodiversity: the number of different types of geodiversity features and processes in the site.
	Accessibility: the conditions of access to the site in terms of difficulty and safety, and the amount of time students and visitors would need to spend on foot in order to learn about the geosite.
	Safety: related to the visiting conditions, taking into consideration minimum risk for visitors.
	Cultural and spiritual connection: link to cultural and spiritual values held by local communities.
GEOTOURISM/ RECREATIONAL USE	**Scenery:** the visual beauty of the landscape or feature.
	Interpretive potential: the capacity of the feature to be easily understood by non-experts.
	Accessibility: the conditions of access to the site in terms of difficulty and safety, and the amount of time the general public would need to walk the site.

TOOL B.4
GEOSITE ASSESSMENT METHODS

Quantitative methodologies exist that allow the assessment, selection, and classification of geosites[9]. Among the main methods are:

- The "Spanish Inventory of Places of Geological Interest" method or "IELIG" by its Spanish initials: "Inventario Español de Lugares de Interés Geológico"[10] which is a step-by-step evaluation process considering variables, such as intrinsic character, educational potential, and recreational tourism;
- The Brilha method, which provides a quantitative assessment of geosites with a focus on geoconservation[11];
- The Geosite Assessment Model (GAM) method, a preliminary model for the assessment of scientific/educational, aesthetic/scenic, protection, functional use, and tourism variables[12].

Within the context of geotourism development in a UGGp, the GAM method is the most recently developed and most comprehensive in terms of the number of factors taken into consideration to assess and classify geosites.

9. Herrera-Franco, et al. (2022)
10. https://www.miteco.gob.es/es/biodiversidad/temas/inventarios-nacionales/inventario-espanol-patrimonio-natural-biodiv/sistema-indicadores/05d-lugares-interes-geologico.html
11. Brilha J. (2016)
12. Vujicic, et al. (2011); Tomić & Božić (2014); Pasquaré Mariotto, et al. (2023)

Whatever method is used, a geosites assessment process focuses on two phases (inventory and management) and is based on central and additional values, with two potential uses: touristic and/or educational[13] (FIGURE B.6).

13. Reynard, et al. (2007); Reynard, et al. (2016)

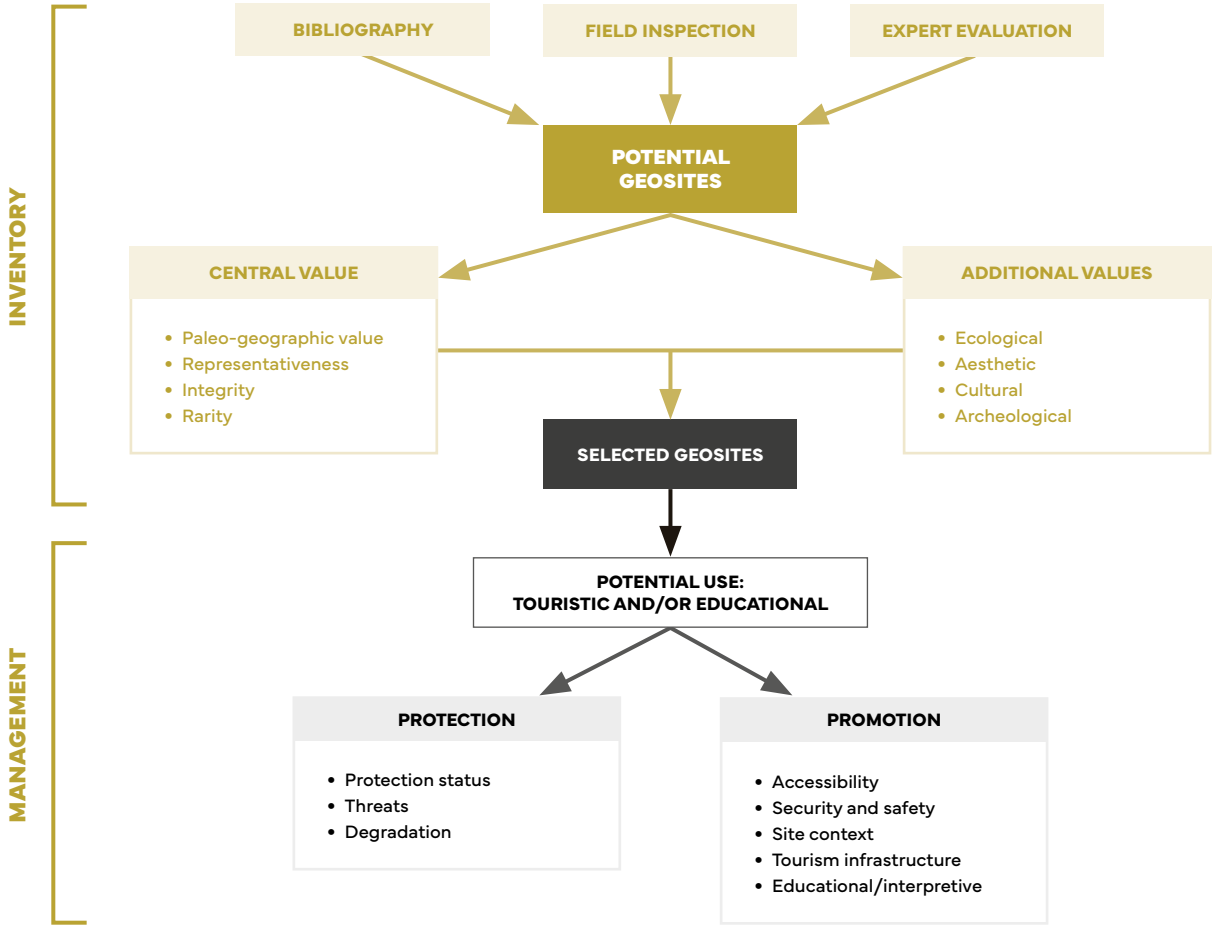


FIGURE B.6 — Geosites assessment process for touristic and educational use

Source: Reynard, et al. (2016); Reynard, et al. (2007); Sumanapala & Wolf (2022); Tormey (2019)

TOOL B.5
PROVISION OF INTERPRETIVE FACILITIES & SERVICES TO PROMOTE GEOSITES

In order to improve the appreciation of geosites, it is crucial to provide interpretive facilities and services as an integrated part of a sustainable geotourism development policy (FIGURE B.7). Geo-interpretation helps all visitors (students, tourists, and occasional locals) to understand and appreciate the significance and the importance of geological heritage and its protection for future generations[14].

14. Beraaouz, et al. (2019); Štrba, et al. (2020)

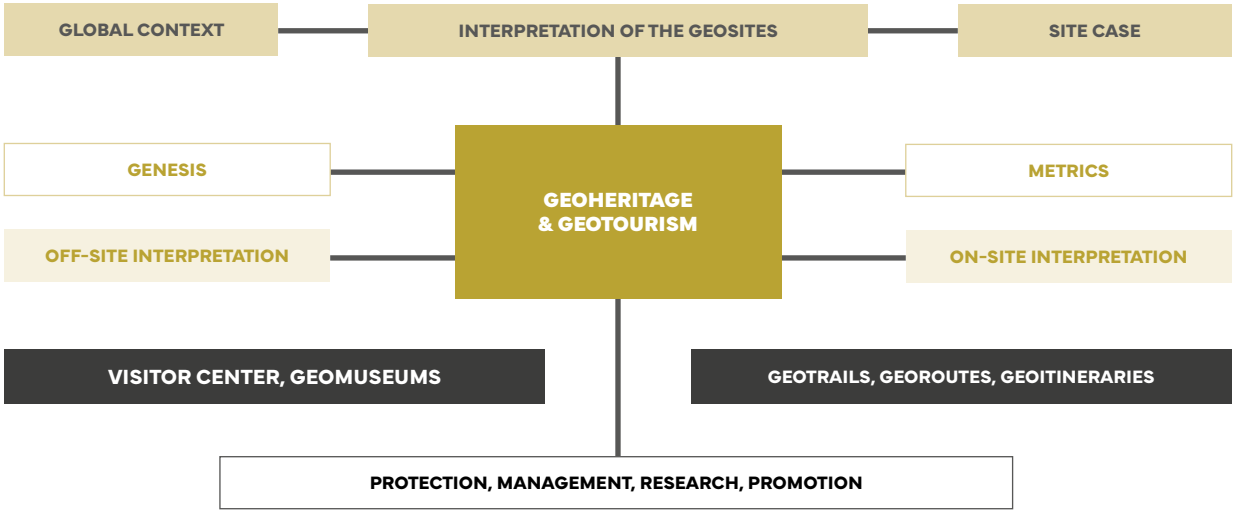


FIGURE B.7 — Geoheritage, geotourism and geo-interpretation

Source: Adapted from Pardo-Igúzguiza, et al. (2022)

Key term
Geo-interpretation and geo-education

Geo-interpretation is not only the transmission of information. Geoheritage communication needs to be popularized and in an accessible language rather than in the technical language of geoscientists[15]. Geo-education and geo-interpretation allow the construction of a new narrative about the development of a territory's own resources, the landscape, and how to guide this through policies[16].

Geo-education benefits:

- can help to increase recognition of geodiversity and geo-heritage at all levels.
- can have a positive effect on the behavior of visitors to geo-tourism attractions.
- can help maintain the geotourism activities at a manageable level.
- helps to avoid the overexploitation of geoheritage for geo-tourism purposes.

On the other hand, sustainable geotourism development can make geo-educational resources more accessible, available and in-demand[17].

15. Beraaouz, et al. (2019)
16. Frey, et al. (2006)
17. Kubalíková, Kirchner & Bajer (2021)

TOOL B.6
EVALUATING EXISTING TOURISM INFRASTRUCTURE & SERVICES IN A UGGP

Sources: Sharpley (2014); Page & Connell (2020)

UGGps are generally created in areas where tourism already exists. Therefore, once the geotourism potential assessment is concluded, an evaluation of the existing tourism infrastructure and services in the UGGp should be done. This evaluation helps ensure that the infrastructure and services effectively support geotourism development in the UGGp while providing a positive experience for visitors and ensuring sustainability goals. By conducting a thorough evaluation of existing tourism infrastructure and services, UGGp managers can identify areas for enhancement, create a more sustainable and visitor-friendly environment, and contribute to the overall success of geotourism.

STEP	TASKS
1. GATHER BASELINE INFORMATION & DATA	• Collect information about the current tourism infrastructure and services within the UGGp. This includes accommodation, food & beverage, transportation, visitor centers, trails, interpretation facilities, and other services and facilities. • When available, review existing reports, surveys, and feedback from visitors to gain insights into their experiences and satisfaction levels.
2. CONDUCT SITE VISITS & FIELD OBSERVATIONS	• Visit key tourism sites and attractions within the UGGp to assess the condition, accessibility, and overall quality of infrastructure. • Observe how visitors interact with the facilities and services and identify any potential bottlenecks or issues.
3. ENGAGE STAKEHOLDERS:	• Consult with Indigenous Peoples and local communities, tourism operators, businesses, and relevant authorities to gather their perspectives on the existing infrastructure and services. • Seek feedback on what areas need improvement or enhancement from those directly involved in providing and using the facilities.
4. EVALUATE ACCESSIBILITY & CONNECTIVITY	• Assess the accessibility of tourism sites, taking into account transportation options, road conditions, connectivity to nearby attractions, and safety conditions and measures. • Consider the convenience of public transportation, parking facilities, and pedestrian pathways and cycling paths.
5. ASSESS VISITOR FACILITIES	• Evaluate the quality and capacity of visitor facilities such as restrooms, picnic areas, viewpoints, and interpretation centers. • Check if these facilities meet safety and hygiene standards and are designed to accommodate different visitor needs.
6. REVIEW INTERPRETATION & INFORMATION SERVICES	• Evaluate the effectiveness of interpretive signage, displays, maps, and guided tours in conveying geological, ecological, and cultural information to visitors. • Ensure that information is accurate, engaging, and tailored to different visitor profiles.
7. VISITOR EXPERIENCE & SERVICES	• Analyze the overall visitor experience, including the level of customer service, hospitality, and the availability of amenities such as food and beverages. • Identify areas where additional services or improvements are needed to enhance the visitor experience.
8. SUSTAINABILITY & ENVIRONMENTAL IMPACT	• Assess the environmental impact of tourism activities and infrastructure. Consider waste management, energy efficiency, and water and biodiversity conservation efforts. • Explore ways to minimize the ecological footprint of tourism while providing a high-quality experience.
9. COMPILE FINDINGS & RECOMMENDATIONS	• Document the evaluation findings, highlighting strengths and weaknesses of the existing tourism infrastructure and services. • Provide clear and actionable recommendations for improvements, basing priorities on geotourism goals, impact and feasibility.

TIPS
for Geotourism
Potential Assessments

1. Each UGGp is unique, and the assessment process should be adapted to the specific context and resources available in your area.
2. Engage in collaborative partnerships with local experts (geologists, ecologists, archaeologists, and cultural experts, including Indigenous People), academic institutions and universities (researchers and students), government agencies (responsible for geology, tourism, economy, environment, heritage, and safety), international organizations, non-governmental organizations (focusing on conservation, education, tourism and community development), and tourism industries (local tour operators, guides, and hospitality businesses), throughout the geotourism potential assessment. These collaborative efforts bring diverse perspectives, knowledge, and resources to the table, enriching the assessment process and its outcomes. By fostering collaborative partnerships, you can tap into a wealth of knowledge, build a sense of ownership among stakeholders, and create a more comprehensive and well-rounded assessment.
3. Keep in mind that not all geosites are appropriate for geotourism, because of their sensitivity, particular hazards (e.g. volcanic eruptions) or other management constraints. For example, geosites with rare fossils and minerals need protection from the activities of commercial collectors and irresponsible collecting, which can damage the scientific interest and reduce opportunities for more research. Some sites may have cultural or historical significance, which renders them out of bounds to visitors. For instance, they may be sacred sites for the local Indigenous People. Other sites may be vulnerable to trampling or wear and tear, which could damage fragile forms such as new lavas.

There are a number of ways of controlling access, such as zoning certain areas as prohibited to visitors, or allowing entry only with a permit or accompanied by an accredited guide. In the case of other sensitive sites, an assessment of visitor carrying capacity may be required, both to protect fragile features and to maintain the quality of the visitor experience.

Where IPLCs welcome visitors to a site, geotourism evaluators should also recognize that they may hold different norms, values and interpretations of the landscape. They may also hold indigenous and local knowledge fundamental to sustainable management of the geotourism assets which may dictate how or when a site is managed, visited or exploited[18].

18. Crofts, et al. (2020)

C SETTING THE VISION, MISSION, STRATEGIC OBJECTIVES & ACTIONS

© G.L. DANTAS DE MEDEIROS

C— Setting the Vision, Mission, Strategic Objectives & Actions

The third step in the development of a geotourism management plan involves a structured approach to set the **vision, mission, strategic objectives, and actions**. This should include a participatory process of developing a narrative or story of the territory that is told to the visitors as they engage in various touristic activities. As it is developed together with local stakeholders, including Indigenous Peoples, it should be one that people are proud to share and happy to engage with from their diverse roles.

Step C consists of one tool with a series of steps to develop these key elements of a geotourism strategy and an example of a hypothetical geotourism management plan.

>>

TOOL C.1
STEPS TO SET THE GEOTOURISM MANAGEMENT PLAN VISION, MISSION, STRATEGIC OBJECTIVES & ACTIONS

Sources: Newsome & Dowling (2006); Farsani, Coelho & Costa (2011); Page & Connell (2020)

STEP	TASKS
1. STAKEHOLDER ENGAGEMENT	• Organize workshops and focus group discussions involving key stakeholders, including Indigenous Peoples, local communities, experts, businesses, and government agencies. Gather their input on the geotourism management plan's direction. • Conduct surveys and interviews to collect insights and perspectives from a wider range of stakeholders in and outside the UGGp area. This can help identify common goals and expectations.
2. NARRATIVE DEVELOPMENT	• Based on these surveys and interviews and together with the key stakeholders, develop a story of the territory—longer than a mission statement and vision—that can be told to visitors through activities, products, the landscape, throughout their stay. Brainstorm how this story can add value to the products offered. Together with the SWOT analysis, this analysis provides a foundation for crafting the vision, mission, and objectives.
3. SWOT ANALYSIS	• Analyze the UGGp's internal strengths and weaknesses as well as external opportunities and threats with focus on tourism in general and geotourism in particular. Together with the narrative development, this analysis provides a foundation for crafting the vision, mission, and objectives.
4. VISION AND MISSION FORMULATION	• Develop a concise and inspiring **vision statement** that describes the UGGp's desired future state. It should capture the essence of what the UGGp aims to achieve through geotourism. The vision should be formulated for the long term (at least 15 years). • Craft a clear and succinct **mission statement** that outlines the purpose and core activities of the UGGp in the context of geotourism. The mission should be formulated for the long term (at least 10 years).
5. STRATEGIC OBJECTIVES & ACTIONS	• Based on the vision and mission, identify a set of **strategic objectives** that align with the UGGp's geotourism goals. These objectives should be specific, measurable, achievable, relevant, and time-bound (SMART). • For each strategic objective, outline a series of **actions or initiatives** that must be taken to achieve the objectives.
6. RESOURCES' ALLOCATION & PRIORITIZATION	• **Allocate** necessary resources, including financial, human, and technical resources, to each action. • **Prioritize** the strategic objectives and actions based on their potential impact, feasibility, and alignment with the UGGp's values and priorities. • Create a clear timeline for all actions.
7. PERFORMANCE INDICATORS & MEASUREMENT	• Define **key performance indicators** (KPIs) to measure the success of each strategic objective and action. KPIs should be quantifiable and trackable over time. • Establish a **monitoring and evaluation framework** to regularly assess progress toward achieving the geotourism management plan's goals.
8. REVIEW & ADAPTATION	• Periodically **review and revise** the geotourism management plan based on changing circumstances, new opportunities, and lessons learned. The review can be done on a yearly basis or when needed. • Engage stakeholders in the review process to ensure continued alignment with their needs and aspirations.

Hypothetical example of a Geotourism Management Plan for a UNESCO Global Geopark

Vision: To be a world-renowned UNESCO Global Geopark that celebrates the geological, cultural, and ecological heritage of our region, inspiring sustainable tourism experiences that enrich the lives of visitors and contribute to the well-being of Indigenous Peoples and local communities.

Mission: We are dedicated to preserving and displaying the geological wonders, cultural treasures, and unique ecosystems of our UGGp. Through responsible and immersive geotourism, we aim to foster appreciation, education, and collaboration among visitors, residents, and stakeholders, ensuring a harmonious balance between conservation and socio-economic development.

STRATEGIC OBJECTIVES & ACTIONS

Strategic Objective 1 Develop and promote a diverse range of geotourism experiences that showcase the UGGp's geological, cultural, and ecological assets.

Action 1.1 Develop themed geotrails for different visitor interests, such as geological exploration, cultural heritage, and eco-adventures.

Action 1.2 Train guides and tour operators to offer guided geotours, nature walks, and adventure activities that engage visitors and deepen their understanding of our unique geology.

Action 1.3 Design, build, and operate an interactive visitor center and geo-museum.

Action 1.4 Develop informative and engaging interpretation materials, including signage, brochures, and multimedia resources, to educate visitors about our geology and heritage.

Strategic Objective 2 Involve Indigenous Peoples and local communities in the planning, development, and implementation of geotourism activities.

Action 2.1 In accordance with the free, prior informed consent agreement ensure that a plan is in place for the long-term

Action 2.2 Based on needs identified in the FPIC negotiations, provide training and capacity-building programs for Indigenous Peoples to improve and build their geotourism ventures.

Action 2.3 Establish educational programs for schools and universities to foster a deeper understanding of Earth Sciences.

Action 2.4 Collaborate with indigenous and local artisans to create authentic souvenirs that celebrate the UGGp's cultural heritage.

Strategic Objective 3 Implement sustainable tourism practices to minimize the impact of visitor activities on our natural and cultural heritage.

Action 3.1 Measure the carrying capacity of the UGGp and its different geotrails and geosites and monitor visitors' impact.

Action 3.2 Provide training and capacity-building programs for tourism businesses to adopt sustainable tourism practices.

Action 3.3 Elaborate a code of conduct and raise awareness among tourism businesses.

Action 3.4 Support all geotourism partners to apply for sustainable tourism certification programs and a labeling scheme.

Action 3.5 Collaborate with conservation organizations to protect sensitive areas and promote environmental awareness.

Action 3.6 Conduct regular environmental impact assessments to identify and mitigate potential threats to sensitive areas.

Strategic Objective 4 In keeping with the narrative developed in tool C.1, create a compelling geotourism brand that highlights the UGGp's unique features and experiences.

Action 4.1 Develop the UGGp and geotourism visual identity and brand.

Action 4.2 Develop and implement targeted marketing campaigns to attract nature enthusiasts and educational groups.

Action 4.3 Develop a user-friendly website and social media channels to promote geotourism and engage with potential visitors.

Action 4.4 Participate in national, regional and international tourism and geology fairs, events, and trade shows.

Action 4.5 Establish visitors' data collection and analysis system to evaluate and support marketing and promotion efforts.

D | RESOURCES MANAGEMENT PLAN

© J.R. FURLANETTO

D— Resources Management Plan

Careful consideration of human and financial resources is needed to ensure the successful implementation of a geotourism management plan. The following two tools consider these elements.

>>

TOOL D.1
KEY ASPECTS TO ADDRESS HUMAN RESOURCES AND STAFFING

Key aspects to address in relation to human resources and staffing include:

1. **Staffing Needs Assessment**
    - Conduct an assessment of the staffing needs based on the scope and objectives of the geotourism management plan.
    - Identify the required roles, responsibilities, and skills necessary for geotourism development, management, and promotion.
    - Consider positions such as geologists, interpreters, guides, visitor center staff, business developers, marketing professionals, project managers, and community liaisons.

2. **Job Descriptions and Recruitment**
    - Develop clear job descriptions that outline the roles, responsibilities, and qualifications required for each position identified in the staffing needs assessment.
    - Define the desired qualifications, such as relevant educational background, experience in geology, tourism, community development, marketing, geotourism or related fields, language proficiency, and interpersonal skills.
    - Advertise job openings through various channels, including online job portals, professional networks, local communities, or academic institutions.
    - Conduct a comprehensive recruitment process, including application screening, interviews, and reference checks, to select qualified candidates.

3. **Training and Capacity Building**
    - Provide comprehensive training programs for staff to enhance their knowledge and skills related to geotourism.
    - Offer training on geology, cultural heritage, interpretation techniques, visitor management, safety protocols, customer service, hospitality management, leadership, and sustainable tourism.
    - Collaborate with local experts, academic institutions, UNESCO Chairs, and geotourism organizations to provide specialized training opportunities.
    - Foster a culture of continuous learning and professional development among staff members.

4. Local Workforce Development

- Engage with local communities, including Indigenous Peoples and other stakeholders to identify opportunities for local workforce involvement in geotourism initiatives.
- Collaborate with local educational institutions to provide internship programs, apprenticeships, or training opportunities for students interested in geotourism.
- Empower and train local Indigenous Peoples and community members to serve as guides, interpreters, or ambassadors for geotourism experiences.
- Foster partnerships with local businesses and service providers to support the geotourism plan and create economic opportunities for the community.

5. Staff Retention and Motivation

- Implement strategies to retain talented staff members and maintain a motivated workforce.
- Offer competitive compensation packages, benefits, and career advancement opportunities.
- Foster a positive work environment that encourages teamwork, creativity, and employee engagement.
- Recognize and reward exceptional performance and contributions to the geotourism management plan.
- Provide opportunities for staff members to participate in decision-making processes and contribute to the overall development and success of geotourism initiatives.

6. Communication and Collaboration:

- Establish effective communication channels and protocols to ensure seamless coordination and collaboration among staff members.
- Encourage open and transparent communication to foster a sense of belonging and shared goals.
- Foster collaboration between different departments and teams involved in geotourism initiatives.
- Regularly hold team meetings, workshops, and training sessions to facilitate knowledge sharing and alignment of efforts.

Building a skilled and motivated workforce is essential for the successful implementation and management of a geotourism management plan. By investing in human resources and staffing, UGGps can ensure the delivery of high-quality geotourism experiences, effective destination management, and sustainable community development.

EXHIBIT D.1
Training & Capacity Building

In addition to providing training and capacity building for their geotourism staff, UGGps should target external stakeholders involved in the tourism value chain to help maximize the benefit of the UGGp designation in their local areas and to drive change. While the content of training and capacity building activities varies greatly, the general message of UGGps will stay consistent throughout, which, according to UNESCO, is to:

> "Use geological heritage, in connection with all other aspects of the area's natural and cultural heritage, to enhance awareness and understanding of key issues facing society, such as using our earth's resources sustainably, mitigating the effects of climate change and reducing natural disasters-related risks".[1]

This message is the core of every UGGp's operational rationale and should therefore be integrated into any training and capacity building related to geotourism planning, development and management.

1. https://www.unesco.org/en/iggp/geoparks/about

TIPS
for an Effective Human Resources Management & Staffing

Human resources management and staffing are crucial components of a successful geotourism program. Effective management of personnel ensures that the program runs smoothly, provides high-quality experiences for visitors, and contributes positively to the UGGp's goals. Here are some tips for human resources management and staffing in a geotourism program:

- **Clear Roles and Responsibilities:** define clear job roles, responsibilities, and expectations for each position within the geotourism program; and clearly communicate the goals and objectives of the program to all staff members to ensure alignment.
- **Recruitment and Selection:** recruit staff members with a passion for geology, natural and cultural heritage, sustainable tourism, and environmental conservation; and consider hiring local residents, including Indigenous Peoples, who have a deep understanding of the UGGp's history, geology, and community dynamics.
- **Interpretation Skills:** focus on developing strong interpretation skills among guides to effectively convey the geological and cultural significance of the UGGp's and its geosites.
- **Language and Communication Skills:** ensure that staff members are proficient in the languages commonly spoken by visitors, especially if the UGGp attracts an international audience; and foster effective communication skills to create a positive rapport with visitors and address their inquiries.
- **Safety and First Aid:** provide first aid and safety training to staff members to ensure the well-being of visitors during geotours and activities; and establish protocols for handling emergencies and ensure staff members are prepared to respond effectively.
- **Visitor Feedback and Adaptation:** empower staff members to collect feedback from visitors and use it to continuously improve the geotourism experience.
- **Recognition and Motivation:** recognize and reward staff members for their contributions and efforts in delivering exceptional geotourism experiences, and maintain a positive and motivated team by acknowledging their role in promoting the UGGp's mission.

TOOL D.2
KEY CONSIDERATIONS TO ENSURE GEOTOURISM FINANCING

Geotourism financing and investment involve securing financial resources to support the development, management, and promotion of geotourism in UGGps.

Key considerations and strategies related to geotourism financing and investment include:

1. **Developing a solid business plan**

   - Create a comprehensive business plan that outlines the geotourism management plan's objectives, strategies, market analysis, financial projections, and sustainability considerations of the project.
   - Clearly articulate the potential economic, social, and environmental benefits of the geotourism geotourism management plan or project to attract funding and investment.
   - Develop a business model for the UGGp and its geotourism services and activities that can generate revenue and direct income.

2. **Map funding sources or the landscape of geotourism finance**

   - Research and identify potential funding sources, such as government grants, private investors, international organizations, non-governmental organizations, development agencies, philanthropy, sponsors, or tourism-related funds.
   - Look for funding opportunities specifically focused on geotourism, sustainable tourism, rural development, conservation, or community initiatives.
   - Explore local, regional, national and international funding sources that align with the objectives and values of geotourism.

3. **Seek funding**

   - Apply for grants and funding from entities and organizations that support geo-conservation, geo-education and geotourism projects.
   - Highlight the positive impact of geotourism on local economies, job creation, community development, and environmental conservation to increase the chances of securing funding.
   - Engage with private investors, venture capitalists, or impact investment firms who are interested in sustainable tourism , ecotourism and geotourism.
   - Develop investment proposals that clearly demonstrate the potential return on investment and the unique value proposition of the geotourism project.

- Seek partnerships with private companies, tourism operators, or developers who can provide financial resources, expertise, or market access.
- Research philanthropic organizations, foundations, or non-profit entities that focus on sustainable tourism, environmental conservation, or community development.
- Align the geotourism management plan's or project's objectives and actions with the funding priorities of the potential funding entities and submit grant proposals or partnership applications.
- Explore opportunities for public-private partnerships (PPPs) where the public sector collaborates with private entities to develop and manage geotourism initiatives. PPPs can leverage private sector expertise, resources, and investment while ensuring alignment with the geotourism goals and community benefits.

4. Revenue Generation

- Develop a sustainable revenue generation model for the UGGp through geotourism related services and activities.
- Identify potential revenue streams, such as visitor fees and charges, guided tours, merchandise sales, concessions, or licensing agreements, events, equipment rental, etc. (TABLE D.1).
- Establish partnerships with local businesses, accommodations, or tour operators to generate additional income and create a mutually beneficial relationship.

5. Tourism Impact and Conservation Fees

- Advocate for the tourism impact or conservation fees to generate revenue specifically for geotourism development and management.
- Work with relevant authorities, tourism boards, or conservation organizations to establish a fee structure that aligns with sustainable tourism practices and supports geotourism initiatives.

TABLE D.1 — Examples of fees and charges that may be applied in UGGps and Geosites

Source: Drumm, et al. (2004)

FEE TYPE	DESCRIPTION
ENTRANCE FEES	For visits to areas and sites with controlled access.
ADMISSION FEES	For use of a facility or special activity, e.g., museum or photography event.
USER FEES	Paid by visitors to use facilities within the UGGp, e.g., parking, camping, visitor centers, boat use, shelter use, etc.
LICENSES AND PERMITS	For private tourism firms to operate in the UGGp territory or property, e.g., tour operators, guides, transport providers and other users.
CONCESSION FEES	Charges or revenue shares paid by concessionaires that provide services to the UGGp visitors, e.g., souvenir shops.
SALES REVENUES	Sales of local products and souvenirs produced by or branded by the UGGp.
TAXES	Such as on hotel rooms in the UGGp and vehicles accessing the UGGp.
LEASES AND RENT FEES	Charges for renting or leasing UGGp property or equipment.
VOLUNTARY DONATIONS	Cash, "in-kind" contribution and labor, often received through partners and "friends of the park". Mostly unconditional donations.

EXHIBIT D.2
Zhangjiajie UGGp, China, ticketing system

The Zhangjiajie UNESCO Global Geopark spreads over 398 square kilometres in Hunan Province, China. In 2007, it was recognised as one of the top-listed tourists attractions of 5A grade in China, including Wulingyuan Scenic Area, also known as Zhangjiajie National Forest Park (Tianzi mountain, Huangshi Village, Jinbian Creek, Yuanjiajie, Yangjiajie,Shili Gallery, etc.), Huanglongdong Scenic Area and Baofenghu Scenic Area. Tickets for visiting the three parts can be booked at Wechat app. [2]

2. This information is only illustrative based on information available in 2022. Actual prices, packages and availability may differ.

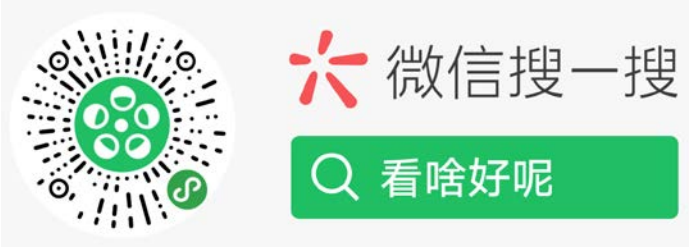


TABLE D.2 — Tickets for the Wulingyuan Scenic Area (Prices are as of April 2024. Actual prices, packages and availability may differ).

TYPES	IN SEASON (MARCH-NOVEMBER)		OFF SEASON (DECEMBER-FEBRUARY NEXT YEAR)	
	Full-price Ticket (Insurance excluded)	Discounted Ticket (Insurance excluded)	Full-price Ticket (Insurance excluded)	Discounted Ticket (Insurance excluded)
Admission Ticket + Eco-bus Fare Package	RMB 224/person	RMB 113/person	RMB 144/person	RMB 72/person
Admission Ticket	RMB 165/person	RMB 83/person	RMB 84/person	RMB 42/person
Eco-bus Fare	RMB 60/person	RMB 30/person	RMB 60/person	RMB 30/person
Annual Pass	RMB 298/person			
One-Way Ticket	**Full-price Ticket**		**Discounted Ticket**	
Tianzishan Cableway	RMB 72/person		RMB 36/person	
Yangjiajie Cableway	RMB 76/person		RMB 38/person	
Huangshizhai Cableway	RMB 65/person		RMB 33/person	
Bailong Elevator	RMB 65/person		RMB 33/person	
Shili Gallery Sightseeing Tram	RMB 38/person		RMB 19/person	

Securing geotourism financing and investment can be a complex and competitive process. It requires thorough research, effective communication, and a strong business case to attract the necessary financial resources. Collaborating with relevant stakeholders, demonstrating geotourism sustainability, and showcasing the potential positive impacts are key factors in successfully securing financing and investment for geotourism initiatives.

E | DEVELOPING A PRODUCT OFFERING

© P. VENTURA

E— Developing a Product Offering

Geotourism can take many forms, but it is recommended to provide a holistic tourism offering, based on experiences revolving around with geological heritage. This can be combined with opportunities for education and conservation, outdoor leisure experiences, a sense of adventure and exploration and linkages with cultural heritage.

The geotourism offering may not be entirely developed and run by the UGGp itself, but with a clear geotourism management plan, UGGps can provide business opportunities for partners to develop new ideas leveraging the UGGp and its heritage. Collectively, these new business opportunities have the potential to generate more economic opportunities, pride and community spirit for Indigenous Peoples and local communities.

The UGGp should therefore work closely with:

- Tourism enterprises, to develop a sustainable approach to tourism;
- Tourism agencies to manage tourism at sites of high natural conservation value;
- All tourism stakeholders, promoting quality training and providing tools for the understanding, valuation and interpretation of geological, natural and cultural heritage.

Tool E.1 offers an overview of developing geotourism products and offers. Tools E.2 through E.10 offer guidance on different types of products, for example geotrails, maps, events, geofoods and training geoguides.

>>

TOOL E.1
DEVELOPING GETOURISM PRODUCTS & OFFERINGS

Tourism product development, whether of new products or the rejuvenation of existing products, is the cornerstone of a successful tourism offering. There are two key aspects to tourism product development.[1]

- It is not an isolated activity, but is part of an on-going and strategic process;
- Market research, product development and marketing are all key steps in that logical process **(FIGURE E.1)**.

Failure in any one of these key steps will result in the destination not realizing its full potential. The variety and typology of tourism product offerings is what attracts tourists to a destination.

When **developing a geotourism product**, it is important to conduct an assessment of the destination – not only the geological resources, but also natural, social, economic and cultural resources, to understand its core natural, cultural, historical, culinary and other strengths and competitive advantages. Geotourism products should aim to highlight, promote and conserve features that are unique to that destination. In addition, focusing on local strengths and elaborating a specific narrative linking territory's features to geological heritage helps differentiate the geotourism product from other offerings in the region.

1. Romeo, et al. (2021)

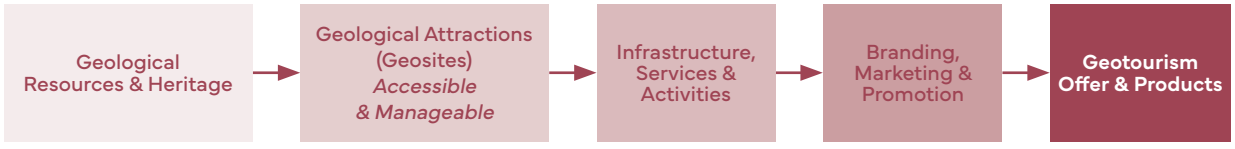


FIGURE E.1 — The process of developing geotourism products.

In terms of sustainability, tourism product development should follow three key principles[2]:

1. The product should be differentiated from competitors through comparative advantage, in enhancing experiences by developing new attractions and activities based on local natural and cultural resources.
2. The product should have the support of the host community, that is, tourism development with communities, not tourism development done 'for' communities.
3. The product should respect natural and sociocultural values.

Destinations should consider unique selling propositions (USPs) when developing tourism products to create offerings that are distinct from other destinations. In this way, visitors are given more reasons to visit more destinations, reducing potentially destructive competition.[3]

2. UNWTO (2011)
3. UNWTO (2022)

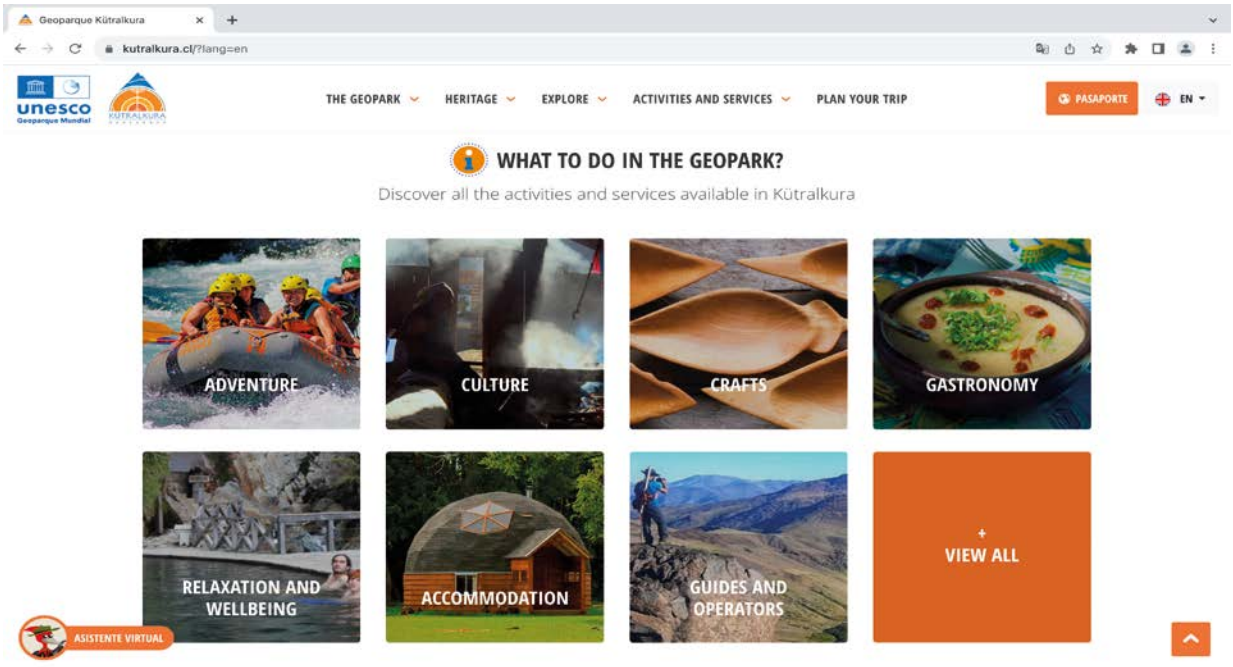


FIGURE E.2 — Geotourism products and experiences featured on a Kütralkura UGGp website, Chile
(© KÜTRALKURA UNESCO GLOBAL GEOPARK)

Source: *https://www.kutralkura.cl/?lang=en*

Key term
Unique Selling Proposition (USP)

A USP is what differentiates one product and destination from the others, particularly those which are superficially similar. It is the reason why tour operators and visitors decide to visit your destination and buy your products rather than others. To build the geotourism USP, UGGps managers should be able to answer the following questions:

- What features or characteristics does the UGGp have that others do not? (This should go beyond geology to include culture, history, cuisine, people, etc.)
- What does the proposed product offer specifically for the geotourism market and the target audience? (i.e. what is the added value for the target market?).

EXHIBIT E.1
UNESCO's vision of geotourism

Source: *https://www.geoparktoolkit.org/engaging-communities-businesses/*
(accessed on 22 September 2023)

"The UNESCO vision of geotourism is that UGGps provide a mechanism that promotes holistic experiences of nature combining leisure, enjoyment and adventure with the acquisition of information and knowledge. Such a mechanism opens the doors to business opportunities through the creation of new and differentiated tourism offers linked to geological heritage. This includes geo-branded products (geo-products, souvenirs and handicrafts), services (geo-tours, geo-restaurants, geo-bakeries) and recreational activities (geo-sports, geo-museums)."

Upgrading geotourism products to experiences[4]

- In a **growing competitive market**, it is crucial to upgrade geotourism products and transform them to immersive experiences which can make destinations more attractive.
- To transform a **geotourism product to an immersive experience, incorporate the "Three G's", geo-history, geo-interpretation, and geoconservation**.
- **Geotourism has great potential if visitor expectations are met with combination of interpretation** and immersive experience.
- **Geotourism experiences are easily coupled with other forms of tourism and activities** such as adventure, culinary, wellness, spiritual tourism, agro-tourism, and cultural tourism, all of which can add to the geotourism experience and make it immersive.
- Geotourism experiences **can bring together Indigenous Peoples, local communities and visitors** in the local landscape to mutually explore their different interests and perspectives on the Earth's formation.
- **Local geotourism businesses and community groups, including Indigenous organizations, should work together to provide and promote a distinctive, authentic visitor experience focusing on geological interpretation and education**.

4. Sumanapala & Wolf (2022); Dowling (2009)

TIPS
for Developing Geotourism Products & Experiences

- It is important to provide the quality services and activities featured in the product offering, otherwise the destination might lose credibility. Deliver what you promise. When in doubt, under-promise and over-deliver.
- Geotourism products and experiences should be safe, enjoyable, as well as respectful of the rights and cultures of Indigenous Peoples, local communities and the environment.
- To be successful, tourism products should respond to market trends and travelers' needs.
- Understand and analyze the market dynamics (trends, segments, behavior, travel patterns and styles), and differentiate them based on geography, demographics and psychographics.
- Integrate for sustainability throughout the value chain (accommodation, restaurants, transportation, etc.)
- When determining the product price, it is important to survey and benchmark similar products in the market. Understand also that the price will impact how the product is perceived. In this respect, it's just as important to avoid underpricing as it is to avoid over-pricing.
- Invest in digital promotion and high-quality visuals (e.g., photographs, videos) when marketing and promoting your product.

FIGURE E.3 — The characteristics of geotourism products and experiences.

Geotourism Pillars and Components of Offers (FIGURE E.4)

- The geotourism offer should be mainly based on the geosites that are listed as attractions in the UGGp. These geosites form the main resources for the three pillars of geotourism: 1) geo-interpretation/geo-education; 2) geoconservation; and 3) local development.
- On the other hand, the geotourism offer includes touristic infrastructure and services such as accommodation, guides and tours, food and beverage, activities and experiences, etc., to facilitate the visitors' journey.
- Under the geotourism concept, tourism services, infrastructure and activities should be linked to the geoheritage of the territory within its tangible and intangible components, in addition to the natural and cultural heritage elements. This may include visitor centers, geo-tours, geo-trails (or geo-routes), geo-products, geo-food, geo-restaurants, geo-events (festivals, exhibitions, conferences), geo-lodges, geo-museums, geo-souvenirs, geo-maps, and geo-guides.

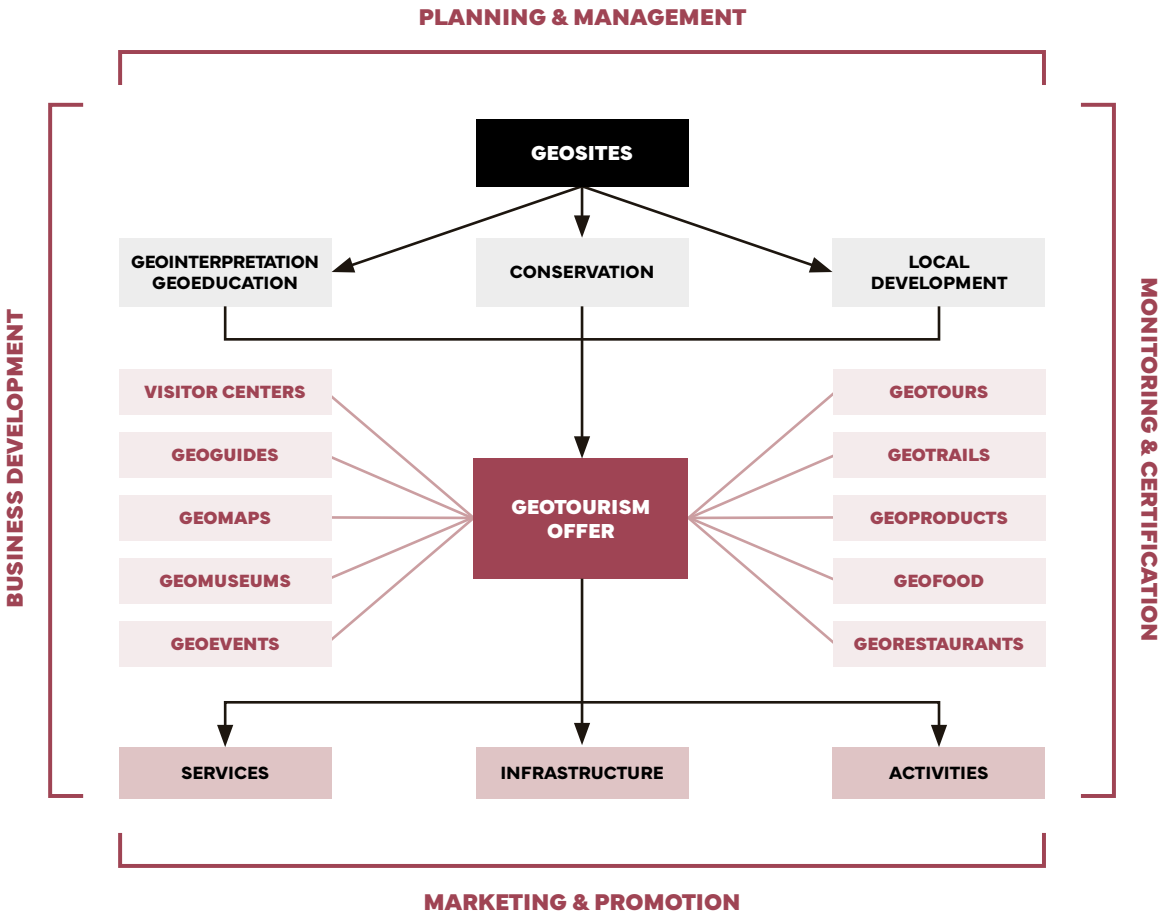


FIGURE E.4 — The pillars and offer components of geotourism

TOOL E.2
DEVELOPING A VISITOR CENTER FOR GEOTOURISM

Visitor centers play an important role in[3]:

1. **Tourism sustainability and visitor management:** visitor centers have multiple functions depending on their development and management. They can be used to promote the destination, provide information on the area's attractions, control and filter visitor flows and influence their behaviors, collect data on visitor numbers and activities along with information on their needs and motivations, and, in some cases, substitute for on-site visits. They may act as the administrative and research hub for local tourism management. Moreover, visitor centers can generate revenue through the sale of tickets, merchandise, local handicrafts and souvenirs, as well as charging for facilities and parking. This revenue can finance conservation.

2. **Interpretation of heritage and educational services:** visibility is a key objective for UGGps in their quest to promote sustainable local economic development through geotourism and to raise awareness and understanding of key environmental issues. Accordingly, visitor centers should produce various information materials and develop activities for dissemination, including a specific corporate identity, with the aim to explore, develop and celebrate the links between geological heritage and all other aspects of the area's natural and cultural heritage. Interpretive material in visitor centers can range from simple brochure and posters, to interactions with natural materials and multimedia and advanced ICT tools.

3. **Community engagement and community-oriented services:** UGGps aim to renew or strengthen the pride that Indigenous Peoples and local communities feel for their territory. Community engagement and community-oriented services constitute fundamental aspects of UGGps. Thus, visitor centers should be by and for Indigenous Peoples and local communities, as well as aiming to communicate to visitors. This should include educational activities for and by Indigenous Peoples and local communities.

3. UNESCO (2019)

STEP	TASKS
1. RESEARCH & PLANNING	• **Geological heritage study & documentation:** base the design of the visitor center on thorough geological study of the UGGp and its region, including the natural and cultural heritage elements. • **Goals and Objectives:** clearly outline the goals and objectives of the visitor center. Who is the audience? How many people should it accommodate? What do you want visitors to learn and experience? • **Budget:** determine the budget for the entire project, including construction, exhibits, staffing, operations and ongoing maintenance. • **Location selection:** select the most suitable location on public or private owned land taking into consideration the accessibility and the connectivity. In some cases, several visitor centers can be created depending on the scale of the UGGp and based on the objectives and action plan of the geotourism management plan.
2. DESIGN & DEVELOPMENT	• **Architectural design:** hire an architect or a company to design the physical layout of the center, considering factors such capacity, accessibility taking into consideration people with all needs, space utilization indoor/outdoor (welcome area, info desk, rest area, exhibit area, souvenir shop, conference rooms, multimedia area, restrooms, storage area, coffee shop, parking, events venue, gardens and landscaping, etc.), reflecting indigenous or local architectural styles, integration within the natural and geological landscape, and aesthetics. • **Exhibit Design:** collaborate with exhibit designers to create interactive and informative displays that showcase the geological significance of the area. This could include multimedia presentations, touch screens, and physical exhibits. • **Technology integration:** incorporate experiences, possibly including technology such as augmented reality (AR), virtual reality (VR), and interactive apps to enhance the visitor experience. • **Green Design:** consider sustainable and eco-friendly design elements to minimize the environmental impact of the center (renewable energy, water collection, waste sorting space, local construction materials, natural ventilation, etc.).
3. CONSTRUCTION & SETUP	• **Construction:** hire contractors and oversee the construction of the visitor center, ensuring that the design specifications are met. • **Interior Setup:** furnish the interior with seating, exhibit displays, signage, lighting, and other necessary infrastructure. • **Outdoor Space:** finalize the outdoor space sections and other necessary infrastructure.
4. CONTENT CREATION	• **Educational Materials:** develop informative and engaging content that explains the geological processes, history, and significance of the region's features. • **Visuals:** gather high-quality images, videos, and diagrams to illustrate the geological concepts effectively. • **Narratives:** create compelling narratives that connect the geological story with broader themes, such as environmental conservation and cultural heritage.
5. COLLABORATION & PARTNERSHIPS	• **Collaborate with experts:** partner with geologists, scientists, and educators to ensure the accuracy and quality of the content. • **Collaborate with Indigenous and local experts: engage Indigenous Peoples and local communities throughout the process** to ensure that the center reflects their story in an ethical manner and will be of use to them. This could include working with indigenous architects, designers or artists, include spaces for culturally appropriate use in the finished design, etc.
6. STAFFING & TRAINING	• **Hire Staff:** recruit and hire knowledgeable staff members who can provide guided tours, answer questions, and ensure a positive visitor experience. • **Training:** provide training to staff members on geological concepts, effective communication, customer service, and safety protocols.
7. OPERATIONAL PLAN	• **Operations:** establish operational procedures for opening hours, shifts, ticketing, guided tours, maintenance, and security. • **Data collection and feedback mechanism:** set up a feedback mechanism to collect and analyze visitor data and feedback, to assess the effectiveness of exhibits and educational materials, and to continuously improve the center based on visitor input. • **Define key performance indicators (KPIs)** to measure the success of the visitor center, such as visitor numbers, satisfaction rates, and educational impact.

EXHIBIT E.2

Examples of visitor centers in UGGps

Source: https://www.northpennines.org.uk/bowlees-visitor-centre/ (accessed on 22 September 2023)

FIGURE E.5 — Bowlees visitor center and activities, North Pennines AONB and UGGp, United Kingdom of Great Britain and Northern Ireland (© NORTH PENNINES NATIONAL LANDSCAPE TEAM)

FIGURE E.6 — Troodos UGGp Visitor Centre, Cyprus
(© CYPRUS GEOLOGICAL SURVEY DEPARTMENT)

Source: *http://www.troodos-geo.org/cgibin/hweb?-A=247&-V=amiantos* (accessed on 22 September 2023)

FIGURE E.7 — Mt. Apoi UGGp Visitor Center, Japan
(© Mt. Apoi Geopark Promotion Council | M. SASAKI)

Source: *https://www.apoi-geopark.jp/english/access/visitor_center.html*
(accessed on 22 September 2023)

TOOL E.3
DEVELOPING GEOTRAILS AND GEOTOURS

One of the common strategies to develop geotourism within UGGps is the creation of thematic itineraries or geotrails (or georoutes) that connect geosites of unique geological interest and are suitable for education, research, and tourism activities[4]. Geological routes connect geosites in a planned manner to present a given area's geodiversity[5] in a particular sequence. Geotrails, can be discovered in self-guided tours or with specialized guides. They are designed to display the natural landscape along a route with stops established at geosites and major points of interest. Materials such as information panels, explanatory brochures, guidebooks, and mobile applications allow for a more in-depth interpretation of the landscape and its geosites. **Examples of geo-routes of international interest include the Yanhuitlán geo-trails in the Mixteca Alta UGGp (Mexico), the "Trans-Pyrenean Geological Route" (France), the "Paleontological heritage of mammoths through a cross-country thematic route" (Serbia), and Demnate and High-Tessaout valley (Morocco)**.

Geotours are guided tours in UGGps that introduce visitors to the wealth of information and history that the Earth has to offer. Geotours not only cover geosites, but can also include biological, archaeological, cultural, historical and ethnographic points of interest. Geotours can extend from one-day to multi-day tours, and can be done with motorized vehicles, cycling or hiking. They are often designed and organized along existing geotrails.

4. Herrera-Franco, et al. (2022)
5. Carrión-Mero, et al. (2021)

STEP	TASKS
1. PLANNING	• **Geological theme:** identify the key geological features, formations, and sites to be included in the geotrail and/or geotour and decide on the trail/tour theme(s) based on the comprehensive geological study of the UGGp. • **Trail delineation:** delineate a trail path to ensure that it covers a variety of geological and cultural points of interest while considering accessibility, type of trail (linear, loop), type of use (single or mixed for walking, hiking, trekking, cycling, rafting, kayaking) and safety. • **Target audience:** define the target audience of the trail and the tour, whether it is students, families, nature enthusiasts, adventure. • **Themes and narratives:** develop thematic narratives that weave together the geological, ecological, and cultural stories of the UGGp in general and the trail/tour in particular. • **Logistics:** determine the logistics of transportation, trail difficulty, duration, starting points, exit points, emergency exists, and stops along the trail/tour.
2. CONTENT CREATION	• **Geographical information system (GIS) software:** use GIS software such as ArcGIS or QGIS to create and visualize trails and tours with their geological features and other heritage elements and tourism services. • **Educational materials:** develop engaging and informative content that explains the geological processes, history, and significance of each site along the trail/tour. • **Visuals:** gather high-quality images, maps, diagrams, and multimedia elements to enhance the educational experience, and design printed and digital sheets and brochures to promote the trail/tour. • **Interactivity:** incorporate interactive elements, such as hands-on activities, demonstrations, and geological experiments, to engage participants.
3. ROUTE MARKING & SIGNAGE	• **Trail signage:** install clear markers, signage, and interpretive panels along the trail to guide participants and provide information. • **Interactive signage:** consider using QR codes or augmented reality (AR) markers that participants can scan for additional information on their smartphones.
4. TECHNOLOGY INTEGRATION	• **Mobile apps:** aside from using natural materials, create a dedicated mobile app for the trails and tours, providing participants with access to maps, multimedia content, and interactive features.
5. GUIDE TRAINING	• **Guide selection:** recruit and train knowledgeable guides who can provide insightful commentary, answer questions, and ensure a safe and enjoyable experience. • **Guide training:** provide guides with in-depth training on geology, local and indigenous history, safety protocols, communication skills, and customer service.
6. SAFETY & REGULATIONS	• **Risk assessment:** conduct a thorough risk assessment of the trail and sites to ensure participant safety. • **Permits and permissions:** obtain any necessary permits or permissions from relevant authorities for conducting guided tours in the UGGp.
7. BOOKING & RESERVATION	• **Online booking:** implement an online booking and reservation system to allow participants to register for geotours in advance, or make direct booking available in the visitor center during low season. • **Payment processing:** set up a secure online payment system for tour fees, if applicable. • **Participant feedback:** collect feedback from participants after each geotour to assess their satisfaction and identify areas for improvement.

EXHIBIT E.3

Examples of geotrails and geotours

Source: https://www.northpennines.org.uk/location/cow-green-geotrail/ (accessed on 22 September 2023)

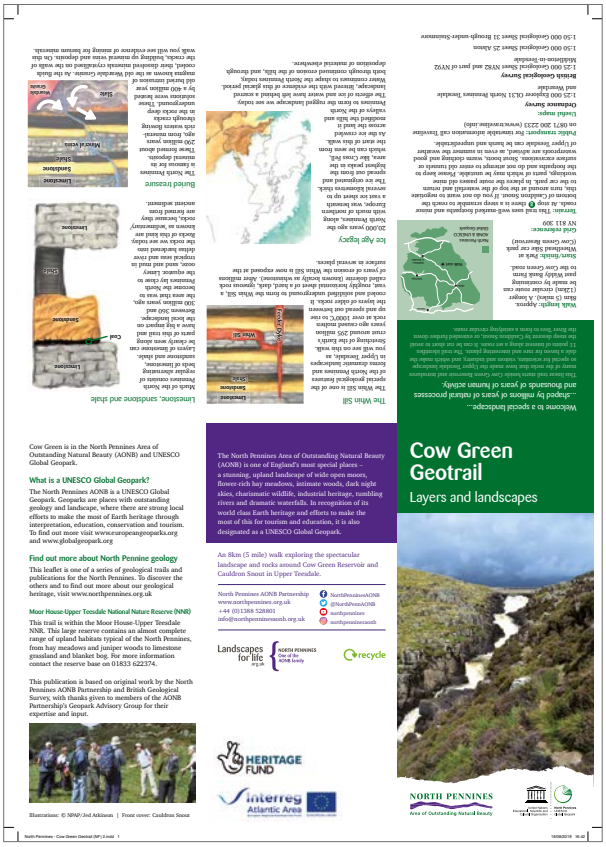


FIGURE E.8 — Cow green geotrail, North Pennines AONB and UNESCO Global Geopark, United Kingdom of Great Britain and Northern Ireland (© NORTH PENNINES NATIONAL LANDSCAPE TEAM)

This treasure lies right here, in the middle of Europe, in the Southern Alps - the Karawanken-Karavanke mountain range. The Karawanken Trail is our path. Its 13 stages over 265 km always reveal new faces of the magnificent landscape. We are walking on borders - on the tectonic plates between Africa and Europe - on trails between Austria and Slovenia. A particularly special and beautiful aspect of the Karawanken-Karavanke UGGp, is the fact that it unites what has long been separated - two countries, one region.

Digital Interactive Map

FIGURE E.9 — Karawanken-Karavanke UGGp Map and Transnational Trail, Austria and Slovenia
(© EGTC GEOPARK KARAWANKEN-KARAVANKE)

Source: *https://www.geopark-karawanken.at/en/seite/view/karawankentrail*, *https://www.geopark-karawanken.at/map/* (accessed on 22 September 2023)

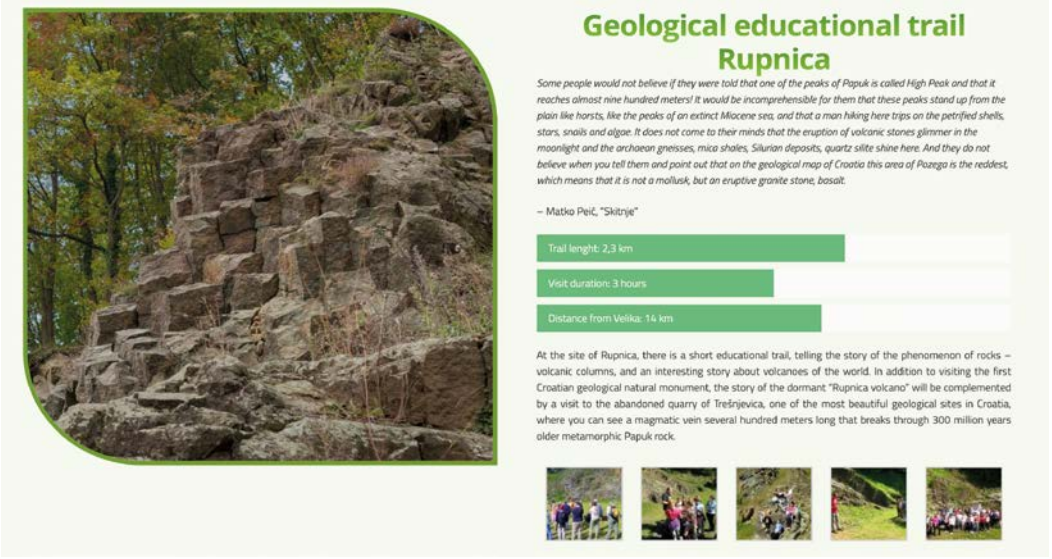


FIGURE E.10 — Papuk UGGp Educational Trail, Croatia
(© Papuk Nature Park | G. RADONIC)

Source: *https://www.pp-papuk.hr/educational-programs-and-visitors-centers/educational-programs/?lang=en* (accessed on 22 September 2023)

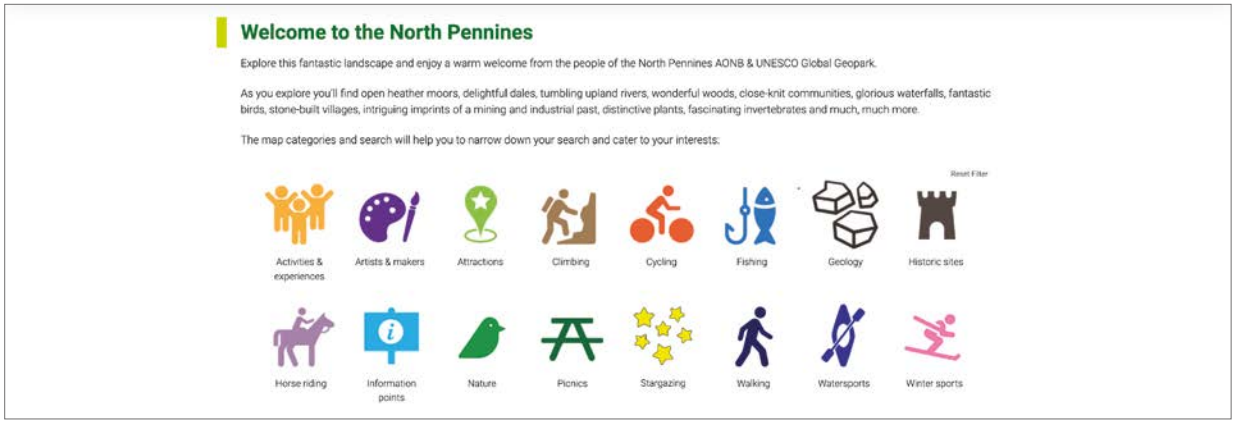


FIGURE E.11 — Example of Geotours interactive map North Pennines AONB and UGGp, United Kingdom of Great Britain and Northern Ireland
(© NORTH PENNINES NATIONAL LANDSCAPE TEAM | GVAM)

Source: *https://www.northpennines.org.uk/visit-explore/walking/geotours/* (accessed on 22 September 2023)

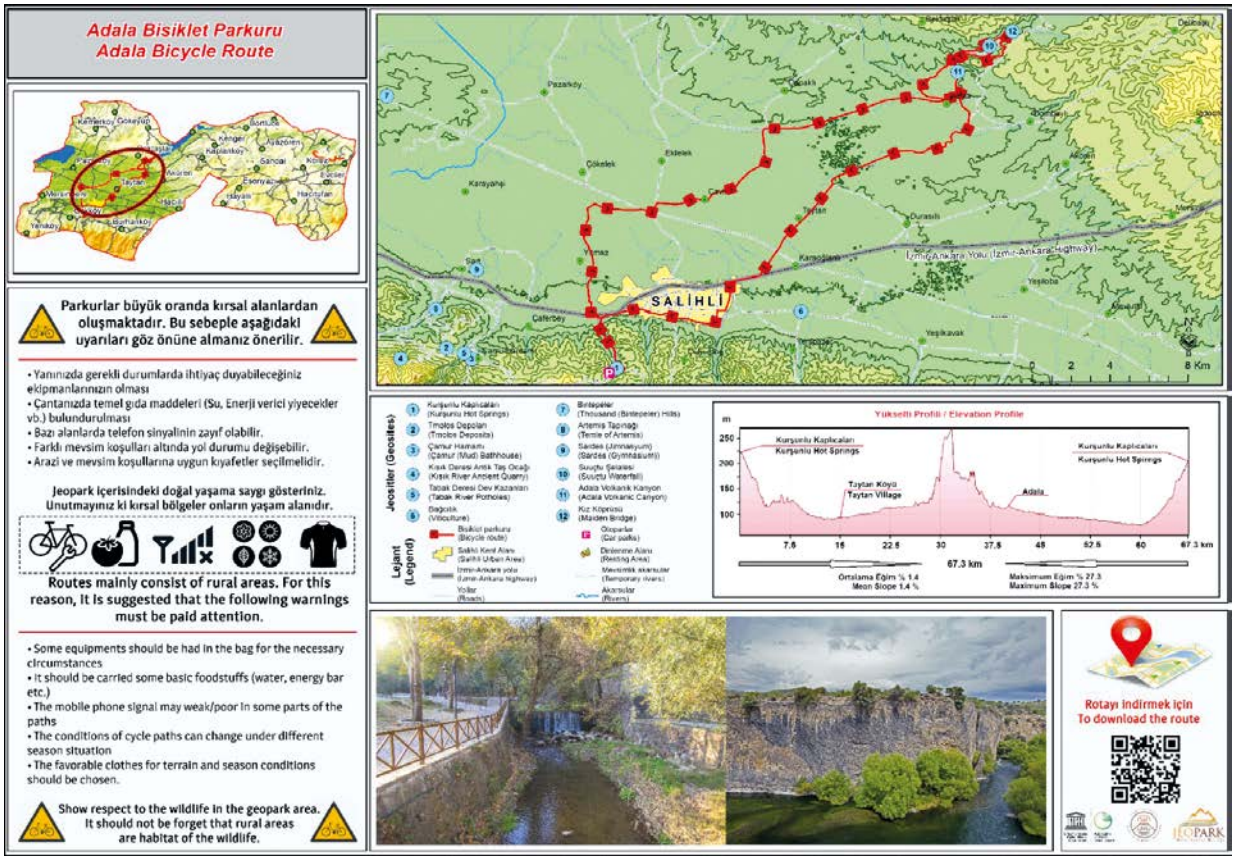


FIGURE E.12 — Kemer - Gökeyüp Route in the Adala Volcanic Canyon, Kula-Salihli UGGp, Türkiye
(© Kula-Salihli UGGp | M. KOLBÜKEN)

Source: *https://kulasalihligeopark.com/bisiklet-rotalari/* (accessed on 22 September 2023)

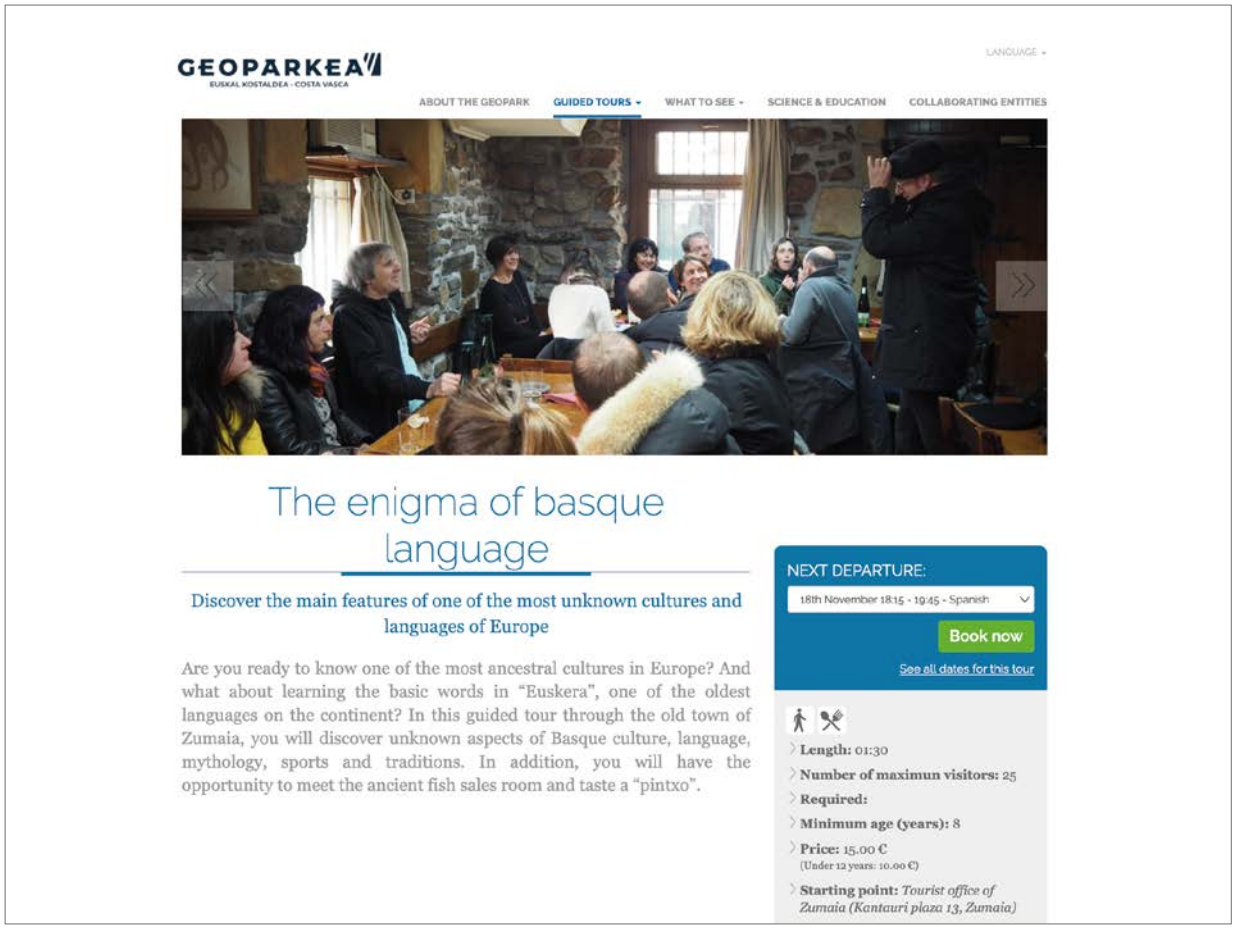
EXHIBIT E.4

A guided tour based on the Basque language

Source: Basque Coast UNESCO Global Geopark, Spain

Extracted from: *www.geoparktoolkit.org/engaging-communities-businesses/engaging-communities-businesses-case-studies/* (accessed on 22 September 2023)

"The intangible cultural heritage of Basque Coast UNESCO Global Geopark is particularly important. The area possesses a cultural treasure in the form of the Basque language—an ancient language which has survived through to the present day. The Basque Country in general, and particularly the Basque Coast UGGp, have experienced an increase in tourist numbers over recent years. This is partly down to a general growth trend in tourism in southern Europe, but also because of a favorable political backdrop free from violence. There are two different perspectives on the relationship between tourism and the Basque language or Euskara. Some sectors fear a negative impact of tourism on the use and preservation of the language, while others see it as an opportunity and a channel for disseminating and spreading their language beyond their borders by means of the tourists themselves. This matter has been the subject of numerous political, technical and social reflections. The strategic plan 2017-2021 for the town of Zumaia has been put together using a participative methodology in which different social agents and groups raise their concerns about how locals and visitors can coexist. In this context, the tourism and culture departments of Zumaia Council have worked with the UGGp to develop an innovative experience, which aims to bring Basque culture and Euskara closer to UGGp visitors and raise awareness of our most valuable heritage."



'The Enigma of the Basque Language' – a guided tour offer

The guided tour of Zumaia is part of the wider official programme of guided visits to showcase the UGGp's natural and cultural heritage. The tour experience is 90 minutes. It highlights and explores one of the most ancient cultures in Europe. The tour is primarily aimed at tourists, mostly from Spain, who want to know more about the Basque Country and its cultural identity. At the heart of the experience are four main topics that most identify us and make us different:

- Basque language (Euskara)
- Rural sports
- Basque music
- Gastronomic clubs

TOOL E.4
DEVELOPING GEOPRODUCTS

Geoproducts can be defined as innovative, new or reinvented traditional products (such as handicrafts, decorative items and souvenirs), which are intimately related to, or inspired by the geodiversity of a territory. The development of geoproducts is intimately associated with geotourism. Most UGGps have their own approaches and strategies to local products and many start to develop geoproducts in the early stages of the application processes to UNESCO[6].

Geoproducts can actively contribute to the growth of local economies with an important role in the geotourism offer, providing new experiences and long lasting memories to tourists[7]. Besides fostering new economic activities for locals, geoproducts educate tourists and popularize geosciences, through the symbolic representation of the UGGp's geoheritage. They have a deep connection with local geoheritage, a strong sense of identity, and they tell a story about people and the territory[8].

When developing geoproducts, the balance between the intangible value (story, connection to local identity and symbolic value) and practical aspects (economic viability, marketability, demand and price) should be maintained; moreover, geo-products have to respond to market needs and trends[9].

6. Rodrigues, et al. (2021)
7. Rodrigues & Neto de Carvalho (2009)
8. Rodrigues, et al. (2021)
9. Danube Geo Tour (2017)

STEP	TASKS
1. RESEARCH & INSPIRATION	• **Geological and cultural elements:** identify key geological formations, landscapes, and cultural elements that are distinctive to the UGGp. • **Indigenous and local artisans and craftsmen:** identify indigenous and local suppliers and artisans through platforms or networks focused on sustainable and local production, and collaborate with local craftmen, artisans, and experts who can help translate the geological and cultural features into creative products. • **Visitor preferences:** research the preferences of visitors to understand what types of geoproducts and souvenirs they are likely to be interested in.
2. PRODUCT DEVELOPMENT & PRODUCTION	• **Conceptualization:** brainstorm and develop unique product ideas that incorporate geological and cultural themes. This could include items like jewelry, artwork, clothing, food products, educational materials, and more. • **Materials and Sourcing:** choose sustainable and locally sourced materials that align with the UGGp's values and principles. • **Design:** collaborate with designers to create visually appealing and authentic designs that capture the essence of the UGGp. • **Produce:** collaborate with indigenous and local artisans and craftsmen to produce the designed products. A collective workshop can be created by the UGGp to gather artisans in one place and offer them a work area and equipment.
3. QUALITY & AUTHENTICITY	• **Local authenticity:** ensure that the products truly reflect the UGGp's geological and cultural heritage, avoiding mass-produced or generic items. • **Quality control:** establish quality control measures to maintain high standards. • **Intellectual property protection:** support artisans and craftsmen to protect their intellectual property, through trademarking, developing seals or brands for recognized craftspeople, including Indigenous Peoples, etc.
4. SUSTAINABLE PRACTICES	• **Environmental, social and cultural impact:** environmental, social and cultural impact assessments should be carried out during the planning phases. However, safeguards should be taken throughout to protect cultural heritage, prioritise positive social impacts and eco-friendly materials and production processes. • **Local economy:** work to support the local economy by sourcing materials and labor from the community whenever possible.
5. MARKETING & PROMOTION	• **Branding:** create a distinct brand identity for the geoproducts that highlights the connection to the UGGp and its unique features. • **Packaging:** design eco-friendly and attractive packaging that complements the product and displays its connection to the UGGp. • **Online and on-site sales:** establish online platforms and on-site shops where visitors can purchase the geoproducts. • **Inventory tracking:** Keep track of product sales and inventory to understand which products are popular and which may need adjustments. • **Visitor feedback:** Collect feedback from visitors about the appeal and quality of the geoproducts.
6. COMMUNITY ENGAGEMENT	• **Collaboration:** Prioritise projects that are led by Indigenous Peoples and local communities, ensuring that their perspectives and cultural elements are respected and safeguarded. • **Educational workshops:** Organize workshops or events to raise awareness with locals and visitors about the geoproducts and the UGGp's heritage.

EXHIBIT E.5
Examples of geoproducts

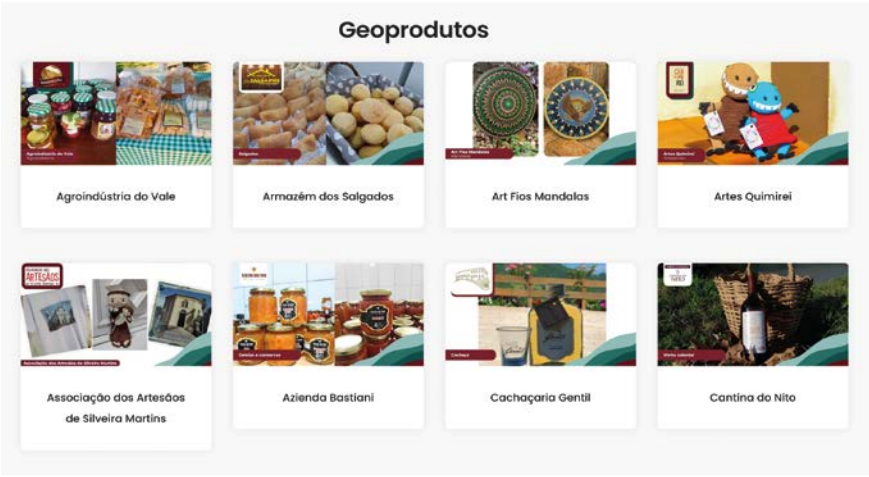


FIGURE E.13 — Geoproducts promoted by Quarta Colônia UGGp, Brazil
(© Quarta Colônia UNESCO Global Geopark | D.N. CECCHIN)

Source: *https://www.geoparquequartacolonia.com.br/parcerias/geoprodutos* (accessed on 22 September 2023)

FIGURE E.14 — Geoproducts promoted on online store of the Araripe UGGp, Brazil
(© F.J. SIDRIM DE FIGUEIREDO MENDONÇA)

Source: *https://geoparkararipe.lojaintegrada.com.br/decoracao-17669560* (accessed on 22 September 2023)

TOOL E.5
DEVELOPING GEOFOODS & GEORESTAURANTS

Local gastronomy allows Indigenous Peoples and local communities to communicate their values and traditions and allows tourists to escape from mass tourism and experience authentic values[10]. The geo-food concept started in 2014 as a cooperation project between several UGGps in Nordic Countries. The first and main proposal was to create a GEOfood label for UGGps, connecting the food and raw materials with their area of provenance and the unique geodiversity, which contributes to the flavor and quality of the food and beverage. The certification of GEOfood partners verifies that the raw materials and processing of food and beverage all originate in the UGGp[11].

GEOfood products must have a strong connection with the local geological heritage. Information concerning this connection must be provided with the food products and on GEOfood restaurant menus[12].

Developing and marketing geofoods is a creative strategy being implemented in many UGGps. Geological features in UGGps have inspired many unique inventions such as trilobite cookies, trilobite jelly, Pedras Parideiras cake (Arouca, Portugal), dinosaur bread (Haţeg, Romania), ammonite bread, ammonite chocolate (Haute Provence, France), boulder soup, marble cake and trilobite cake (Naturtejo da Meseta Meridional, Portugal). Furthermore, GEOfoods can be cooked with geothermal heat from the ground (Açores, Portugal) or served at dedicated restaurants such as the Petiscos and Granitos georestaurant (Naturtejo da Meseta Meridional, Portugal).

However, GEOfoods do not always need to be brand-new products. Local food and agricultural products are the result of Indigenous and local cultures building upon biological and geological characteristics. UGGps promote these local goods by accreditating them with UGGp labels (Adamello-Brenta, Italy and Styrian Eisenwurzen, Austria), publishing cookbooks of local cuisine (Arouca, Portugal and Haţeg, Romania), introducing and selling local products at visitor centers (Beigua, Italy), establishing women's initiatives (Copper Coast, Ireland) and organizing local food festivals[13] (Araripe, Brazil and Naturtejo da Meseta Meridional, Portugal)[14]. Even though the title is exclusive for UGGps and producers within these territories, some aUGGps and geopark projects have been working in the recent years to implement the concept[15].

10. La Ghezza (2022)
11. Rodrigues, et al. (2021)
12. Gentilini (2021)
13. Note that it is not permitted to sell products with the UNESCO logo. Modified branding must be designed for UGGp products that are sold.
14. Lee & Jayakumar (2021)
15. Rodrigues, et al. (2021)

STEP	TASKS
1. RESEARCH & CONCEPTUALIZATION	• Identify the unique geological and cultural features of the UGGp that can inspire geofood and georestaurant concepts. • Research traditional local dishes, ingredients, and cooking techniques that can be integrated into geofood and georestaurants offerings. • Conduct market research to understand visitor preferences and culinary trends.
2. COLLABORATION & PARTNERSHIPS:	• Collaborate with Indigenous and local farmers, producers, and chefs who share an interest in showcasing the UGGp's heritage through food. • Establish partnerships with existing restaurants or consider creating new georestaurants within or near the UGGp.
3. MENU DEVELOPMENT & CULINARY CREATIVITY	• Work with chefs to develop geofood concepts that creatively incorporate geological and cultural elements into dishes. • Design menus that tell the stories behind each geofood item and highlight their connection to the UGGp.
4. QUALITY & AUTHENTICITY	• Conduct taste tests and refine recipes to ensure the geofood offerings meet high culinary standards. • Ensure that the geofood items authentically represent the geological and cultural heritage of the UGGp.
5. SUSTAINABILITY & ETHICS	• Emphasize the use of locally sourced, seasonal, and sustainable ingredients to support local communities and reduce environmental impact. • Consider ethical sourcing practices and fair trade principles for ingredients.
6. RESTAURANT DESIGN & EXPERIENCE	• Design georestaurants to reflect the UGGp's identity through interior design, decor, and ambiance. • Incorporate educational elements such as displays, visuals, or interactive materials that explain the geological significance of the geofood offerings.
7. MARKETING & PROMOTION	• Develop a strong brand identity for the geofood concept and georestaurants, highlighting their unique features. • Create a dedicated website, social media accounts, and promotional materials to raise awareness and attract visitors. • Join the Global GEOfood Network and apply for the certification and GEOfood label. • Develop packaged GEOfood products (e.g., sauces, jams, honey) that visitors can purchase as souvenirs. • Ensure appropriate logoing and branding, keeping in mind that it is not permitted to include the UNESCO logo on products that are sold. • Consider creating cookbooks or recipe cards featuring geofood dishes that visitors can take home.
8. COMMUNITY ENGAGEMENT & EVENTS	• Organize food festivals, tasting events, or cooking workshops that display the geofood offerings and engage both locals and visitors. • Collaborate with local communities and Indigenous Peoples throughout to ensure culturally appropriate showcasing of gastronomical heritage, dining experiences, agrobiodiversity, traditional knowledge, etc. while ensuring safeguarding of intellectual property rights. This should be addressed in the FPIC process.

EXHIBIT E.6
Examples of geofoods
and georestaurants

GEOFood in the Burren and Cliffs of Moher UGGp, Ireland

Source: https://www.burrengeopark.ie/geofood/ (accessed on 22 September 2023)

The Burren and Cliffs of Moher UNESCO Global Geopark became a member of the international GEOfood network in 2021. We are very proud to support and promote the sustainable development and appreciation of a great and ancient food tradition rooted in geology. We have been collecting a wide array of food stories throughout the geopark and we are establishing GEOfood as a core part of our food offering. Watch this space for our ongoing work on this movement.

© BURREN AND CLIFFS OF MOHER UGGP

Miel El Tano promotional material, Grutas del Palacio UGGp, Uruguay

Source: https://www.geoparque.uy/index.php/geofood/geoproductos.html (accessed on 9 March 2024)

Miel El Tano is a family business focused on the honey production process. "Miel El Tano", obtained the "Land of the Geopark" seal awarded by the Grutas del Palacio UGGp in Uruguay, highlighting the natural product.

"When bees colonise a new place, they move in swarms, but they are not the only ones: rocks also form swarms. Beneath the El Tano honey hives, there are thousands of cracks in the Earth's crust that were filled with a rock called microgabbro (also called dolerite or diabase). These rocks cover the entire Grutas del Palacio UGGp and were formed 1800 million years ago. The rich biodiversity of the meadows and mountains, as well as the geodiversity of international value, can be tasted in the products that Laura and her family make.

Taste sustainable local production! "Taste the Grutas del Palacio Geopark!"

© Grutas del Palacio UGGp | L. RODRIGUEZ - MIEL EL TANO

Yujin Farm restaurant, Mudeungsan UNESCO Global Geopark, Republic of Korea

Source: https://geofood.no/geoplaces/yujin-farm (accessed on 22 September 2023)

The Yujin Farm restaurant sells Korean-style meals with side dishes lined up on a table. They mainly sell Baeksuk, Gejang (crab preserved in soy sauce), pork ribs, and we also sell cheong-gukjang, which is made by directly fermenting beans grown at the foot of Mt. Mudeungsan. Side dishes and vegetables that are eaten with food are cultivated directly next to the restaurant. Dine at our restaurant for a panoramic view of Cheongpung Geovillage, located just below Mt. Mudeungsan, but enjoy the real Korean dining with typical Korean countryside scenery!

© Muduengsan UGGp | Y. WOO

Il Gufo di Pietra restaurant, Sesia Val Grande UNESCO Global Geopark, Italy

Source: https://geofood.no/geoplaces/il-gufo-di-pietra/ (accessed on 22 September 2023)

Joining the GEOfood project in 2022, "Il Gufo di Pietra" offers a GEOfood menu based on local rice, cheese, nuts, honey and wine.

© A. FRESCHI

TOOL E.6
DEVELOPING GEOEVENTS

Special events can highlight the geographical features a UGGp and its geosites. Geo-events can take different forms such as conferences, exhibitions, seminars, workshops, or special tours in UGGp. Geo-events focus on specific themes and topics related to the geoheritage of the area where they are organized.

STEP	TASKS
1. CONCEPTUALIZATION & PLANNING	• **Identify themes:** choose specific geological, ecological, or cultural themes for the geoevents, such as fossil exploration, caves and grottos or indigenous heritage. • **Audience:** define your target audience, whether it's families, students, scientists, nature enthusiasts. • **Event types:** decide on the types of events, such as workshops, lectures, festivals.
2. COLLABORATIONS & PARTNERSHIPS	• **Local experts:** collaborate with geologists, ecologists, historians, and cultural experts to design and deliver informative content. • **Indigenous Peoples and local communities:** support Indigenous and locally-led events, build upon the cultural heritage of all stakeholders and bring benefits to all of them. • **Local businesses:** partner with local businesses for logistics, catering, and accommodations if needed.
3. EVENT PLANNING & LOGISTICS	• **Date and Location:** choose suitable dates and locations within the UGGp for the events. • **Permits and Permissions:** obtain any necessary permits or permissions for event activities, especially if they involve sensitive areas. • **Safety measures:** ensure participant safety with proper risk assessments, emergency plans, and first aid resources. • **Transportation:** arrange transportation options for participants, especially if events are held at remote locations.
4. CONTENT DEVELOPMENT	• **Educational content:** develop engaging and informative content that aligns with the event themes, including presentations, demonstrations, and interactive elements. • **Hands-on activities:** include hands-on activities that allow participants to experience geological processes or cultural practices firsthand.
5. PROMOTION & MARKETING	• **Event promotion:** create a marketing plan that includes social media promotion, press releases, event listings, and partnerships with tourism agencies. • **Online registration:** set up an online registration system to track participants and manage attendance.
6. EVENT EXECUTION	• **Logistics management:** coordinate event setup, signage, equipment, and any required facilities. • **Guides and speakers:** ensure that knowledgeable guides and speakers are present to lead activities and provide information. • **Participant engagement:** interact with participants, answer questions, and facilitate engagement throughout the event.
7. EVALUATION & FEEDBACK	• **Participant feedback:** collect feedback from participants after each event to assess their experience and identify areas for improvement. • **Performance metrics:** measure the success of events through attendance numbers, participant satisfaction ratings, and educational impact.

EXHIBIT E.7
Examples of geoevents

The Burren and Cliffs of Moher UGGp Academy[16]

Source: https://www.burrengeopark.ie/geoparkacademy/ (accessed on 22 September 2023)

"On May 27th and 28th, the Burren and Cliffs of Moher UNESCO Global Geopark will host the Geopark Academy, an event full of expert discussions and presentations about the wonderful natural phenomena that make our geopark so unique. If you've ever wondered how the Burren's vast rocky landscape thrives with such an abundance of biodiversity and wildlife, then this is the event for you. You will have the chance to hear from a panel of experts and have any of your questions answered about the geology, archaeology, ecology and culture in the Burren and Cliffs of Moher UNESCO Global Geopark. The event will present a wonderful opportunity to learn about the latest research coming from the area in each of these fields."

© BURREN AND CLIFFS OF MOHER UGGP

Vilcún Mountain Gastronomy - Geofood Sustainable Local Food in Unique Areas of Kütralkura UGGp

Source: https://www.kutralkura.cl/eventos/vilcun-gastronomia-de-montana-geofood-comida-local-sostenible-en-areas-unicas-del-geoparque-kutralkura?lang=en (accessed on 22 September 2023)

The Honorable Mayor of the Municipality of Vilcún invites you to sample local products as we promote mountain gastronomy, a collaborative initiative with the active participation of tourism operators from the community.

© MUNICIPIO DE VILCÚN

16. For more information, see https://www.burrengeopark.ie/learn-engage/

FIGURE E.15 — Calendar of events in Quarta Colônia UGGp, Brazil
(© Quarta Colônia UGGp | D.N. CECCHIN)

Source: *https://www.geoparquequartacolonia.com.br/arqs/70.pdf* (accessed on 22 September 2023)

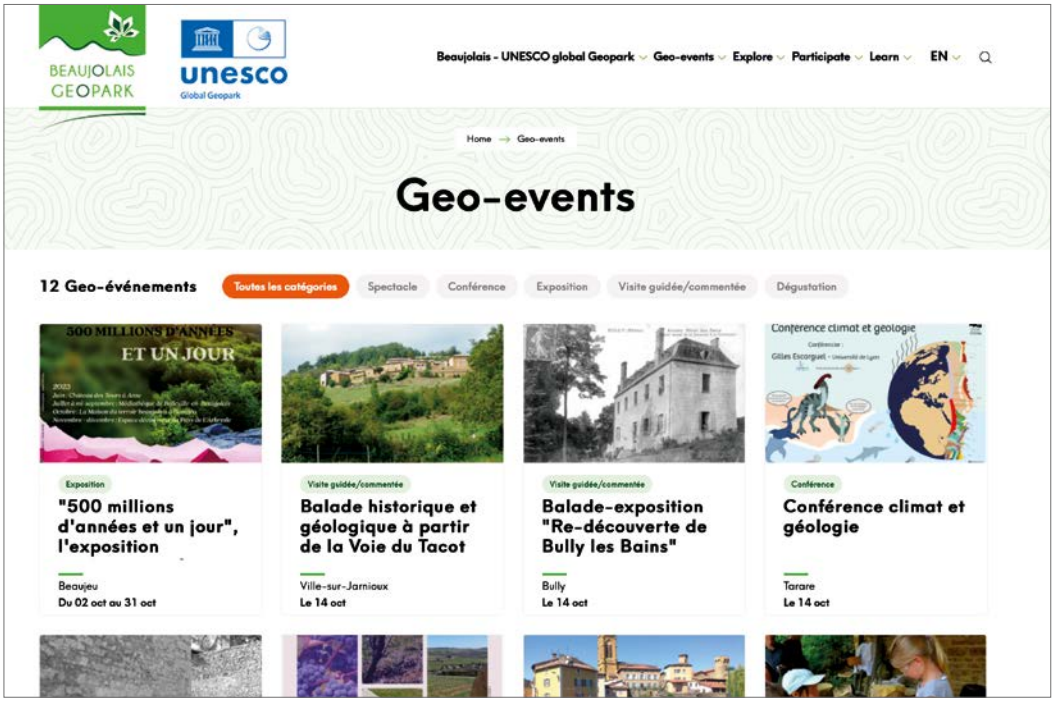


FIGURE E.16 — Beaujolais UGGp events listing, France
(© Beaujolais UGGp | M. BARACHET)

Source: *https://www.geopark-beaujolais.com/en/les-geo-evenements.html* (accessed on 22 September 2023)

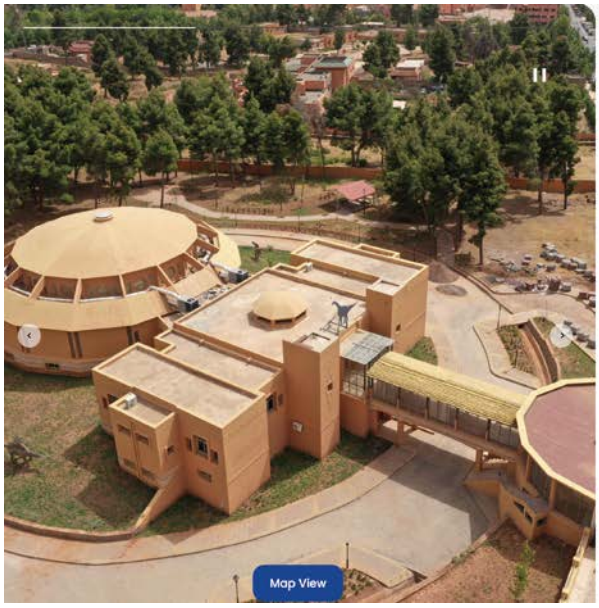
TOOL E.7
DEVELOPING MUSEUMS

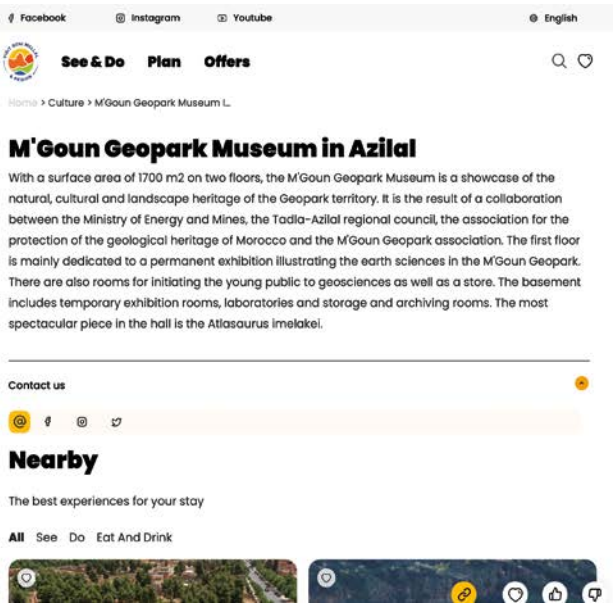
Geo-museums: Museums are not only centers for education, they can also be tools for the participatory management of the natural and cultural heritage of a territory in a number of ways, including through the research activities that they may support and host, as well as site protection and conservation[17]. A UGGp museum, or geo-museum, is more specialized and is a necessary facility for any UNESCO Global Geopark. The museum can be an attraction for visitors as an easy and direct way to know the geopark. The UGGp museum should also integrate interactive features and activities, including community eduaction and outreach to enhance public awareness on key themes, including the importance of geoconservation[18].

17. Canavese, Gianotti & de Varine (2018)
18. Chen (2021)

EXHIBIT E.8
M'Goun UGGp Museum,
Azilal, Morocco

Source: *https://www.visitbenimellal.com/en/culture/mgoungeoparkmuseuminazilal/60d66fd257b0bd00165dcde6*
(accessed on 22 September 2023)





STEP	TASKS
1. CONCEPTUALIZATION & PLANNING	• **Vision and objectives:** define the purpose of the geomuseum, whether it is to educate visitors, promote conservation, or provide a recreational experience. • **Themes and exhibits:** determine the main themes and geological topics that the museum will cover, such as the park's geological history, unique formations, and cultural connections. • **Audience:** identify your target audience, such as students, families, researchers, and/or tourists.
2. SITE SELECTION & DESIGN	• **Location:** choose an accessible and prominent location within the UGGp for the geomuseum. In some cases, the geomuseum can be annexed to or integrated with the visitor center. • **Building design:** design the geomuseum building to blend harmoniously with the natural environment while offering functional and informative exhibit spaces. Indigenous or local architects and designers can ensure the cultural appropriateness of the building. • **Exhibit layout:** plan the layout of the exhibits, considering the flow of visitors, accessibility, and thematic organization.
3. CONTENT DEVELOPMENT	• **Educational content:** develop informative and engaging content for exhibits, including text, images, diagrams, videos, and interactive displays. • **Hands-on activities:** include interactive elements, such as touchscreens, models, and hands-on experiments, to enhance visitor engagement. • **Multi-sensory experiences:** incorporate audiovisual elements, exchanges with locals, tactile exhibits, and even scents to create immersive experiences.
4. COLLABORATION & PARTNERSHIPS	• **Experts and curators:** collaborate with universities, geologists, educators, historians, and local experts to ensure accurate and engaging content. • **Indigenous Peoples and local communities:** work closely with Indigenous Peoples and local communities to present their cultural heritage, histories and narratives in an appropriate and accurate manner. This should be covered in the FPIC process.
5. CONSTRUCTION & EXHIBIT INSTALLATION	• **Construction:** hire local contractors, if possible, and oversee the construction of the geomuseum, ensuring that the design specifications are met. • **Green Design:** implement sustainable and eco-friendly practices in the geomuseum construction and operation, including the sourcing of materials and labor • **Setup:** furnish the interior with seating, exhibit displays, signage, lighting, and other necessary infrastructure. • **Artifact Acquisition:** collect relevant geological specimens, artifacts, and cultural objects that align with the museum's themes. • **Display Design:** design and install exhibit displays, interactive panels, showcases, and multimedia installations. • **Accessibility:** ensure that the exhibits are accessible to all visitors, including those with disabilities.
6. OPERATIONAL PLAN	• **Operations:** establish operational procedures for opening hours, shifts, ticketing, guided tours, maintenance, and security. • **Data Collection and Feedback Mechanism:** set up a feedback mechanism to collect and analyze visitors' data and feedback, to assess the effectiveness of exhibits and educational materials, and to continuously improve the museum based on visitor input. • **Define key performance indicators (KPIs)** to measure the success of the geomuseum, such as visitor numbers, research and conservation activities, satisfaction rates, and educational impact.
7. MARKETING AND PROMOTION	• **Museum branding:** develop a brand identity for the geomuseum that is linked to the UGGp, but reflects its particular mission and values. • **Online Presence:** Create a dedicated website or webpage for the museum, and promote it through the UGGp's official website and social media.
8. VISITOR EXPERIENCE	• **Guided tours:** Offer guided tours led by knowledgeable interpreters who can provide in-depth explanations and answer questions. • **Educational programs:** Organize workshops, lectures, and educational programs for schools, families, and groups.

TOOL E.8
DEVELOPING GEO-MAPS

Geo-maps, tourist guidebooks and brochures: Geo-maps (printed or digital/interactive), tourist guides, and brochures show UGGp attractions (geosites and other natural and cultural heritage sites and points of interest), geo-trails, tourism services, infrastructure and activities in the territory.

TIPS
for Developing geo-maps, tourist guidebooks and brochures

General tips

- Maintain a consistent visual identity, color scheme, and typography across all materials to reinforce the UGGp's brand.
- Ensure that the materials are available to all visitors in printed and digital formats and that they take into consideration those with visual impairments.
- Guided by the principle of ensuring that Indigenous Peoples and local communities speak for themselves, work to ensure full and effective participation of indigenous and local experts in presenting appropriate histories, cosmovision, narratives, toponyms (geographic place names) and details. This should be considered in the FPIC process.
- Consider providing translations or summaries in multiple languages to accommodate international visitors.
- Emphasize the UGGp's commitment to conservation and responsible tourism practices.

Geomaps

- Ensure the map is easy to read with clear labels, symbols, and legends that depict geological formations, trails, points of interest, the geomuseum and key geosites.
- Choose an appropriate scale and orientation to accurately represent distances and directions for a walker, cyclist, driver, etc.
- Highlight key geological features, rock formations, fossil sites, and important landmarks that make the UGGp unique.
- Use a color palette that is visually appealing and helps differentiate different geological layers or formations.
- Depict elevation changes and topographic details to enhance visitors' understanding of the landscape.
- Include trail routes, difficulty levels, and elevation profiles for hiking and exploration.

Guidebooks

- Organize the guidebook around key themes, such as geology, ecology, culture, services and activities.
- Include informative and engaging content about the UGGp's objectives and operation, geological history, unique features, Indigenous toponyms and history (in accordance with the wishes and consent of the Indigenous Peoples), and local traditions.
- Integrate maps, photographs, illustrations, and diagrams to visually enhance the content and guide readers.
- Highlight the connection between geological formations and local culture, folklore, and traditions, where appropriate and as integrated by Indigenous and local experts.
- Guidebooks are an excellent place to tell the story of local artisanal traditions or products and their link to geological, natural and cultural heritage.
- Consider adding QR codes that link to additional digital content or multimedia experiences.

Brochures

- Keep the content concise and focused, providing key highlights, activities, and practical information for visitors.
- Use an attractive layout with attention-grabbing visuals, such as photographs and illustrations.
- Highlight the UGGp's unique selling points, such as rare geological formations, biodiversity, or cultural heritage.
- Utilize icons and symbols to convey information quickly, such as trail difficulty levels, amenities, and attractions.
- Include short stories or anecdotes that showcase the UGGp's significance and connect with visitors on a personal level.
- Incorporate simplified maps or diagrams to help visitors orient themselves and locate key sites.

EXHIBIT E.9
Examples of geomaps
from across the world

FIGURE E.17 — The Geotourist Map of the Seridó UGGp, Brazil
(© MARCOS NASCIMENTO)

Source: *http://geoparqueseridо.com.br/?page_id=9508*
(accessed on 22 September 2023)

FIGURE E.18 — Famenne - Ardenne UGGp, Belgium, Tourist Guidebook, Printed Map and Digital Map
(© MTFA | D. CLOSON)

Source: *https://www.geoparcfamenneardenne.be/*
(accessed on 22 September 2023)

FIGURE E.19 — Troodos UGGp Geotrail Brochure, Cyprus
(© CYPRUS GEOLOGICAL SURVEY DEPT.)

Source: http://www.troodos-geo.org/upload/20131121/1385049901-27650.pdf
(accessed on 22 September 2023)

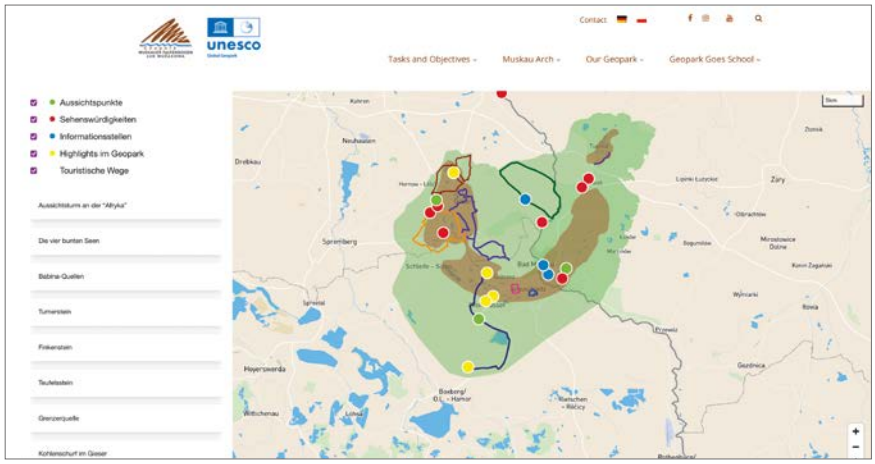


FIGURE E.20 — The Muskauer Faltenbogen / Łuk Mużakowa UGGp interactive map, Germany-Poland
(© GERMAN-POLISH MUSKRAU ARCH, LTD. EGTC)

Source: https://www.muskau-arch.eu/our-geopark/map/
(accessed on 22 September 2023)

TOOL E.9
SELECTION & TRAINING OF GEOGUIDES

Geo-guides (or local guides specialized in geological heritage) play a central role in the geotourism product offer. They are principal providers of interpretation and education, as well as ambassadors for the UGGp. Their capacity and commitment also help to minimize the negative impacts of tourism. Moreover, tour operators rely on guides to provide experience-enriching interpretation of natural and cultural attractions to add value to the tourists' itinerary. Tourists look to the guide for information and insight about the places they are visiting; including through formal briefings and information talks, which prepare them for their visit. Guides are also generally expected to serve as friendly, knowledgeable intermediaries to and between unfamiliar places and people. UGGp managers may also look to the guides as extensions of park ranger staff – in their efforts to educate visitors, to protect the natural and cultural resources of the area, to participate in monitoring programs and to generally support the conservation objectives. In addition to these roles, a guide should seek to inspire visitors to become supporters of geo-conservation.

Finally, guiding is an economic opportunity for Indigenous Peoples and local community members. A specialized guide training and licensing program is therefore of great importance for a UGGp.

Selection

- Look for candidates with a strong background in geology, ecology, cultural heritage, or related fields.
- Assess their knowledge of the UGGp's geological features, history, biodiversity, and local culture.
- Prioritize candidates who are articulate, enthusiastic, and skilled in effective communication.
- Assess their ability to convey complex information in an understandable and engaging manner.
- Consider candidates who are friendly, approachable, and able to connect with a diverse range of visitors.
- Look for individuals who can adapt their communication style to suit different audiences.
- Favor candidates who demonstrate a genuine passion for environmental and cultural conservation.
- Seek individuals who can inspire visitors to appreciate and protect the UGGp's heritage.
- Evaluate candidates' language skills, especially if the UGGp receives international visitors.
- Fluency in multiple languages can be a valuable asset.
- Give preference to candidates who are indigenous or have a strong connection to the local community and understand its traditions and history.

Training

Training for geo-guides should include the following:

- The UGGp's geological formations, history, cultural heritage, and conservation efforts.
- Relevant scientific concepts and research findings.
- Effective interpretation techniques that more effectively engage visitors, including storytelling, interactive activities, and use of multimedia.
- Visitor safety, group management, and emergency protocols to ensure a safe and enjoyable experience.
- Cultural sensitivity training to ensure that they respect local traditions, beliefs, and practices.
- Gender sensitivity training, to ensure a gender balanced presentation of current and historical events.
- Stories and narratives derived from the indigenous or local cosmovision, culture and history that have been developed with or by Indigenous and local experts. These can include toponyms (geographic names), family or clan histories, historical lifestyles, understanding of the connection between the heavens, the earth and the underworld, caves, mountains, volcanoes, fossils, archeological remains, earthquakes, storms, fires, etc.
- Guidance on how to communicate complex geological concepts in an understandable and relatable manner, including adapting their communication styles to different age groups and backgrounds.
- Interactive activities such as fossil identification, rock sampling, or nature observation to enhance visitor engagement.
- Updates on new research, developments, and changes within the geopark.
- Opportunities for ongoing training and workshops.
- The importance of responsible tourism and environmental conservation in all interactions with visitors.
- Mock tours and constructive feedback to help in improving presentation and communication skills.
- Teamwork, collaboration with fellow guides, and conflict resolution.
- Basic first aid training and support to handle minor medical situations.
- A system to receive feedback from visitors and managers, allowing for continuous improvement.

EXHIBIT E.10
Promotion of specialized geo-guides in UGGps

FIGURE E.21 — Promotion of specialized geo-guides and tour agencies in Araripe UGGp, Brazil
(© GEOPARQUE MUNDIAL DE LA UNESCO ARARIPE)

Source: http://geoparkararipe.urca.br/?page_id=2704 (accessed on 22 September 2023)

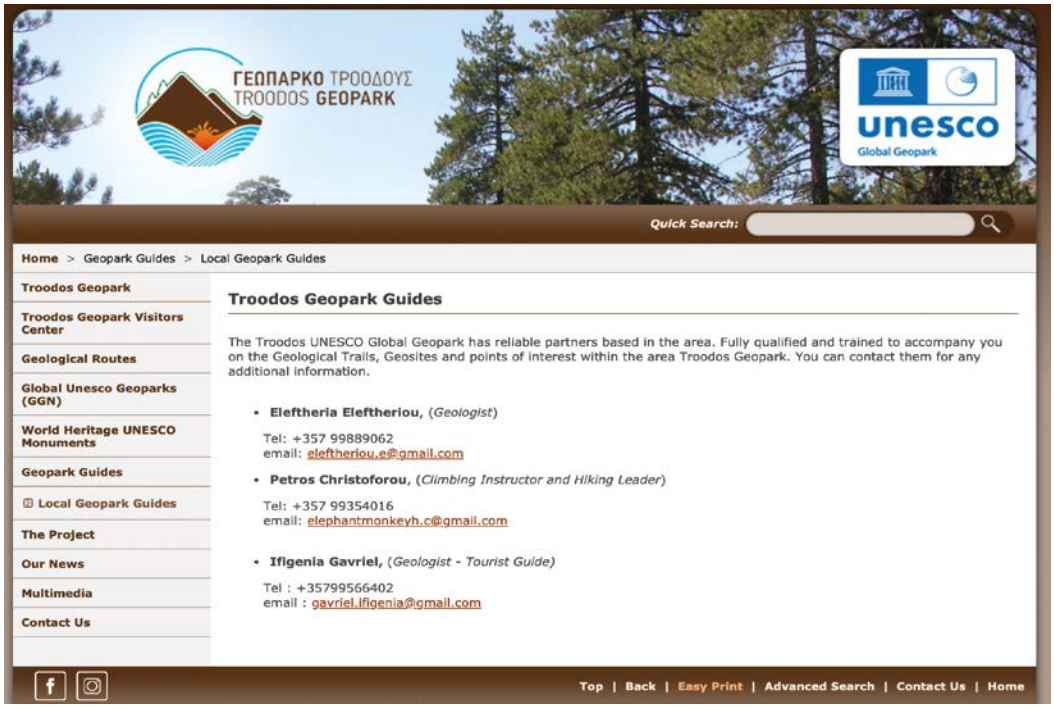


FIGURE E.22 — Promotion of specialized geo-guides, Troodos UGGp, Cyprus
(© Geological Survey Department | TROODOS DEVELOPMENT COMPANY)

Source: http://www.troodos-geo.org/cgibin/hweb?-A=399&-V=guides (accessed on 22 September 2023)

TOOL E.10
DEVELOPING & OFFERING NATURE-BASED & ADVENTURE ACTIVITIES

In addition to promoting geoheritage conservation for visitors and students, UGGps are attractive destinations for nature-based tourism including hiking, climbing, cycling, camping, skiing, caving, stargazing, bird watching, wildlife observation, fishing, horseback riding, wellness activities, geocaching and orienteering, paragliding, canyoning and rafting, amongst others.

- Prioritize conservation of the UGGp's unique geological formations, ecosystems, and cultural heritage.
- Conduct thorough assessments of the UGGp's terrain, trails, and natural features to determine suitable areas for different activities.
- Create zoning plans that designate specific areas for activities, considering factors like environmental sensitivity, safety, and cultural significance.
- Develop and enforce guidelines to minimize environmental impact and protect sensitive areas.
- Collaborate with local authorities, environmental experts, Indigenous Peoples and local communities and conservation organizations to ensure responsible practices.
- Collaborate with adventure and outdoor activity companies that share the commitment to responsible and sustainable tourism.
- Forge partnerships with local businesses, accommodations, and service providers to offer comprehensive visitor experiences.
- Design activities and facilities to be accessible to people of different abilities, ages, and backgrounds.

>>

- Establish safety protocols and guidelines for each activity, including equipment requirements, training, and emergency procedures.
- Develop necessary infrastructure such as well-maintained trails, camping sites, viewpoints, and facilities like restrooms and waste disposal.
- Ensure infrastructure blends harmoniously with the natural landscape and minimizes visual impact.
- Provide proper signage, information, and educational materials to ensure visitors understand potential risks.
- Incorporate interpretive elements like signage, educational displays, and interactive exhibits to enhance visitor understanding.
- Establish a licensing and permit system for activities to manage visitor numbers and maintain control over environmental impact.
- Establish codes of conduct and guidelines through brochures, websites, and on-site signage.
- Regularly monitor visitor numbers, activity impact, and environmental conditions to assess the effectiveness of management strategies.
- Adapt and adjust activities based on monitoring results to ensure sustainability.

EXHIBIT E.11
Nature-based and adventure activities in UGGps

FIGURE E.23 — Paragliding in Hakusan Tedorigawa UGGp, Japan
(© Hakusan Tedorigawa Geopark Promotion Council | K. MATSUMOTO)

Source: *https://hakusan-geo.jp/en/area/330/*
(accessed on 22 September 2023)

FIGURE E.24 — Mountain biking in Salpausselkä UGGp, Finland
(© Kitettirri Outdoors | R. LIPPONEN)

Source: *https://www.visitfinland.com/en/product/f27e2919-f0e5-406e-8e3f-c5400846513f/e-mtb-tour-in-salpausselka-unesco-global-geopark/*
(accessed on 22 September 2023)

FIGURE E.25 — Rafting in Merangin Jambi UGGp, Indonesia
(© ERWIN)

Source: *https://sinarjambi.com/geo-fun-rafting-upaya-disbudpar-provinsi-jambi-menuju-unesco-global-geoparks/*
(accessed on 22 September 2023)

FIGURE E.26 — Climbing in Stonehammer UGGp, Canada
(© INSIDE OUT NATURE CENTRE)

Source : *https://tourismnewbrunswick.ca/listing/stonehammer-unesco-global-geopark*
(accessed on 22 September 2023)

F | VISITOR MANAGEMENT PLAN

© P. VENTURA

F— Visitor management plan

The visitor management plan involves accessibility and access control, managing the number and movement of visitors to geosites, and monitoring their activities.

Access to a UGGp and its different tourism services and attractions, including geosites, is key for geotourism development and the preservation of sensitive geological features. Accessibility and access control can either accelerate or slow visitor growth, can affect visitor experience and satisfaction, and can either degrade cultural and natural resources or contribute to their conservation. Thus, implementing access control measures in geotourism destinations can ensure a balance between providing visitor access to geosites and preserving their natural and cultural value. Moreover, effective access control helps ensure the sustainable management and long-term conservation of geosites for future generations.

This step features 4 tools that cover: managing visiting access; calculating and managing the carrying capacity of sites; tourism infrastructure and risk reduction and crisis management.

>>

TOOL F.1
VISITOR ACCESS MANAGEMENT

STEP	TASKS
1. TRANSPORTATION MODES	• Assess each type of transport mode for its quality, capacity and supporting infrastructure (e.g. air connections into target markets, capacity and frequency of flights, cost, airport facilities, rental cars, public transport, cycling routes, rental shops). • Physical connectivity supports visitor movement and it can also form part of the visitor experience (e.g. heritage train journeys, cycling routes, hiking trails, scenic drive roads). • Collaborate with local and national governments in order to improve accessibility and to ensure smooth and safe access for all visitors. • Negotiate access management with Indigenous Peoples and their communities. They may have self-governing community protocols and rules and regulations that control access.

2. GEOSITES ASSESSMENT & ZONING	• Conduct a thorough assessment of the geosites to identify their fragility and vulnerability, taking into consideration their unique biophysical factors and management requirements.
	• Divide the geosites into different zones based on their sensitivity, allowing for varying degrees of access and visitor activities. A zoning system proposed by Drumm, et al. (2004) for protected areas can be adapted for UGGps. It includes the following zones:
	  ◦ **Rural and geosites in rural areas:** include all adjacent areas where private landowners develop tourism services.
	  ◦ **Intensive/recreational areas:** include developed recreation areas in the UGGp near local communities or park-related sites within communities. This could include guard stations and visitor centers, port or transportation facilities, and other sites that include park personnel and activities.
	  ◦ **Intensive/natural:** include visitation sites with outstanding geology, wildlife, ecosystem, natural, or cultural history value but with only moderate resource constraints.
	  ◦ **Extensive/natural:** include sites with outstanding geology, wildlife, ecosystem, natural or cultural value, with more severe resource constraints limiting group size to smaller groups, or, conditions permitting, where a more leisurely experience with fewer encounters is desired.
	  ◦ **Semi-primitive:** remote areas where foot, animal or non-motorized transport are required. Risk, challenge and required skills are greater. Resource constraints are low to moderate. Encounters with other visitors are kept low and both permits and park service orientation or special guides are required.
	  ◦ **Pristine/scientific:** areas where geological and ecosystem value is at its highest. Usually remote and uninhabited with severe resource constraints. Visits are very limited, usually but not always confined to scientists. Requires permits in advance and guides specially trained in low impact techniques. There would be many strict regulations.
	  ◦ **Sites in indigenous territories:** these sites will fall under the governance of indigenous authorities and access must be negotiated separately. These sites will usually fall into one of the above categories as well.

>>

STEP	TASKS
3. REGULATION, FEES & PERMITS	• Establish a regulations framework that outlines access rules, visitor behavior and code of conduct, visitor fees and permits required for accessing geosites for individuals and tour operators. • Educate visitors and tourism businesses about the access restrictions, sensitive areas, and codes of conduct to ensure their compliance. • Develop a permit system that limits the number of visitors allowed per day or per season based on the carrying capacity. • Define the eligibility criteria for obtaining permits, such as self-guided tour requirements, guided tour requirements, educational purposes, or research activities.
4. CONTROLLED ACCESS	• Establish controlled access points, such as visitor centers or gate facilities, where visitor information can be provided, and permits and tickets can be obtained. • Use technology, such as electronic ticketing systems or access cards, to monitor and control visitor numbers and access to geosites. • Implement reservation mechanisms where visitors are required to book their visit in advance, allowing for better management of visitor numbers and distribution. • Employ trained guides and interpretation staff at the controlled access points, who can accompany visitors to geosites, provide educational information, and ensure compliance with access rules.
5. INCLUSIVITY	• Inclusive access considers the smooth and safe accessibility to tourism facilities, services, attractions and activities for people with different abilities including physically challenged people, people with visual impairment, people with reduced mobility, elderly, and kids. • When possible and feasible, ensure inclusive access to visitor centers and facilities, geosites, and trails.
6. DATA COLLECTION, MONITORING & SURVEILLANCE	• Implement a system to collect data on visitor numbers, patterns, and behaviors at geosites. • Use visitor counts, surveys, or technology-based solutions (e.g., sensors, ticketing systems) to gather information on visitor flow and preferences. • When possible, implement monitoring and surveillance systems to track visitor activities, detect any unauthorized access, and address potential issues promptly. • Use cameras, sensors, or on-site staff to monitor visitor behavior and ensure adherence to regulations. • Prepare an emergency response plan including evacuation measures and procedures, taking into account factors such as remote locations, accessibility time, physical and climatic conditions, means and equipment.
7. ENFORCEMENT & PENALTIES	• Establish clear enforcement mechanisms and penalties for non-compliance with access rules. • Support staff, guides and UGGp rangers, and if needed security forces and law enforcement officers, to enforce access control measures and respond to any violations or disturbances. This may include revisions to legal codes and risk analysis measures.
8. COLLABORATION WITH IPLCS	• Engage Indigenous Peoples and local communities in the access control process, negotiating agreements and protocols that benefit multiple stakeholders. • Hire Indigenous Peoples and community members as guides, interpreters, or stewards who can help monitor and manage access to geosites.
9. REGULAR REVIEW & ADAPTATION	• Continuously review and assess the effectiveness of access control measures, making adjustments as needed. • Solicit feedback from visitors and stakeholders to improve the access management system.

EXHIBIT F.1

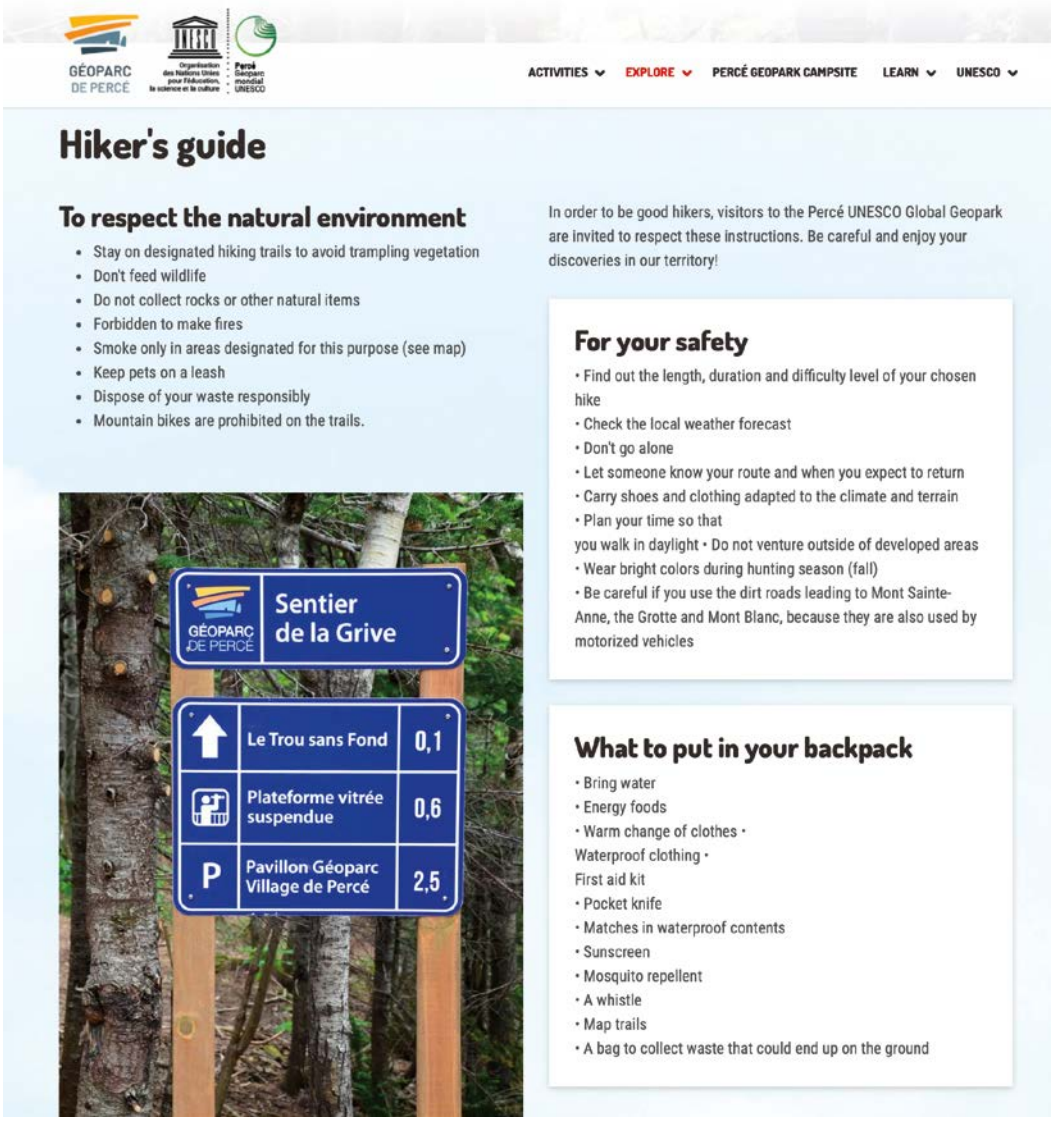
Papuk UGGp, Croatia - Rules

Source: *https://www.pp-papuk.hr/about-us/park-rules-and-regulations/?lang=en* (accessed on 22 September 2023)

	• do not damage trees or bushes, pick flowers and other plants
	• do not frighten, disturb, capture, hunt or kill any animal species and do not damage the nests and cavities/dens/lairs of animals
	• do not camp, light fires and hearths, except at designated places, and to maintain order and cleanliness in the Nature Park, dispose of all waste in the designated area
	• do not pollute watercourses and springs and do not swim in lakes
	• adhere to the warning signs and follow the designated paths for personal safety
	• dogs must be kept on leash at all times
	• photographs or videos taken in the park may not be used for any commercial purposes, except with the permission of the park management
	• it is forbidden to engage in tourist, catering or commercial activities without the concession approval of the Public Institution Papuk Nature Park

EXHIBIT F.2
Percé UGGp, Canada, Hiker's Guide

Source: *https://geoparcdeperce.com/explorer/guide-du-randonneur/* (accessed on 22 September 2023)



TOOL F.2
DETERMINING THE CARRYING CAPACITY OF GEOSITES

Determining carrying capacity is an essential component of geotourism planning to ensure a sustainable and enjoyable visitor experience while preserving the integrity of geosites. Calculating the carrying capacity at geosites or protected areas involves assessing the maximum number of visitors that can be accommodated without causing significant environmental degradation or compromising the visitor experience. Carrying capacity calculations are complex and site-specific, and may require input from multidisciplinary experts, resource managers, and stakeholders. Additionally, carrying capacity should be regularly reviewed and adjusted as conditions change and new data become available.

STEP	TASKS
1. SITE ASSESSMENT[1]	• Conduct a comprehensive assessment of the geosite, considering factors such as ecological sensitivity, cultural heritage, infrastructure, management resources, visitor facilities, and available resources. • Identify and evaluate the key environmental and social indicators that may be affected by visitation and visitor activities.
2. DEFINE DESIRED CONDITIONS	• Determine the desired conditions for the geosite, taking into account conservation objectives, visitor experience goals, and stakeholder expectations. • Consider the limits of acceptable change and the impact on natural and cultural resources, visitor crowding, infrastructure limitations, management resources, and ecological carrying capacity.
3. DATA COLLECTION	• Gather relevant data to inform carrying capacity calculations, such as visitor counts, visitor behavior surveys, resource monitoring data, and ecological or cultural impact assessments. • Consider historical visitor data, seasonal variations, and trends in visitor demand.
4. ANALYZE CARRYING CAPACITY FACTORS	• Ecological factors: Evaluate the sensitivity of the geosite, its ecosystem and its ability to withstand visitor impacts. Consider factors like soil, erosion, ecological, wildlife, and water resources. • Cultural factors: Assess the cultural or heritage values of the geosite and the potential impacts of visitor activities on tangible and intangible cultural assets. • Management and infrastructure: Evaluate the management resources and capacity of existing infrastructure, guides, rangers, trails, parking, visitor centers, restrooms, and other facilities to support visitor needs. • Social and visitor experience factors: Consider visitor satisfaction, safety, overcrowding thresholds, and the desired quality of experience. • Time and space factors: Evaluate the temporal and spatial distribution of visitors to ensure a balanced utilization of the geosite.
5. DETERMINE IMPACT THRESHOLDS	• Establish impact thresholds or standards for each carrying capacity factor based on management goals, scientific research, expert opinions, and stakeholder consultations. • Define limits that prevent or minimize unacceptable impacts on the ecosystem, cultural heritage, visitor experience, and infrastructure.
6. CALCULATE CARRYING CAPACITY	• Use the collected data, impact thresholds, and carrying capacity factors to calculate the maximum number of visitors that can be accommodated. • Apply appropriate methodologies, such as analytical models, simulation tools, or expert judgment, to estimate carrying capacity based on the identified factors and thresholds.
7. MONITORING &ADAPTIVE MANAGEMENT	• Continuously monitor visitor data, resource conditions, visitor feedback, and other relevant indicators to evaluate the effectiveness of the carrying capacity calculations. • Regularly review and update carrying capacity estimates based on changing conditions, management objectives, and new information.

1. Information and data for this step can be taken from *TOOL F.1 VISITORS' ACCESS MANAGEMENT Step 2. Geosite Assessment & Zoning*. It can be further developed if needed.

Calculating the carrying capacity for geosites and trails: a multi-layer approach[2]

Calculate the physical carrying capacity (PCC)

The physical carrying capacity is the maximum number of visits that is possible to admit during a day. The figure is given by the relationship between the available space in the site or trail and the number of hours available to visit the site. A very simple equation is used:

$$PCC = S/sp*NV$$

Where: **S** is available surface area; **sp** is the area used per person; **NV** number of times the site can be visited in a given day with **NV = Hv/tv.** Where: **Hv**: Open hours and **tv**: required time to visit the site or walk the trail.

Calculating the real carrying capacity (RCC)

The real carrying capacity is the maximum number of visits that is possible after applying a series of correction factors to the PCC. These factors are defined according to the particular characteristics of the site, considering physical, ecological, social and managerial variables.

The equation applied is:

$$RCC = PCC * Fcx$$

$$Fcx = (1 - Mlx)/Mtx$$

Where: **Fcx** is Correction Factor of variable "x"; **Mlx** is Limiting magnitude of variable "x" and **Mtx** is Total magnitude of variable "x".

2. Somarriba-Chang, Garnier & Laguna (2006); Setiadji, et al. (2022)

Calculating the management capacity (MC)

The management capacity (MC) is defined as the possibilities the administrators of the UGGp have to develop the activities and be able to reach the objectives of the management plan. The MC includes a set of conditions which are needed to achieve desired operations and goals. To arrive at a quantitative estimation of these abilities, there are many variables that must be taken into account including policies, rules and regulations, infrastructural facilities, human resources requirements, financial resources, etc. Lack of these management abilities is one of the most serious problems in management of touristic destinations and sites.

MC is calculated using the following equation:

$$MC = (100 - Fmx)/100$$

Where: **Fmx** are the management adjustment factors, and **Fm = (Imc-Amc)/Imc * 100**

Where: **Imc** = ideal management capacity and **Amc** = real management capacity (available).

Calculating the Effective Carrying Capacity (ECC)

The effective carrying capacity is the maximum number of visits that should be allowed according to the capacity to manage them on the site or trail.

The equation used is:

$$ECC = RCC * MC$$

Where: **RCC** is real carrying capacity and **MC** is management capacity of the site or trail.

Depending on the nature of the geosite, visitor management may be an important component of geosite conservation. The UGGp management authority should also be aware of geosite closures or maintenance requirements to mitigate visitor impact and ensure that resources are in place to prevent deterioration of the site.

TOOL F.3
TOURISM INFRASTRUCTURE & FACILITIES

Tourism infrastructure and facilities play a crucial role in supporting visitor management and experiences, interpretation, and conservation efforts. The main types of tourism infrastructure and facilities found in UGGps and geosites are:

- **Visitor centers:** Visitor centers serve as the primary hub for information, orientation, and interpretation. They provide visitors with maps, brochures, exhibits, audio-visual presentations, and educational materials about the UGGp or geosite. Visitor centers may also include ticketing services, gift shops, restrooms, food and beverage services, refreshment areas, event venues.
- **Interpretive centers, museums and educational facilities:** Interpretive centers and museums provide more in-depth information and exhibits about the geological heritage, cultural history, and scientific research related to the UGGp or geosite. They may include interactive displays, fossil collections, geological specimens, and multimedia presentations. They may also include educational facilities, such as classrooms or field study centers catering to school groups, researchers, and educational programs focused on geology, environmental science, or cultural heritage.
- **Trails and walkways:** Trails and walkways in UGGp and geosites can be designed for several activities, namely walking, hiking, cycling and biking. Well-designed trails and walkways allow visitors to explore geosites while minimizing impacts on natural or cultural resources. They should respect the local landscape and communities and be designed using local materials to fit in with the geosite. On the other hand, trails and walkways should be inclusive and accessible for people with different abilities.
- **Viewpoints and observation decks:** Viewpoints and observation decks provide panoramic views of significant geological formations, geosites, landscapes, or landmarks. They are strategically located to offer visitors the best vantage points for appreciating the geological features, interpret the geological heritage, and capturing memorable photographs.

- **Signage:** Signage is part of the UGGp's soft infrastructure. It includes informative panels (general maps, safety guidelines, and regulations), interpretive panels (description and interpretation of specific geosites or other heritage elements) and directional signs. The UGGp and geotourism signage plan contributes to the quality of the visitor experience and helps to connect visitors to places through a shared story, encouraging visitation of lesser-known attractions and communities.
- **Rest areas:** Rest areas offer visitors a place to relax, have snacks, and enjoy the natural surroundings. They can be equipped with seating, tables, and waste bins.
- **Waste management and recycling facilities:** Proper waste management and recycling facilities are essential to maintain the cleanliness and environmental integrity of geosites. They include garbage bins, recycling stations, and waste collection systems designed to minimize the impact of visitor waste.
- **Transportation infrastructure:** UGGps may have transportation infrastructure, such as roads, parking lots, shuttle services, or trails for cycling or electric vehicles, to facilitate visitor access and mobility within the geosites. Parking areas should be in appropriate places so as not to detract from the geosite and if possible alternative methods of travel should be encouraged.
- **Visitor accommodation:** UGGps may include visitor accommodation options such as lodges, cabins, or campsites near geosites. These facilities cater to overnight visitors, allowing them to immerse themselves in the UGGp experience.

TIPS
for Designing Tourism Infrastructure and Facilities in UGGps

When designing tourism infrastructure and facilities in UGGps and geosites, it is crucial to consider sustainability and integration with the natural and cultural surroundings. The design should aim to provide a quality visitor experience while preserving the geological and cultural values of the site. Some key principles and considerations for designing infrastructure and facilities in UGGps and geosites include:

Sustainable Design

- Emphasize sustainable design practices that minimize the environmental impact of infrastructure and facilities.
- Use locally sourced materials, renewable resources, and energy-efficient technologies.
- Incorporate green building principles such as solar energy, rainwater harvesting and natural ventilation.

Site Integration

- Integrate infrastructure and facilities harmoniously with the natural and cultural surroundings.
- Respect the visual aesthetics and landscape features of the UGGp or geosite.
- Minimize visual and physical intrusions by blending structures with the natural topography and vegetation.

Flexibility and Adaptability

- Design infrastructure and facilities that can adapt to changing needs and visitor demands over time.
- Allow for future expansions or modifications based on visitor feedback, technological advancements, or conservation requirements.

Visitor Comfort and Safety

- Allow simplicity of functions to prevail while respecting basic human needs.
- Prioritize visitor comfort and safety in the design of facilities.
- Include seating areas, shaded shelters, and weather protection in outdoor spaces.
- Ensure clear signage, lighting, and wayfinding systems to enhance visitor safety.

Indigenous and Local Culture and Community Integration

- Prioritize design processes that are led by Indigenous Peoples and local communities to ensure infrastructure and facilities that reflect the cultural identity of the region.
- Incorporate traditional architectural elements, art, local craftsmanship to create a sense of place and connection with the community.

Sustainable Transportation

- Design infrastructure to promote sustainable transportation options, such as pedestrian-friendly paths, cycling lanes, or public transit connections.
- Encourage visitors to use eco-friendly transportation methods, reducing reliance on private vehicles.

Waste Management and Sustainability

- Integrate waste management facilities and systems into the design to minimize the environmental impact of visitors' waste.
- Include recycling bins, composting facilities, and educational signage on waste reduction and recycling practices.

Maintenance and Management Considerations

- Design infrastructure and facilities with maintenance and long-term management in mind.
- Ensure ease of upkeep, durability, and cost-effectiveness of materials and technologies used.
- Consider the availability of local resources and expertise for maintenance and repairs.

—

TOOL F.4
REDUCING RISKS, ENSURING SAFETY, AND CRISIS MANAGEMENT

When developing geotourism, it is essential to consider risks and how to reduce them, and ensure safety and crisis management.

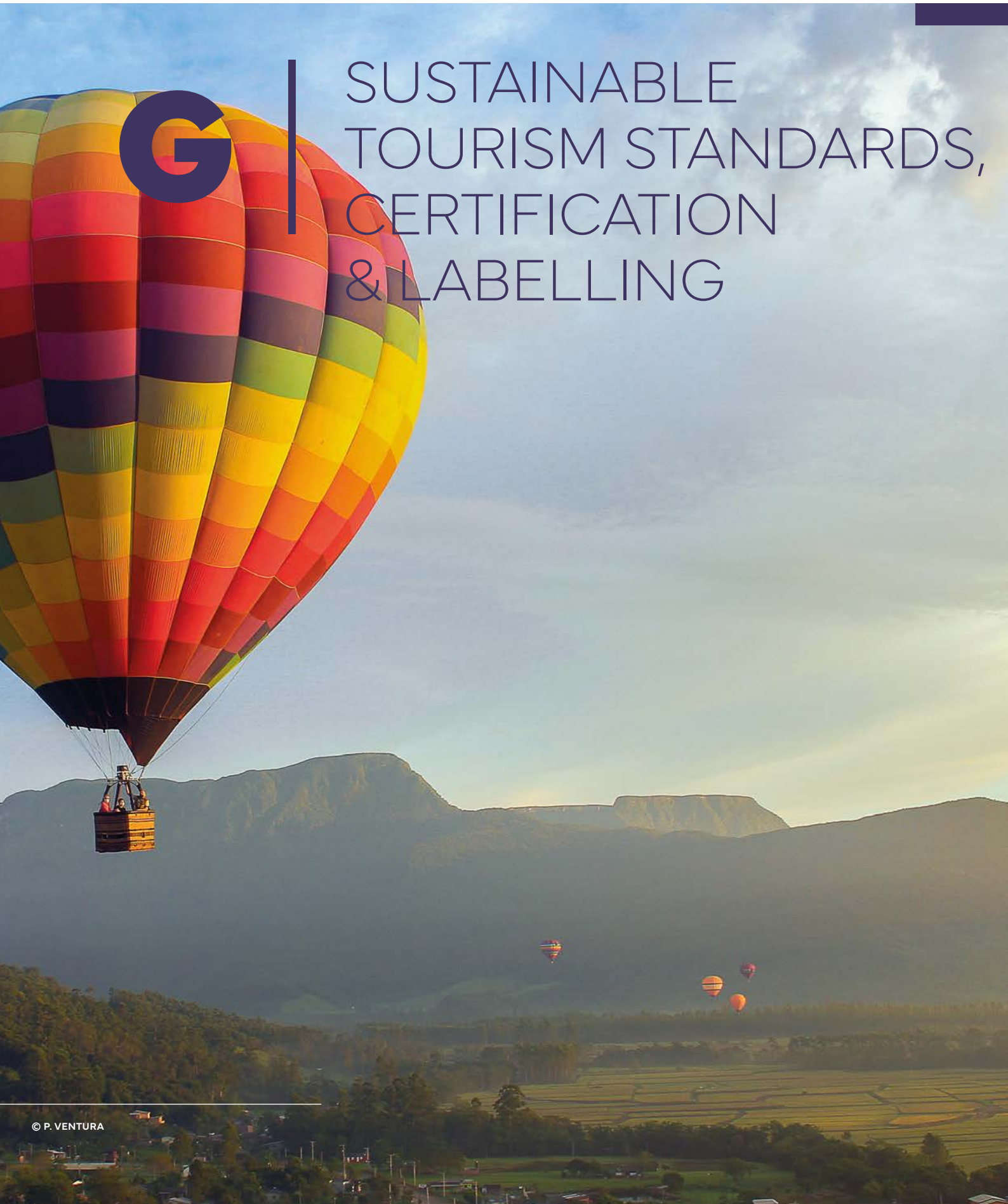
By incorporating comprehensive risk assessment, safety measures, and crisis management protocols into the geotourism plan, UGGps can demonstrate a commitment to visitor safety and ensure a positive and secure experience for travelers.

>>

STEP	TASKS
1. RISK ASSESSMENT[3]	• Conduct a thorough risk assessment to identify potential hazards and risks associated with geosites and geotourism activities. • Evaluate geological hazards and risks such as landslides, rock falls, volcanic activity, or seismic events. • Assess other risks such as extreme weather conditions, health and safety hazards, socio-political instability or crime. • Consider risks specific to the destination's natural heritage in general and cultural heritage sites.
2. SAFETY MEASURES & PRECAUTIONS	• Develop safety protocols and guidelines for geosite visitors and geotourism activities. • Establish clear instructions for safe behavior and adherence to regulations. • Provide safety equipment, signage, and information at geosites and trails. • Collaborate with local authorities, experts, and tour operators to ensure safety standards are met.
3. VISITOR INFORMATION & EDUCATION	• Provide accurate and up-to-date information to visitors about potential risks, safety guidelines, and emergency procedures. • Communicate information and educate visitors about potential risks, safety procedures, and responsible behavior through visitor centers, signage, brochures, websites, or guided tours. • Educate visitors about the fragile nature of geological sites and cultural heritage, promoting responsible behavior and conservation practices. • Offer educational programs, guided tours, or interpretive materials to enhance visitor understanding of geology, cultural heritage, and safety precautions.
4. CRISIS MANAGEMENT PLAN	• Develop a comprehensive crisis management plan to address potential emergencies or crises. • Establish an emergency response team and define roles and responsibilities. • Identify communication channels and protocols for effective crisis communication with visitors, stakeholders, and authorities. • Establish contingency plans for various scenarios such as natural disasters accidents and health emergencies. • Provide training and drills for staff members to ensure preparedness and effective response.
5. COLLABORATION WITH AUTHORITIES & STAKEHOLDERS	• Establish partnerships and regular communication channels with local authorities, emergency services, and relevant stakeholders. • Collaborate with governmental agencies responsible for safety and emergency management to align strategies and share information. • Engage with Indigenous Peoples and local communities, tour operators, and guides to ensure their involvement in promoting safety and responsible geotourism practices.
6. CONTINUOUS MONITORING & EVALUATION	• Regularly monitor and evaluate the effectiveness of safety measures, crisis management protocols, and risk mitigation strategies. • Gather feedback from visitors, staff, and stakeholders to identify areas of improvement. • Stay updated on relevant safety standards, regulations, and best practices in geotourism. • Adapt and refine safety and crisis management plans based on lessons learned and emerging risks.

3. Information and data for this step can be generated using *TOOL F.1 VISITOR ACCESS MANAGEMENT Step 2. Geosite Assessment & Zoning*.

G | SUSTAINABLE TOURISM STANDARDS, CERTIFICATION & LABELLING



© P. VENTURA

G— Sustainable tourism standards, certification and labelling

UGGps must work towards promoting and applying sustainable tourism certification and labels as basic tools for geotourism planning and management, based on well-established and defined standards for the UGGps' services and products[1].

Step G consists of an overview of instruments and tools that provide certification and labelling, as well as guidelines for adopting and applying these standards.

1. Rodrigues, et al. (2021)

>>

Achieving sustainable tourism is a continuous process which requires constant monitoring of impacts and the introduction of necessary preventive and/or corrective measures[2]. The main instruments used to promote, monitor and measure tourism sustainability are summarized in **TABLE G.1 — INSTRUMENTS AND TOOLS FOR MEASURING SUSTAINABLE DESTINATIONS** and **ANNEX 1**.

TABLE G.1 — Instruments and tools for measuring sustainable destinations

Source: UNEP & UNWTO (2005)

INSTRUMENT	TOOLS
A. Instruments used to determine levels of tourism and impact, and to keep abreast of existing or potential changes.	**A.1.** Sustainability indicators
	A.2. Carrying capacity
	A.3. Limits of acceptable change
B. Command and control instruments which enable governments to exert strict control over certain aspects of tourism development and operations, backed by regulations and by legislation.	**B.1.** Legislation, regulation and licensing
	B.2. Land use planning
C. Economic instruments to influence behavior and tourism impacts through financial means and sending signals via the market.	**C.1.** Taxes and charges
	C.2. Financial incentives and agreements
D. Voluntary instruments providing frameworks or processes that encourage voluntary adherence of stakeholders to sustainable approaches and practices.	**D.1.** Guidelines and codes of conduct
	D.2. Reporting and auditing
	D.3. Voluntary certification
E. Supporting instruments through which governments can, directly and indirectly, influence and support enterprises and tourists in making their operations and activities more sustainable.	**E.1.** Infrastructure provision and management
	E.2. Capacity building
	E.3. Marketing and information services

In order to implement the concept of sustainable tourism, the Global Sustainable Tourism Council (GSTC) has proposed a set of criteria and standards for sustainable tourism[3], starting with operators, destinations and the hotel industry to achieve the following four goals: (1) planning for effective and sustainable development; (2) maximizing the economic and social benefits of local communities; (3) enhancing cultural heritage benefits; (4) mitigating negative environmental impacts.

2. UNWTO (2022)

3. Detailed criteria and standards can be downloaded from: *https://www.gstcouncil.org/*

EXHIBIT G.1
The Global Sustainable Tourism Council (GSTC)
https://www.gstcouncil.org/about/

"The GSTC is an independent and neutral organization, legally registered in the USA as a 501(c) (3) non-profit organization that represents a diverse and global membership, including national and provincial governments, leading travel companies, hotels, tour operators, NGOs, individuals and communities – all striving to achieve best practices in sustainable tourism.

The GSTC establishes and manages global standards for sustainable travel and tourism, known as the GSTC Criteria. There are three sets: Destination Criteria for public policy-makers and destination managers[4], Industry Criteria for hotels and tour operators[5] and MICE criteria for venues, event organizers and events & exhibitions[6]. The criteria are the result of a worldwide effort to develop a common language about sustainability in tourism. They are arranged in four pillars: (A) sustainable management; (B) socioeconomic impacts; (C) cultural impacts; and (D) environmental impacts. Since tourism destinations each have their own culture, environment, customs, and laws, the criteria are designed to be adapted to local conditions and supplemented by additional criteria for the specific location and activity.

The GSTC Criteria form the foundation accreditation for certification bodies that certify hotels/accommodations, tour operators, transport providers, and destinations as sustainable policies. The GSTC does not directly certify any products or services; but provides an accreditation program through its partner Assurance Services International to accredit certification bodies."

In recent years, demand for certified sustainable tourism products and practices has steadily grown. Like all types of certification, there are three levels of sustainable tourism certification validation: 1) First party: the organization declares itself as compliant with the certification criteria "self-assessed" or "self-declared"; 2) Second Party: the organization validates a supplier (or other stakeholder) as compliant with the certification criteria; 3) Third Party: the organization is audited by an independent professional organization which is officially trained in the certification criteria.

4. See *https://www.gstcouncil.org/gstc-criteria/gstc-destination-criteria/*
5. See *https://www.gstcouncil.org/gstc-criteria/gstc-industry-criteria/*
6. See *https://www.gstcouncil.org/gstc-criteria/gstc-mice-criteria/*

The GSTC is the major player in terms of sustainable tourism certification. GSTC does not directly certify any products or services, but it provides accreditation to the leading sustainable tourism certification programmes around the world and ensures that they meet minimum standards according to its own criteria. A GSTC accredited certification is therefore an assurance of quality in sustainability certification[7]. Sustainable tourism certifications can range from process and management standards such as ISO 14001:2015[8] to ecolabels and performance standards (ANNEX 2). Other than the global sustainability certifications, a wealth of certificates and seals are available for the key performance areas (i.e. energy, emissions, sustainable food and accessible tourism) at the local level. In many cases, these individual labels and programmes are managed and approved locally by national and regional organizations.

Despite the multiplicity of ecolabels present in the tourism sector, it is still possible to identify some salient features common to all[9]:

- **Environmental performance and engagement:** everything related to the preservation and management of ecosystems, reduction of carbon emission and use of renewable energy;
- **Resources use efficiency and waste management:** efficient use of water, waste management and reduction of food waste;
- **Health and safety:** risk reduction, Covid-19 protocols, reducing pesticides and chemical substances;
- **Credibility/transparency:** accountability, integration, organizational capacity;
- **Social and cultural affairs:** heritage preservation, cultural integrity, social protection, inclusivity, accessibility, human rights, etc.;
- **Supply chain:** from procurement, to suppliers' selection, to the type of products and services chosen (natural, organic, fair trade);
- **Circularity:** processes related to circular economy;
- **Work environment:** staff involvement and management.

7. Idem
8. ISO 20121:2012 refers to a Sustainable Event Management System and ISO 14001:2015 refers to an Environmental Management System.
9. Consulta Europa Projects and Innovation S.L. (2020)

TOOL G.1 ADOPTING AND APPLYING SUSTAINABLE TOURISM STANDARDS & CERTIFICATION

STEP	TASKS
1. ASSESS CURRENT SITUATION	• Conduct a thorough assessment of the UGGp's existing tourism activities, infrastructure, policies, and environmental impact. • Identify strengths, weaknesses, opportunities, and challenges related to sustainable tourism.
2. DEVELOP A SUSTAINABLE TOURISM STRATEGY	• Create a comprehensive sustainable tourism strategy that outlines the UGGp's goals, objectives, and actions with relation to sustainability. This could be integrated into the geotourism management plan. • Define key performance indicators (KPIs) to measure the success of sustainable tourism initiatives.
3. ENGAGE STAKEHOLDERS	• Indigenous Peoples, local communities, businesses, NGOs, and relevant government agencies should be involved throughout the process from step 1. • Seek inputs and collaborate with stakeholders to ensure diverse perspectives and local buy-in.
4. IMPLEMENT SUSTAINABLE PRACTICES	• Develop and implement sustainable tourism practices that prioritize conservation, minimize environmental impacts, and respect local cultures. • Establish guidelines for waste management, energy use, water conservation, and visitor behavior.
5. CERTIFICATION PROCESS	• Research and select a relevant national or international sustainable tourism certification program that aligns with the UGGp's values and goals. • Initiate the certification process, which may involve self-assessment, external audits, and compliance verification. • Work closely with the chosen certification body to provide necessary documentation, data, and evidence of sustainable practices. • Participate in site visits and audits to demonstrate the UGGp's commitment to sustainability. • Review the feedback and recommendations provided by the certification body. • Continuously improve and refine sustainable tourism practices based on the audit findings and recommendations.
6. PROMOTE CERTIFIED SUSTAINABLE TOURISM:	• Publicize the certification through marketing materials, websites, social media, and promotional campaigns. • Showcase the UGGp as a model of sustainable tourism and a responsible destination.

EXHIBIT G.2
National Sustainable Tourism Certification Programmes in the Arab States of North Africa, Latin America and the Caribbean

Among the six Arab States of North Africa, only Egypt has a national sustainable tourism certification programme, whereas in the Latin America and Caribbean region, 9 out of 33 states have a national certification programme pertaining to sustainable tourism.

EGYPT: The Green Star Hotel Programme is a national eco-certification and capacity-building programme, recognized by GSTC, tailor-made for the Egyptian accommodation sector to encourage Egyptian hotels and resorts to move towards more sustainability. Number of certified accommodations: 70. Website: *www.greenstarhotel.org*

MEXICO: The Ecotourism Certification Programme is based on the Mexican regulations of sustainability in ecotourism. Number of certified tourism services: 35. *Website: Adventure Mexico.travel Ecoturismo Certificado en México - Adventure Mexico.travel*

GUATEMALA: The Green Deal Certification of Sustainable Tourism programme certifies tourism services in Guatemala. Based on the GSTC International Standards, its comprehensive program offers a complete service pack to its clients: i) training, ii) initial on site assessment, iii) technical assistance by partner organizations and/or independent advisors, iv) on site audit services from independent auditors providing third party inspections, v) on site and desk monitoring activities, vi) marketing services. Moreover, it offers carbon offset and community support programs. Number of certified tourism services: 11. Website: *Certifica (sellosverdes.com)*

COSTA RICA: The Certification for Sustainable Tourism (GSTC standard) is awarded at five levels, from entry level to the maximum level of coverage of the sustainability criteria in all areas. Besides hotels, local tour operators, attractions and car rentals can also be certified. Number of certified tourism services: 346. Website: *Inicio - CST (turismo-sostenible.co.cr)*

COLOMBIA: The Sello Ambiental Colombiano is a voluntary standard for destinations, accommodation providers, restaurants and travel agencies. Number of certified tourism services: 123. Website: *https://www.minambiente.gov.co/asuntos-ambientales-sectorial-y-urbana/sello-ambiental-colombiano-sac/*

PERU: The Control Union Green Choice provides certification for accommodation services is an active member of The International Ecotourism Society (TIES) and is GSTC accredited. Website: *http://peru.controlunion.com/en/certification-programs/green-choice*

ARGENTINA: Hoteles más Verdes Ecolabelling Programme of the Tourism Hotels Association Argentina (AHT) is a national, GSTC recognized program of sustainable tourism certification available for hotels and tourist accommodation. Number of certified tourism services: 130. Website: *http://www.hotelesmasverdes.com.ar/*

CHILE: Distinción Turismo Sustentable certificate (GSTC recognized) aims to recognize sustainable accommodation across Chile, and give them more visibility among foreign and national tourists. Number of certified tourism services: 90. Website: *https://serviciosturisticos.sernatur.cl/*

BRAZIL: The Brazilian Standard NBR ABNT 15.401 - Sustainable Management for Accommodations, developed by the PCTS (Programa de Certificação em Turismo Sustentável), was adopted as an official standard for Brazil. Website: *http://www.abnt.org.br/*

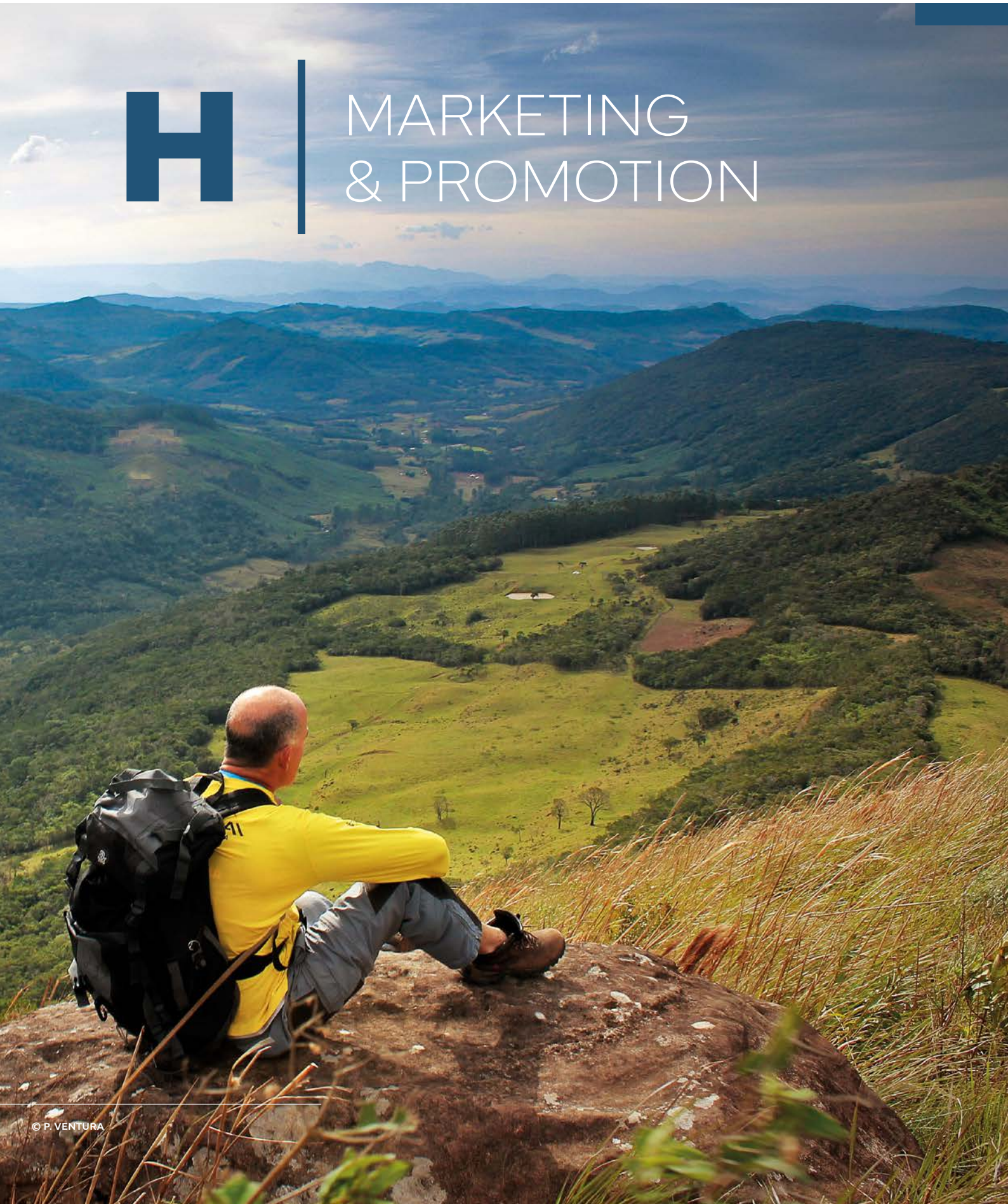
ECUADOR: Besides hotels and eco lodges, Smart Voyager Ecuador certifies boats and ships that offer excursions along the Amazon River or around the Galapagos Islands. In addition, the Ecuadorian certificate is available to social institutions and initiatives, which collaborate with tourism businesses. Number of certified tourism services: 300. Website: *https://serviciosturisticos.sernatur.cl/*

TOOL G.2
MANAGING UGGPS AS SUSTAINABLE DESTINATIONS

Source: Adapted from World Travel & Tourism Council (2021)

GUIDING PRINCIPLE	DESCRIPTION
1. MANAGING SUPPLY AND DEMAND	It is important to balance tourism's socio-economic impacts and to develop services and facilities that can be accessed fairly by both visitors and residents.
2. INCREASE SUSTAINABILITY AWARENESS AND REQUIREMENTS	UGGps should transition towards a climate neutral, green economy. Sustainability efforts can be enabled by green technology solutions, the circular economy, zero-waste, renewable energy subsidies and lower tariffs for sustainable products amongst other innovations.
3. EVOLVING VISITOR ECONOMY	Destinations should be managed through multi-stakeholder collaboration to create meaningful touchpoints along the customer journey. An integrated approach that connects the visitor economy to a range of sectors, for instance shopping, gastronomy, health and sports. Keeping in mind that "a better place to live is a better place to visit" helps tourism to support facilities or amenities that are also highly valued by residents.
4. SHIFTING DEFINITIONS OF SUCCESS	Leading destination tourism strategies shift their definitions of success from volume to value, reject unmanaged growth, understand carrying capacities and impacts, and maximize the benefits while minimizing the burdens on communities and resources.
5. GOVERNMENTS PLAY KEY ROLES IN DESTINATION GOVERNANCE	Governments have key roles to play, particularly fiscal and regulatory, as destinations seek to capitalize on growth while managing their impacts. There is an increased recognition of the need for collective accountability of shared destination resources and assets. This has also encouraged new partnerships at various levels, from international to local, with an emphasis on increased community involvement and co-creation in destination development.
6. PLACEMAKING	Placemaking is an increasingly popular approach to the planning, design and management of public spaces, with a focus on the use of investments and interventions to create good places to live and visit for residents and visitors, and enhancing a sense of place, identity, livability, and vibrancy, as well as the economic opportunities of a UGGp.
7. SMART TOURISM DEVELOPMENT	Smart destination management integrates human, infrastructural, social, and entrepreneurial capital with a coordinated use of smart technology.
8. ENABLING TECHNOLOGIES	Where possible, using digitial technologies can support destination management and improve visitor experiences by facilitating effective tourism flows in real time, crowd control and product diversification. This can include mobile payment solutions, AI, etc.
9. BECOMING MORE RESILIENT	Enhanced preparedness and resilience to crises, is a core element of destination sustainability. This includes sudden onset events, such as terrorism, disease outbreaks, or natural hazards, or slow onset events, such as ecosystem and demographic change.
10. INCREASING SOCIAL INCLUSION	Destinations should ensure policies and actions to promote employment and opportunities for all, decent work, fair representation, workforce diversity, entrepreneurialism, inclusivity and equitable access to resources and services. These should take into account gender; Indigenous Peoples and local communities; people with disabilities and other marginalized sectors of the population.

H | MARKETING & PROMOTION



© P. VENTURA

H— Marketing & promotion

Developing geotourism, with special emphasis on geological heritage of international relevance, lies at the heart of any UGGp's sustainable economic, social and environmental development strategy. This cannot be achieved without appropriate marketing and promotion. In this regard, geotourism is considered to be a niche product because it attracts a particular market segment: those who are interested in specific landscapes, geological materials and museums[1]. The main market segments for geotourism are educational and leisure, especially families and schools which both have the opportunity to combine adventurous geological trips with an educational aspect[2]. However, geotourism may also appeal to a range of visitors, from "dedicated" geotourists seeking to learn about geology and geomorphology to "casual" visitors looking for nature appreciation, culture and enjoyment of outdoor recreational activities[3].

1. Mohd Fadil, Hairul Nizam & Ghazali (2019)
2. Megerle & Pietsch (2017)
3. Gordon (2018)

>>

TOOL H.1
UNDERSTANDING THE GEOTOURISM MARKET & ITS MOTIVATIONS

A target market is a specific group of consumers at which a product or service is aimed and marketed. In tourism, target markets can be further characterized and segmented by:

- Geography (continent, country of origin, rural vs urban)
- Demographics (e.g., income, age, gender, social status, etc.)
- Psychographics (interests, lifestyle, values, etc.)

In the geotourism context, the main target markets are nature and culture oriented travelers looking for an immersive learning experience that allows them to:

- Discover geological heritage, and
- Contribute to its conservation.

As a niche market, travelers interested in UGGps and geotourism:

- May have a higher expenditure capacity than other nature-based and adventure tourists due to their commitment to use sustainable services and contribute financially to geological heritage conservation.
- Tend to avoid mass forms of tourism and do not wish to be in crowded areas. Instead, they choose experiential travel in small groups, prioritizing spending on experiences, activities and local cuisine.
- Are tech savvy, possess a higher level of education, and are often experienced in traveling to both traditional and remote destinations.
- Their travel motivations include experiencing nature, discovering the destination, cultural exchanges, local cuisine, authenticity, and the opportunity to explore and learn.
- They are active, curious, and environmentally aware at home and when traveling.
- They embrace bucket lists and like to find the next “new thing”.

Bearing in mind the purpose of each UGGp, its vision and mission, as well as recognizing the overall concept of the UGGp network, it is important to describe and analyze more precisely the various segments of potential geotourism markets, which include: schools and universities; tourists and visitors (national and international); scientists; the general public (the local community).

A good starting point for market research is understanding the main motivations for current and potential visitors of a UGGp[4] **(TABLE H.1)**.

4. Atlantic Geoparks (n.d.)

MOTIVATIONAL CATEGORY	SPECIFIC MOTIVATIOS
ENVIRONMENTAL, CULTURAL AND EDUCATIONAL MOTIVATION	To learn about the values and traditions of its residents
	To visit geosites / geological heritage
	To visit historical / cultural heritage
	To visit museums / interpretative centers
MOTIVATION RELATED TO FUN AND REST	To escape routine
	Rest and relaxation
MOTIVATION RELATED TO RESEARCH AND INSTRUCTIVE TEACHING	On-site contact with geological phenomena
	Living science
	Field trips
	Contact with nature
	Conducting internships and scientific research
SOCIOLOGICAL AND PSYCHOLOGICAL MOTIVATION	Adrenaline and adventure
	Ethnic and cultural motives
	To visit the family's country of origin
	To visit places that family or friends have already visited
PROFESSIONAL AND ECONOMIC REASONS	To participate in conferences, meetings, exhibitions, fairs, etc.

TABLE H.1 — Travelers' motivations

Source: *https://www.geoparktoolkit.org/marketing-promotion/* (accessed 22 September 2023)

The rich natural and cultural heritage of UGGps holds great appeal for tourists seeking a range of experiences. Thus, to successfully market geotourism, it is vital to understand what tourists are looking for. Below are some suggestions that may appeal to the geotourism niche market. However, it is important to highlight that tourists from different countries will have different expectations, so may be looking for other experiences.

1. **Nature-based experiences:** Tourists are looking for experiences where they can be surrounded by nature or engage in physical activities set in beautiful landscapes. Seeing and learning about wildlife and ecosystems are also sought-after activities. Nature-based activities can be categorized as follows:
    - Passive activities: meditation, yoga retreats or other relaxing pastimes that benefit from natural surroundings, staying in traditional village accommodation.
    - Gentle activities: walking, swimming, wildlife watching/safari/boat tours/farm tours.
    - Soft adventure (specialist skills not required): hiking/trekking, canoeing, snorkeling, rafting, cycling, zip lining.
    - Hard adventure (more strenuous, technical support required): mountaineering, white-water rafting, kayaking, climbing, caving, diving, paragliding.

2. **Cultural experiences:** Many tourists are curious about different cultures and look for experiences that help them to find out about other people's way of life by learning about their traditions, food, religion and history. Tourists may prefer to interact with local people to make their learning experience more authentic, unique and interesting. Typical cultural experiences can include:
    - Visiting built or natural heritage sites, significant in terms of historical events, culture or religion.
    - Visiting villages and Indigenous or tribal communities, local markets and traditional farms.
    - Immersive experiences, such as cooking, painting, weaving, music, bush-craft, storytelling, harvesting and traditional farming practices.

3. **Combining nature and culture:** It is important to recognize that there are opportunities to integrate culture and heritage features into nature-based activities and vice versa. Traditional farming practices and farm to table immersive experiences are good examples of such an approach.

TOOL H.2
PREPARING A MARKETING PLAN

UGGp visitors and stakeholders need to be able to find relevant information on the geotourism offer and opportunities. As such, UGGps need to define a marketing and promotion plan aligned with the UGGp's management plan and the geotourism management plan. The marketing and promotion plan should include communication and information actions using a mix of marketing and promotion tools to communicate with the UGGp, its management authority, and its partners, including public and private stakeholders, tourists, business, educational institutions, as well as Indigenous Peoples and local communities.

Geotourism Marketing Plan Structure

Developing a marketing plan for geotourism follows a similar process to a general marketing plan, with some specific considerations. One suggested structure contains nine main sections:

1. **Executive Summary**
    - Provide an overview of the geotourism marketing plan, including its objectives and key highlights.
    - Summarize the target audience, unique selling proposition, and key marketing strategies.

2. **Situation Analysis**
    - Present an analysis of the geotourism market, including trends, demand, and competition.
    - Identify the geological features (geosites), cultural heritage, and unique attributes that make the destination attractive for geotourism.
    - An evaluation of the current state of geotourism in the destination, including existing infrastructure, services, and visitor experiences.
    - Assess the strengths, weaknesses, opportunities, and threats related to geotourism development.

3. **Target Market and Segmentation**
    - Define the target market(s) for geotourism, considering demographic, psychographic, and behavioral characteristics.
    - Segment the market based on specific interests, such as geological enthusiasts, adventure seekers, educational travelers and local users.
    - Understand the needs, preferences, and motivations of the target audience to tailor marketing messages and experiences.

4. **Positioning and Differentiation**
    - Determine the unique value proposition of the geotourism destination.
    - Define the desired positioning in the geotourism market, and how it is different from other destinations.
    - Communicate the destination's geotourism offerings, such as exceptional geological formations, cultural heritage, scientific research, or sustainable practices.

>>

5. **Marketing Strategies**

    - Develop overarching marketing strategies to achieve geotourism objectives.
    - Define the best marketing channels to reach the target audience effectively, considering online platforms, travel agencies, trade shows, educational institutions, and partnerships.
    - Determine product development strategies, such as creating geotourism packages, themed experiences, educational programs, or community involvement initiatives.
    - Identify pricing strategies, distribution channels, and promotional activities, including advertising, public relations, content marketing, and social media campaigns.

6. **Action Plan and Tactics**

    - Break down the marketing strategies into actionable steps.
    - Specify the tasks, responsibilities, timelines, and budgets for each step.
    - Implement steps such as developing a geotourism website, creating engaging content, organizing geotourism events, collaborating with local communities, or establishing partnerships with relevant stakeholders.
    - Consider the use of geotourism-focused technologies, such as interactive maps, augmented reality experiences, or mobile applications.

7. **Budget Allocation**

    - Allocate a budget for implementing the geotourism marketing plan.
    - Consider the costs associated with advertising, promotions, website development, content creation, trade shows, research, and personnel.
    - Ensure that the budget aligns with the objectives and expected outcomes.

8. **Implementation**

    - Execute the geotourism marketing plan by implementing the outlined tactics and activities.
    - Monitor progress regularly and make adjustments as necessary.
    - Ensure effective coordination and communication among the team members involved.

9. **Evaluation and Control**

    - Establish metrics and key performance indicators (KPIs) to measure the success of the geotourism marketing plan.
    - Monitor and evaluate the performance against the set objectives.
    - Conduct regular reviews and assessments to identify areas of improvement and make necessary adjustments.

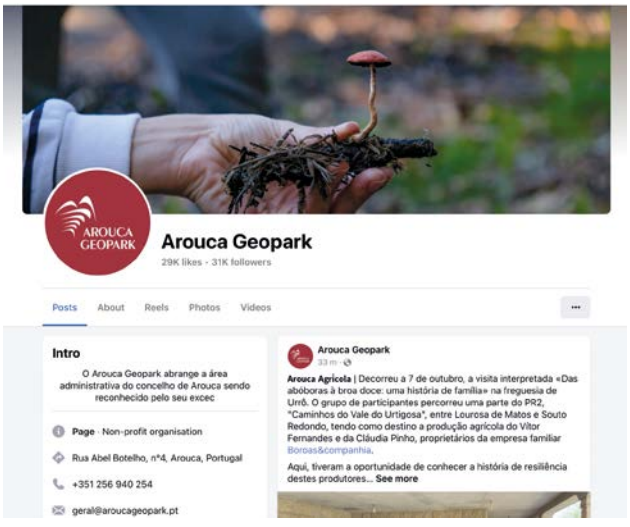
TOOL H.3
DEVELOPING THE UGGP/ GEOTOURISM BRAND AND VISIBILITY

STEP	TASKS
1. DEFINE THE BRAND IDENTITY	• Determine the unique identity and positioning of the UGGp and its geotourism offer. • Identify the key values, themes, and experiences that differentiate the UGGp and its geotourism offer from other destinations. • Consider the geological features, cultural heritage, sustainability practices, and local community involvement that make the UGGp special.
2. DEVELOP A COMPELLING BRAND STORY	• Craft a compelling narrative that communicates the essence and significance of the UGGp. This is most effectively done through a participatory process. • Highlight the geological wonders, cultural heritage, scientific research, and conservation efforts that visitors can experience. • Emphasize the benefits and transformative experiences that visitors can gain from exploring the UGGp.
3. CREATE A MEMORABLE VISUAL IDENTITY	• If not done already, design a visually appealing and cohesive brand identity for the UGGp. • Develop a logo, a color palette, typography, and visual elements that reflect the geology, culture, and natural beauty of the area. • Apply the visual identity to all marketing materials and communication channels and ensure consistency. • Note that UNESCO logos cannot appear on products for sale. It may be necessary to adapt the branding to ensure a version with the UNESCO logo and one without.
4. BUILD AN ENGAGING WEBSITE	• Create a user-friendly and visually appealing website dedicated to the UGGp with focus on geotourism as a main pillar. • Provide comprehensive information about the geological features, cultural heritage, visitor experiences, activities, and amenities available. • Include high-quality images, videos, interactive maps, and downloadable resources to engage and educate potential visitors.
5. LEVERAGE SOCIAL MEDIA	• Establish a strong presence on social media platforms to increase visibility and engage with a broader audience. • Share engaging visuals, interesting facts, stories, and updates about the UGGp and its attractions. • Encourage user-generated content (UGC) by featuring and promoting visitor photos, videos, and testimonials.
6. COLLABORATE WITH INFLUENCERS AND MEDIA	• Partner with travel influencers, bloggers, and journalists who specialize in sustainable travel, adventure tourism and geotourism. • Invite them to visit the UGGp and share their experiences with their audiences. • Engage with media outlets and seek opportunities for coverage and feature articles to increase visibility.
7. PARTICIPATE IN TRADE SHOWS AND EVENTS	• Attend specialized conferences, travel trade shows, and events to network with sustainable tourism industry professionals and showcase the geotourism offer. • Create visually appealing displays, distribute promotional materials, and engage with potential visitors, tour operators, and travel agencies.

>>

STEP	TASKS
8. FOSTER PARTNERSHIPS AND COLLABORATION	• Collaborate with local businesses, tour operators, accommodation providers, and other stakeholders to enhance visibility and promote geotourism offerings. • Develop joint marketing campaigns, packages, or special events that highlight the unique experiences and benefits of visiting the UGGp, including with other UGGps.
9. ENGAGE WITH LOCAL COMMUNITY AND STAKEHOLDERS	• Foster partnerships with Indigenous Peoples, local community and stakeholders in branding and visibility efforts, including through mutually beneficial initiatives to foster and market indigenous and local businesses. • Foster partnerships with local businesses and organizations to develop mutually beneficial marketing initiatives.
10. MEASURE AND REFINE	• Regularly monitor and analyze the impact of the branding and visibility actions. • Use online metrics and track website traffic, social media engagement, media coverage, and visitor feedback. • Use this data to refine your marketing efforts, identify areas for improvement, and optimize your messaging and communication channels.

FIGURE H.1 — Examples of UGGp Brands



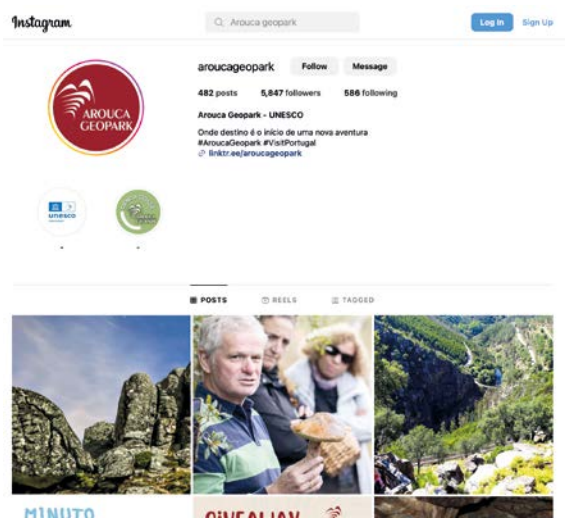


FIGURE H.2 — Arouca UGGp, Portugal, Facebook and Instagram pages
(© AGA | ANDRÉ VILAR)

TIPS
Website checklist

- Is it user friendly?
- Is it easy to use on mobile phones?
- Does it have clear navigation?
- Can the user find your location, contact details and other practical information?
- Are the imagery and visuals attractive and compelling?
- Does it use the brand and visual identity of the destination?
- Is the tone appropriate? Avoid complicated language that will be difficult for many visitors to understand.
- Is your geotourism offer explained well?
- Opening hours, seasonal information and other access related information are very important to share.
- Does it tell people how to book or engage with the proposed experience.
- Is local context provided? Let the visitor know about the area around you and what it has to offer.
- Is it up to date? Review your site regularly to make sure your project looks alive and well.
- Does it link to your social media profiles?

TIPS
for Instagram pages

Instagram is all about the visual identity and image; the perfect platform for showcasing your geotourism offer. Here are some tips for creating and maintaining an active Instagram account for geotourism promotion in a UGGp.

Content: Before you create an Instagram account, take some time to think about how you want your account to look and feel. You may wish to consider:

- What do you want to achieve through your account?
- Think about themes, messages to followers.
- Will you want to promote events?
- Who is your audience?
- Plan the content for at least a few weeks ahead.
- Where will your content come from, do you have photos, videos or graphics?
- Will you produce the content or use "User Generated Content" (UGC)? If yes, how you will curate the UGC?

If you do use UGC, you may wish to use an app such as *Re-post* to share the image. You can keep the photographer's credit on or remove it. Remember to credit the photographer in the body of the text though.

Remember: It is good practice to send a message to the creator/owner of the image before you use it, asking for their permission.

Alternatively, your UGGp may want to create its own content. For example, you could take your own photographs or use a library of images collected from your UGGp partners.

You can use a hybrid method as well and rely on your own content and UGC.

>>

Creating an account: When creating an Instagram account, you should select the **business account** option. This will allow you to add more details, for example opening times. This account option also provides access to *"Insights"* on your followers and reach.

Username – create one that is easy to use and find. If possible, make it the same as the UGGp username of other digital platforms, such as Facebook.

Post and Captions: Instagram is image-led but you can always write a caption. Depending on what message you want to get across, a couple of sentences should be enough. Be creative, try a giving the image a title, then leave some space and add a sentence.

Remember: If applicable, credit the photographer.

Get creative with emojis – use a camera emoji instead of the word 'photographer' or a pin next to your UGGp's name to make it clear that is the location.

Hashtags (#): You can use up to 30 hashtags, but do not be excessive: 3 – 10 will be enough. Look at which hashtags relate to your content and which ones are popular with a large number of followers. This is one way to increase the reach of your content.

If your UGGp does not have a hashtag, then you should create one. Encourage followers to tag you in their photos of your UGGp.

You can add hashtags directly under your caption, or add them as a comment on your published post. It is a question of style and how you want your content to look.

Tagging: You can tag up to 20 people (accounts) per post. Think about whom you want to interact with and who could potentially share your content. This might be other UGGps, your UGGp partners, local/regional/national tourism boards, visitor attractions, UNESCO accounts. If the image is a re-post, be polite and tag the creator of that image.

Spend some time looking at accounts with large audiences and plan who to tag. They could potentially share your post and increase your reach.

Location: This is another opportunity to promote and highlight your UGGp via Instagram. Add your UGGp as a location if it does not exist. You could also use your region, an attraction or a town as a location. Being consistent with your UGGp's name raises its profile and other users start using it as a location tag when visiting.

Share to your other accounts: Share your Instagram content and posts to your UGGp's other social media accounts to reach an even wider audience!

Add a story: Add your new post to your stories via the paper plane icon under your published post. Have fun with this. Maybe you could add the day, the date and a message? You can use this icon to share other people's posts to your stories too – remember to tag them though using the '@' feature on stories. Stories are live for 24 hours. However, you can save them to "Highlights" too, for example if you have done a live walk at a geosite and want to keep it for followers to use.

When to post: You should post at least three times per week, especially if you want to grow your audience. Mid-afternoon / early evening is a good time to post. Try posts at different times and consider what your audience responds to.

Follow & Interact: Do not forget to interact with followers, and follow accounts that are linked to your UGGp, other UGGps, businesses in your UGGp, local tourism boards, tour providers, visitor attractions etc. Take the time to "like" and to share photos where people have tagged your UGGp. Comment on them and interact, after all Instagram is a social channel!

MONITORING & EVALUATION

© P. VENTURA

I— Monitoring & Evaluation

Monitoring and reporting processes should focus on the geotourism management strategy as a bottom-up development strategy, a holistic approach to activities, which are designed with and for the people.[1] To measure the performance of the geotourism management strategy, UGGps should be using a monitoring system that shows how the territory as a whole is performing. Developing such a geotourism monitoring system (GMS) involves the identification of key indicators that can be used to assess the performance and effectiveness of geotourism activities and initiatives, as well as their impact on the environment, Indigenous Peoples, local communities, and visitors. The GMS must be a useful, flexible assessment tool able to evolve and allow the UGGp to demonstrate improvements in their performance and to provide information to enable year-on-year comparison of the results.

1. Atlantic Geoparks (n.d.)

>>

TOOL I.1
DEVELOPING A GEOTOURISM MONITORING & EVALUATION SYSTEM

STEP	TASKS
1. CONDUCT A BASELINE ASSESSMENT	• Assess the current state of geotourism in the UGGp (see also steps B, G). This may involve studying existing tourism data, conducting surveys, and gathering information about the relationship between tourism, the environment, the cultural heritage, and the local community. Ideally, this will lay the foundation for the assessments to be carried out in steps B, E, G and H of this toolkit.[1]

2. SELECT KEY PERFORMANCE AREAS	• Identify the key areas of performance that align with the objectives of the geotourism management strategy and action plan. These may include:
	  ◦ Geo-conservation and environmental conservation;
	  ◦ Cultural preservation , revitalization and transmission;
	  ◦ Community development and engagement;
	  ◦ Indigenous Peoples' rights, including free, prior informed consent (FPIC) and full and effective participation;
	  ◦ Economic impact;
	  ◦ Visitor satisfaction.

3. DEVELOP INDICATORS	• For each key performance area, develop a set of specific indicators that can measure progress and performance. Indicators should be specific, measurable, relevant, and aligned with the objectives. For example:
	  ◦ **Geo-conservation and environmental conservation:** Indicators could include the number of protected geosites, restored geosites, protected ecosystems and biodiversity, reintroduced species, reduction in carbon emissions from tourism activities, or the percentage of waste recycled.
	  ◦ **Cultural preservation:** Indicators could include the number of cultural heritage sites protected, the level of local cultural participation in tourism activities, or the transmission of traditional practices and knowledge.
	  ◦ **Community development and engagement:** Indicators could include the number of local businesses involved in geotourism, the percentage of revenue benefiting the local community, or the level of community satisfaction with tourism development.
	  ◦ **Indigenous Peoples' rights:** Indicators could be related to the number of indigenous organizations serving on management committees, the number of indigenous enterprises supported or measure implementation of the FPIC agreement. Disaggregated data and distinct indicators for monitoring the impact on Indigenous communities, women, children, culture should be included.
	  ◦ **Economic impact:** Indicators could include tourism revenue generated, the number of jobs created, or the percentage of tourism-related businesses owned by local residents.
	  ◦ **Visitor satisfaction:** Indicators could include visitor feedback surveys, ratings of visitor experiences, or the number of repeat visitors.
	UGGps could use existing sustainable tourism indicator systems such as the European Tourism Indicators System for sustainable destination management (ETIS)[2] to which they can add supplementary indicators based on the context of each UGGp in order to develop their own GMS[3].

>>

4. ESTABLISH DATA COLLECTION METHODS	• Determine the data collection methods for each indicator. This may involve surveys, interviews, monitoring systems, use of new technologies, or collaboration with local stakeholders.
5. SET TARGETS & BENCHMARKS	• Establish realistic targets and benchmarks for each indicator to measure progress over time. • These targets should be specific, measurable, achievable, relevant, and time-bound (SMART).
6. MONITOR & EVALUATE	• Regularly collect data and monitor the indicators to evaluate the performance of geotourism initiatives. • Analyze the data, identify trends, and assess the effectiveness of management strategies.
7. COMMUNICATE & ADJUST	• Share the findings with stakeholders and communicate the progress made in geotourism management. • Use the data and feedback to make adjustments and improvements to the geotourism initiatives.

1. Information and data for this step will contribute to assessments carried out in other tools and steps, including: *TOOL B.1 Eight steps to assess geotourism potential*; *TOOL B.6 Evaluating existing tourism infrastructure & services in a UGGp*; *TOOL F.1 Visitor access management*; *TOOL F.2 Determining the carrying capacity of geosites*
2. *https://single-market-economy.ec.europa.eu/sectors/tourism/eu-funding-and-businesses/funded-projects/sustainable/indicators_en*
3. *https://geotourismroute.eu/geotourism-monitoring-system/*

EXHIBIT I.1
Monitoring and Evaluating Geotourism in the Zhangjiajie UGGp, China

Source: https://www.zhangjiajieuggp.org.cn/; https://whc.unesco.org/en/list/640 (accessed on 22 September 2023)

Zhangjiajie UGGp is known for its stunning sandstone pillars, ravines, gorges, and diverse ecosystems. It served as the inspiration for the floating mountains in the movie "Avatar".

Monitoring and Evaluation Approach

- Visitor management and capacity: Zhangjiajie UGGp implemented a comprehensive visitor management strategy to control and monitor visitor numbers. This included limiting daily visitor numbers, implementing an online reservation system, and using electronic ticketing to track visitor movements.
- Technology and data collection: The UGGp utilized technology such as GPS tracking, mobile apps, and electronic tickets to gather data on visitor flows, behavior, and preferences. This allowed for real-time monitoring of visitor movements and helped identify peak visitation times and popular attractions.
- Visitor surveys and feedback: Regular visitor surveys were conducted to gather feedback on visitor experiences, preferences, and satisfaction levels. This qualitative data provided insights into the effectiveness of interpretive materials, signage, and overall visitor services.
- Environmental monitoring: The UGGp established a system for monitoring the environmental impacts of tourism, including soil erosion, waste generation, and wildlife disturbance. This data helped assess the effectiveness of conservation measures and identify areas of concern.
- Community involvement: The UGGp engaged with local communities, encouraging them to actively participate in monitoring and evaluating geotourism. Local residents were enlisted as guides, interpreters, and stakeholders, contributing to the sustainable management of the UGGp.

Achievements and Impacts

- Balanced visitations: Through the implementation of a daily visitor cap and reservation system, the UGGp successfully managed visitor numbers, preventing overcrowding and minimizing negative impacts on the fragile geological formations.
- Improved visitor experiences: The use of technology and data-driven insights allowed the UGGp to optimize visitor routes, reduce congestion, and enhance interpretive experiences. This led to higher visitor satisfaction and better educational outcomes.
- Conservation and sustainability: The monitoring efforts enabled the UGGp to identify areas of concern, leading to targeted conservation actions. By involving local communities and stakeholders, the UGGp contributed to the preservation of its unique geological and ecological features.
- Educational value: The UGGp's commitment to geotourism monitoring and evaluation contributed to its recognition as a model for sustainable geotourism management. It served as an educational resource for other UGGps and protected areas seeking to balance tourism and conservation.
- Economic benefits: By providing a high quality and sustainable visitor experience, Zhangjiajie UGGp attracted more tourists and generated economic benefits for the local community. This demonstrates that responsible geotourism can contribute to both conservation goals and local livelihoods.

The success of Zhangjiajie UGGp's monitoring and evaluation approach highlights the importance of data-driven decision-making, community involvement, and the integration of technology in managing geotourism while preserving the unique geological and cultural heritage of the area.

ANNEXES

ANNEX 1
INSTRUMENTS USED TO PROMOTE, MONITOR AND MEASURE TOURISM SUSTAINABILITY

This section is adapted from UNEP & UNWTO (2005). Making Tourism More Sustainable - A Guide for Policy Makers, pages 71-124.

A— Measurement instruments used to determine levels of tourism and impact, and to keep abreast of existing or potential changes. Measurements instruments include:

A.1. Sustainability indicators: the definition and use of sustainability indicators are a central component of the planning and management process. International organizations have developed sustainable tourism indicators frameworks, guidelines and toolkits aiming to measure the social, economic, environmental and management sustainability of tourism at destinations' level. Among these, the most comprehensive are:

The UNWTO International Network of Sustainable Tourism Observatories (INSTO)	https://www.unwto.org/sustainable-development/unwto-international-network-of-sustainable-tourism-observatories/tools-resources
The European Tourism Indicators System for sustainable destination management (ETIS)	https://ec.europa.eu/docsroom/documents/21749
The Global Sustainable Tourism Council – Performance Indicators and SDGs	https://www.gstcouncil.org/wp-content/uploads/GSTC-Destination-Criteria-v2.0.pdf
The World Bank Group – Tourism Diagnostic Toolkit	https://documents1.worldbank.org/curated/en/240451562621614728/pdf/Tourism-Diagnostic-Toolkit.pdf
The World Bank Environmental & Social Standards	https://thedocs.worldbank.org/en/doc/837721522762050108-0290022018/original/ESFFramework.pdf
The United Nations Educational, Scientific and Cultural Organization UNESCO World Heritage Sustainable Tourism Toolkit	http://whc.unesco.org/sustainabletourismtoolkit/welcome-unesco-world-heritage-sustainable-tourism-toolkit
The UNESCO Sustainable Travel Pledge	https://unescosustainable.travel/en/about-the-pledge
The International Labor Organization ILO Toolkit on Poverty Reduction through Tourism	https://actiononcbt.com/library/toolkit-on-poverty-reduction-through-tourism/
The Rainforest Alliance Guide for Sustainable Tourism Best Practices	https://www.rainforest-alliance.org/resource-item/users-guide-tourism-certification/
The Leave No Trace Principles	https://lnt.org/why/7-principles/
The Future of Tourism Coalition Guiding Principles	https://www.futureoftourism.org/
The Tourism 20230 Portal for Sustainable & Responsible Tourism	https://destinet.eu/
The Mountain Ideal Sustainable Destinations	https://www.walkingmountains.org/sustainability-hub/mountain-ideal-sustainable-destination/

A.2. Carrying capacity: the concept of carrying capacity in tourism refers to the number of tourists that a place can accommodate without detriment to the environment or host population or any reduction in tourist satisfaction. Different kinds of carrying capacity have been identified, including:

- *Ecological capacity*: based on biological and physical factors, such as ability of certain species to withstand disturbance or recharge rates of groundwater and reservoirs.
- *Socio-cultural capacity*: determined by unacceptable impacts on the Indigenous Peoples and local communities or limitations due to the availability of resources to human populations.
- *Psychological capacity*: the amount of crowding that tourists perceive as acceptable without affecting their quality of experience. This will vary according to types of tourist and types of activity or use.
- *Infrastructural capacity*: such as number of bedrooms, the capacity of transport systems or water supply. Up to a limit this element may be most readily changed in the medium to long term, but changing it may stress the ecological capacity, for example increasing water supply to tourists may cause depletion of water tables and reservoirs.
- *Management capacity*: the number of tourists that can be realistically managed in an area without bringing economic and administrative problems.

A.3. Limits of Acceptable Change (LAC): This concept recognizes that it is the level of undesirable impact (or change) that is the problem, rather than the number of visitors or the quantity of activity per se, and limits should therefore be described in terms of impact. The LAC process entails the:

- Identification of impacts that should limit development or use.
- Identification of usable indicators related to these impacts.
- Identification of a range of values associated with these indicators that are considered to be acceptable or unacceptable (based on expert evidence, consultation, etc.).
- Monitoring process to check that performance remains within the acceptable range.
- Taking management steps to adjust levels of use if limits are exceeded.

B— Command and control instruments enable governments to exert strict control over certain aspects of tourism development and operations, backed by legislation.

B.1. Legislation, regulation and licensing are inter-related tools that can be used to strengthen sustainability by setting out requirements that are compulsory and enforceable, and which lead to sanctions and penalties if they are not met.

Licensing is a process of checking and signaling compliance with regulations or otherwise identified obligatory standards, conveying permission to operate. Governments are in a position to apply laws, regulations and penalties to control aspects of business development and operations and to influence peoples' life and behavior.

Legislation and regulations should be applied when governments deem them to be necessary. However, regulations must be relevant, clear, practicable and enforceable. A sensible approach is to:

- Have the legislation in place to enable and support tourism sustainability and give authority to act.
- Have clear and enforceable regulations, supported by licensing as appropriate, where this is necessary to ensure important minimum standards.
- Seek to raise sustainability performance above such standards through other means, which also stimulate personal commitment towards continual improvement.

The application of specific regulations to certain forms of tourism or in particular circumstances may relate to:

- Access and permitted activities in sensitive environments and certain areas (e.g. protected areas, or particular types of ecosystem such as coral reefs).
- Indigenous Peoples communities (and certain vulnerable communities).
- Particular types of activity such as outdoor and adventure sports.
- Safety standards of equipment and facilities.
- Qualifications of operators.

B.2. Land use planning and development control are used to influence the location and type of new tourism activities and to control potentially harmful development. These instruments provide the primary means of intervention by governments in shaping the nature of development on behalf of society. Land use planning and development control are critically important for the sustainability of tourism, influencing not only tourism development itself but also controlling other forms of development that might be detrimental to the economic sustainability of tourism in the short or long term.

When local land use plans are being agreed, or more specifically when decisions are being made to approve or refuse controversial developments (such as industrial plant, mining or timber extraction), economic arguments relating to tourism can be used to advocate for environmental conservation. The potential strength of these tools, and the way in which they can be applied vary from country to country according to the nature and functionality of the land use planning system that is in place. This partly reflects political circumstances, legislative frameworks, land ownership, levels of corruption, and administrative efficiency.

C— Economic instruments influence behavior and tourism impacts through financial means and sending signals via the market.

C.1. Taxes and charges: imposing taxes and setting charges can have two important consequences for the sustainability of tourism:

- They can help to change the behavior of consumers and enterprises through their effect on prices and costs. Taxes and charges can be constructed so as to make unsustainable practices such as pollution, less desirable.
- Raising revenue from consumers and enterprises that can be used to mitigate impacts and support actions such as conservation or community projects that lead to greater sustainability. For this to happen, taxes should be ring-fenced or hypothecated—i.e. constructed in such a way that the revenue raised is restricted to specific purposes rather than going into the general public purse.

C.2. Financial incentives and agreements are economic instruments that influence the behavior of enterprises by providing them with specific financial support or commercial opportunities provided that they act in a certain way. Government action may involve:

- Providing financial support and opportunities directly.
- Influencing and working with development assistance agencies whose policies in recipient countries are increasingly influenced through priorities and programmes agreed with governments.
- Influencing financial decision-making policies and actions of commercial sources of finance.

D— Voluntary instruments providing frameworks or processes that encourage voluntary adherence of stakeholders to sustainable approaches and practices.

D.1. Guidelines and codes of conduct provide a mechanism for setting out clear expectations or requirements of tourists, enterprises or other stakeholders. In many circumstances, it may be felt that such non-statutory statements are sufficient to bring about the required approaches, standards or changes in behavior. Governments or may draw up codes and guidelines themselves or may help other stakeholder groups to do so.

D.2. Reporting and auditing allows enterprises and organizations to describe the outcome of their efforts to manage sustainability, and to share this information with stakeholders. Governments can encourage both the use of reporting within the tourism industry and the widening of the scope of its concerns. The use of an agreed set of indicators is an essential part of any reporting activity. A sustainability reporting framework enables tourism enterprises and organizations to communicate actions taken to improve geological, economic, environmental, cultural and social sustainability, the outcomes of such actions and the future strategies for improvement.

D.3. Voluntary certification is a mechanism for ensuring that services, activities or products meet certain standards that may be set by government, or agreed upon within an industry sector. In tourism, certification is used to check on the activities and standards of tourism enterprises to ensure consumer safety and satisfaction. It should also be used to cover sustainability issues. The key components of certification include:

- Voluntary participation by businesses.
- Well defined criteria and standards.
- A process of auditing and assessment.
- Recognition of those who meet the criteria, through a label or logo.
- Follow up, in due course, to check continued compliance.

E— Supporting instruments through which governments can, directly and indirectly, influence and support enterprises and tourists in making their operations and activities more sustainable.

E.1. Infrastructure provision and management the direct provision by government (or its agents, partners or contractors) of a range of infrastructure and public utilities and services (water, electricity, waste management, transportation, telecommunications and internet, security, health care) should also be seen as an instrument for making tourism more sustainable.

E.2. Capacity building is about developing the potential and ability of stakeholders to make and implement decisions that will lead to more sustainable tourism, by increasing their understanding, knowledge, confidence and skills.

E.3. Marketing and information services are direct, powerful and flexible tools that can be used to influence the performance of different types of tourism enterprise and the behavior of tourists, by providing an essential communications link between destinations, products and visitors. The primary functions of these tools in making tourism more sustainable are to:

- *Facilitate market access*: the vital importance of market access for economic sustainability is relevant to all types of tourism, but governments may need to pay particular attention to small enterprises or Indigenous or community-based tourism initiatives in this regard, owing to their limited resources for marketing.
- *Promote particular forms of tourism* or specific products that are more sustainable than others by raising the profile and performance of such products and encouraging their use, providing them with practical incentives.
- *Influence visitors' behavior* by informing them about sustainability issues and encouraging certain types of activity while discouraging others.

ANNEX 2
GLOBAL SUSTAINABLE TOURISM CERTIFICATIONS AND ECOLABELS

CERTIFICATION/ LABEL	DESCRIPTION	METHODOLOGY	KEY PERFORMANCE AREAS (KPAS)	APPLICANTS
BIOSPHERE TOURISM https://www.biospheretourism.com/	Private voluntary and independent certification system, based on the principles of sustainability and continuous improvement Using a GSTC recognized standard.	Third party verification	• Environmental • Social and cultural	• Destinations • Events • Hotels • Transportation
EARTHCHECK https://earthcheck.org/	World's leading environmental certification and benchmarking program for the travel and tourism industry, used in over 70 countries. Science-focused, offering access to multiple support tools and over 32 standards. Using a GSTC Recognized Standard.	Third party verification	• Environmental • Social and cultural • Economic • Management • Risk and safety	• Destinations • Convention centers • Events & festivals • Hotels and other accommodation • Restaurants • Tour operators • Wineries • Municipalities • Transportation
EU ECO LABEL https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel-home_en	The EU Ecolabel for Tourist Accommodation provides efficient guidelines for hotels and camping sites looking to lower their environmental impact while offering enough flexibility to allow proper guest satisfaction. Valid only in Europe.	Third party verification	• Air quality • Environmental Performance • Waste management • Water & energy	• Tourist accommodation
GREEN DESTINATIONS https://www.greendestinations.org/	Works with over 200 destinations on both an awards and certification programme. The certification features over 100 criteria, and is independently verified and GSTC accredited.	First party + Third party verification	• Air quality • Environmental performance • Health and safety • Social and cultural • Waste management • Water & energy	• Destinations
GREEN GLOBE https://www.greenglobe.com/	Structured assessment of the sustainability performance of travel and tourism businesses and their supply chain partners. Green Globe is using a GSTC Recognized Standard.	Third party verification	• Environmental • Social and cultural	• Events • Hotels • Restaurants • Suppliers • Transportation • Venues
GREEN KEY https://www.greenkey.global/	A voluntary eco-label awarded to more than 3,200 hotels and other tourism establishments in 65 countries. It is a leading global standard for excellence in the field of environmental responsibility and sustainable operation within the tourism industry.	First party + Third party verification	• Environmental performance • Food & beverage • Indoor environment • Waste management • Water & energy • Work environment	• Hotels • Restaurants • Venues

CERTIFICATION/ LABEL	DESCRIPTION	METHODOLOGY	KEY PERFORMANCE AREAS (KPAS)	APPLICANTS
GREEN TOURISM https://www.green-tourism.com/	Green Tourism is a leading accreditation and support programme for over 2500 businesses and destinations in the tourism and hospitality sector. They work globally and offer remote audits, at an affordable price-point.	Third party accreditation	• Communications & awareness • Community • Health & wellbeing • Equality, diversity & inclusivity • Food & drink • Biodiversity • Energy & water • Waste and carbon emissions	• Conferences & events • Hotels & venues • Restaurants • Corporate offices • Transportation • Visitor attractions • B&B/self-catering • Camping / holiday parks • Activity providers • Tour operators
MOUNTAIN IDEAL https://hub.walkingmountains.org/mountain-ideal	The Mountain IDEAL is formally recognized by the GSTC as a sustainability standard and certification program. Mountain IDEAL provides a framework of sustainable tourism criteria and performance indicators that support any mountain destination in elevating its sustainability performance, stakeholder engagement, collaboration, and recognition as a global leader.	First party + Third party verification	• Environmental stewardship • Climate change adaptation • Greenhouse gas reductions • Cultural heritage protection • Low impact transportation • Waste reduction • Public health and safety • Workforce housing • Sustainability education	• Mountain destinations
PREFERRED BY NATURE https://www.preferredbynature.org/	The Preferred by Nature Sustainable Tourism Certification is an international scheme owned and managed by Nature, Economy and People Connected (NEPCon), a global non-profit, mission-driven organization that works for sustainable land use and climate friendly solutions. Recognized by the GSTC.	First party + Third party auditing	• Environmental • Social • Cultural • Economic	• Destinations • Accommodations • Tour operators
TOURCERT https://tourcert.org/	TourCert has developed its own internationally recognized consultancy and certification system for the tourism sector. TourCert integrates criteria from the GSTC destinations standard.	First party	• Environmental • Social and cultural	• Tour operators • Hotels • Other companies • Destinations
TRAVELIFE https://travelifesustainability.com/	A state of the art and affordable certification standard to evaluate, prove and communicate sustainability achievements. Travelife integrates criteria and approaches from GSTC, ISO14001, and ISO26000.	First party + Third party verification	• Air quality • Environmental performance • Health & safety • Supply chain management • Waste management • Water & energy • Work environment	• Companies • Destinations

GLOSSARY

Carrying Capacity

Refers to the maximum number of visitors that a specific tourism destination or site can accommodate without causing negative impacts on its environment, infrastructure, culture, and overall visitor experience. It takes into account the sustainability of the site, ensuring that tourism activities do not exceed the site's capacity to handle the associated pressures.

Destination Management Organization – DMO

The leading organizational entity, which may encompass the various authorities, stakeholders and professionals and facilitates tourism sector partnerships towards a collective destination vision. The governance structures of DMOs vary from a single public authority to a public/ private partnership model with the key role of initiating, coordinating and managing certain activities such as implementation of tourism policies, strategic planning, product development, promotion and marketing and convention bureau activities. The functions of the DMOs may vary from national to regional and local levels depending on the current and potential needs as well as on the decentralization level of public administration[2].

Geoconservation

The identification, protection and management of sites and landscapes that are not only important for their rocks, fossils, minerals, or other geological or geomorphological features of interest, but which also make a special contribution to our Earth heritage and which can illustrate the processes which formed the Planet[3].

Geodiversity

The variety of earth materials, forms and processes that constitute and shape the Earth, either the whole or a specific part of it[4].

Geo-education

The process of imparting knowledge and understanding of Earth's geological processes, landforms, minerals, rocks, fossils, and landscapes. It involves education about the geological aspects of our planet, promoting geoscience literacy, and fostering an appreciation for Earth's natural history and geological heritage. UGGps should develop lifelong education programmes based on their own geological terrain with subjects such as Earth science/geology/ geomorphology, natural environment, sustainability, environmental science, climate change, community history and global citizenship, amongst other topics[5].

1. UNWTO (2004)
2. UNWTO Glossary of Tourism terms https://www.unwto.org/glossary-tourism-terms#D (accessed 14/11/2023)
3. https://www.geoparktoolkit.org/geoconservation/#GC4"Geoconservation – Geopark Management Toolkit (geoparktoolkit.org)
4. https://www.geoparktoolkit.org/geoconservation/#GC4"Geoconservation – Geopark Management Toolkit (geoparktoolkit.org)
5. https://www.geoparktoolkit.org/%E2%80%AFgeo-education – Geopark Management Toolkit (geoparktoolkit.org)

Geoheritage

Any geological structure or item dealing with Earth history or Earth processes considered of scientific, aesthetic, historical or educational significance[6].

Geological Site

A representation of one or more geological processes or elements with a specific location and its boundaries are well defined. In a UNESCO Global Geopark, the geological site is a significant representation of the geological process that brings a meaningful contribution to the understanding of the geology of the territory. The term has a more specific meaning than the broader term "geosite"[7].

Geosites (synonyms: geotopes, Earth science sites, geoscience sites)

Geosites are distinct areas of scientific interest within the Earth's geology and geomorphology, serving purposes like research, conservation, education, tourism, and sustainable development. Ranging from small to large, they hold historical evidence of climate change, tectonic shifts, and ancient processes, offering insights into past and present geological phenomena, making them valuable heritage sites for future generations[8].

Geotrail

According to the European Geoparks Network, a geotrail is a designated route or pathway that displays and interprets the geological features, landscapes, and formations of a particular area. Geotrails are designed to provide educational and recreational opportunities for visitors while promoting an understanding of the Earth's geological history and processes.

Geotourism

Tourism that sustains and enhances the identity of a territory, taking into consideration its geology, environment, culture, aesthetics, heritage and well-being of its inhabitants. Geological tourism is one of the multiple components of geotourism[9].

Sustainable Tourism

"Tourism development that meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems"[10].

6. GGN (2021, pg. 36)
7. IUGS (2023, pp. 6-7)
8. Wartiti, et al. (2009); Beraaouz, et al. (2019); Carrión-Mero, et al. (2020); Suzuki & Takagi (2017); Reynard (2009)
9. GGN (2021, pg. 36)
10. UNEP & UNWTO (2005)

Tourism Product

A "combination of tangible and intangible elements, such as natural, cultural and human-made resources, attractions, facilities, services and activities around a specific center of interest which represents the core of the destination marketing mix and creates an overall visitor experience including emotional aspects for the potential customers. A tourism product is priced and sold through distribution channels and it has a lifecycle"[12].

UNESCO Global Geopark (UGGp)

A single, unified geographical area where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. The international significance of a UGGp is determined by scientific professionals, as part of a "UNESCO Global Geopark Evaluation Team", who make a globally comparative assessment based on the peer-reviewed, published research conducted on geological sites within the area. UGGps use geological heritage, in connection with all other aspects of that area's natural and cultural heritage, to enhance awareness and understanding of key issues facing society in the context of the dynamic planet we all live on[13].

12. UNWTO glossary of tourism terms (https://www.unwto.org/glossary-tourism-terms#T) (accessed 14/11/2023).

13. UNESCO (2015, pg. 7)

REFERENCES

Ashley, C., & Roe, D. (1998). Enhancing community involvement in wildlife tourism: issues and challenges. *Tourism Recreation Research, 23*(2), 21-32. https://doi.org/10.1002/jtr.269

Atlantic Geoparks (n.d.). *Geopark Management Toolkit*. Retrieved June 18, 2023, from https://www.geoparktoolkit.org/

Beraaouz, M., Macadam, J., Bouchaou, L., Ikenne, M., Ernst, R., Tagma, T., & Masrour, M. (2019). An Inventory of Geoheritage Sites in the Draa Valley (Morocco): a Contribution to Promotion of Geotourism and Sustainable Development. *Geoheritage, 11*, 241–255. https://doi.org/10.1007/s12371-017-0256-x

Brilha, J. (2016). Inventory and quantitative assessment of geosites and geodiversity sites: a review. *Geoheritage, 8*(2), 119-134. https://doi.org/10.1007/s12371-014-0139-3

Brocx, M., & Vic, S. (2019). The '8Gs' - a blueprint for Geoheritage, Geoconservation, Geo-education and Geotourism. *Australian Journal of Earth Sciences, 66*(2), 1-19. https://doi.org/10.1080/08120099.2019.1576767

Canavese, G., Gianotti , F., & de Varine, H. (2018). Ecomuseums and geosites community and project building. *International Journal of Geoheritage and Parks, 6*(1), 43-62. https://doi.org/10.17149/ijg.j.issn.2210.3382.2018.01.004

Carrión-Mero, P., Ayala-Granda, A., Serrano-Ayala, S., Morante-Carballo, F., Aguilar-Aguilar, M., Gurumendi-Noriega, M., . . . Berrezueta, E. (2020). Assessment of Geomorphosites for Geotourism in the Northern Part of the "Ruta Escondida" (Quito, Ecuador). *Sustgainability, 12*(20), 8468. https://doi.org/10.3390/su12208468

Carrión-Mero, P., Herrera-Narváez, G., Herrera-Franco, G., Sánchez-Zambrano, E., Mata-Perelló, J., & Berrezueta, E. (2021). Assessment and Promotion of Geotouristic and Geomining Routes as a Basis for Local Development: A Case Study. *Minerals, 11*(4), 351. https://doi.org/10.3390/min11040351

Chen, A., Lu, Y., & Ng, Y. C. (2015). *The Principles of Geotourism.* Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-662-46697-1

Chen, M. (2021). Design Conception and Educational Function of Huanggang Dabieshan UNESCO Global Geopark Museum. *Abstract Book of the Digital 9th International Conference on UNESCO Global Geoparks* (p. 27). Jeju Island UNESCO Global Geopark, Republic of Korea. Retrieved from http://www.globalgeopark.org/UploadFiles/2022_6_7/Abstract%20Book%20of%209th%20UGGp%20Conference.pdf

Consulta Europa Projects and Innovation S.L. (2020). *Literature Review on Sustainable Tourism.* Project Deliverable. Retrieved from https://tourisme-project.eu/wp-content/uploads/2021/08/D2.1-Literature-Review-on-Sustainable-Tourism.pdf

Crofts, R., Gordon, J., Brilha, J., Gray, M., Gunn, J., Larwood, J., . . . Worboys, G. (2020). *Guidelines for geoconservation in protected and conserved areas. Best Practice Protected Area Guidelines Series No. 31.* Gland, Switzerland: International Union For the Conservation of Nature (IUCN). https://portals.iucn.org/library/node/49132

Danube Geo Tour. (2017). *Guideline for development of innovative Geoproducts.* Interreg Danube Transnational Programme. Retrieved from https://www.interreg-danube.eu/approved-projects/danube-geotour

Dowling, R. (2009). Geotourism's Contribution to Local and Regional Development. In C. Neto de Carvalho, J. Rodrigues, & A. Jacinto, *Geotourism and Local Development* (pp. 15-37). Idanha-a-Nova: Câmara Municipal de Idanha-a-Nova. Retrieved from: https://www.researchgate.net/publication/242589810_Geoturismo_Desenvolvimento_Local_Geotourism_Local_Development_MINOM_-_Movimento_Internacional_para_uma_nova_Museologia_MINOM_-_International_Mouvement_for_a_New_Museology

Dowling, R. K. (2013). Global Geotourism – An Emerging Form of Sustainable Tourism. *Czech Journal of Tourism, 2*(2), 59-79. Retrieved from https://sciendo.com/article/10.2478/cjot-2013-0004

Dowling, R., & Newsome, D. (2006). The scope and nature of geotourism. In R. Dowling, & D. Newsom, *Geotourism* (pp. 3-25). Elsevier, Butterworth-Heinemann. https://doi.org/10.4324/9780080455334

Drumm, A., Moore, A., Soles, A., Patterson, C., & Terborgh, J. (2004). *Ecotourism Development: A Manual for Conservation Planners and Managers. Volume II: The Business of Ecotourism Management and Development.* (Vol. II). Arlington, Virginia, USA.: The Nature Conservancy. Retrieved from: https://www.cbd.int/financial/greenmarkets/g-greenecotoursm-undp.pdf (15/01/2024)

Du, Y., & Girault, Y. (2018). A Genealogy of UNESCO Global Geopark: Emergence and Evolution. *International Journal of Geoheritage and Parks, 6*(2), 1-17. https://doi.org/10.17149/ijgp.j.issn.2577.4441.2018.02.001

Food and Agriculture Organization of the United Nations (FAO) (2016). Free, Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities—manual for project practitioners. Rome: FAO. Retrieved on 22/02/2024 from: https://www.fao.org/indigenous-peoples/our-pillars/fpic/en/

Farsani, N. T., Coelho , C., & Costa, C. (2011). Geotourism and geoparks as novel strategies for socio-economic development in rural areas. *International Journal of Tourism Research, 13*(1), 68-81. https://doi.org/10.1002/jtr.800

Fernandes, G. P., Castro, E., & Tracana, R. B. (2021). Tourism as a Strategy for Geo-Education and Cultural Valorization of Territories: Promoting Ecocultural Values and Geoconservation in Estrela Geopark, Portugal. In F. Brandão, Z. Breda, R. Costa, & C. Costa, *Handbook of Research on the Role of Tourism in Achieving Sustainable Development Goals* (pp. 117-137). IGI Global. https://doi.org/10.4018/978-1-7998-5691-7.ch007

Ferron, P., Bélanger, M., Madore, L., & Verpaelst, P. (2010). *Guidelines for managing outstanding geological sites* . Québec: Gouvernement du Québec. Retrieved from https://gq.mines.gouv.qc.ca/documents/examine/DV201005/DV201005.pdf

Frey, M.-L. (2021). Geotourism - Examining Tools for Sustainable Development. *Geosciences, 11*(30), 1-28. https://doi.org/10.3390/geosciences11010030

Frey, M.-L., Schäfe, K., Büchel, G., & Patzak, M. (2006). Geoparks – a regional, European and global policy. In R. Dowling, & N. David, *Geotourism - Sustainability, Impacts and Management* (pp. 95-117). Elsevier. https://doi.org/10.1016/B978-0-7506-6215-4.50014-2

Gentilini, S. (2021). Criteria for GEOfood products and producers. *Research Proposal*. https://doi.org/10.13140/RG.2.2.33643.87840

Global Geoparks Network (n.d.). *Geopark History*. Retrieved from Global Geoparks Network: https://www.visitgeoparks.org/geopark-history (26/12/2022)

Global Geoparks Network (2021). GGN Statutes and Regulations: 3rd GGN Ordinary Assembly, Jeju Island UNESCO Global Geopark, Republic of Korea. https://globalgeoparksnetwork.org/wp-content/uploads/2021/12/@@@Global-Geoparks-Network-Statutes-and-Regulations_15_12_2021_FINAL.pdf

González, Á. R., Palacios, J. A., & Quelal, L. R. (2022). Marketing management and sustainable tourism in the Imbabura geopark, Ecuador. *Smart Tourism, 3*(2), 10 pages. https://doi.org/10.54517/st.v3i2.2141

Gordon, J. E. (2018). Geoheritage, geotourism and the cultural landscape: Enhancing the visitor experience and promoting geoconservation. *Geosciences, 8*(4), 136. https://doi.org/10.3390/geosciences8040136

Herrera-Franco, G., Monta-lván-Burbano, N., Carrión-Mero, P., Jaya-Montalvo, M., & Gurumendi-Noriega, M. (2021). Worldwide Research on Geoparks through Bibliometric Analysis. *Sustainability, 13*, 1175. https://doi.org/10.3390/su13031175

Herrera-Franco, G., Mora-Frank, C., Kovács, T., & Berrezueta, E. (2022). Georoutes as a Basis for Territorial Development of the Pacific Coast of South America: a Case Study. *Geoheritage, 14*, 78. https://doi.org/10.1007/s12371-022-00711-x

IUCN. (2010). *Communicating for Success: Ensuring MPAs are Valued.* International Union for Conservation of Nature. Retrieved from https://pacific-data.sprep.org/system/files/communicating-success-ensuring-mpas.pdf (15/01/2024)

IUGS (2023). Guidelines for the Assessment of the International Significance of Geological Heritage in UNESCO Global Geopark Applications. UNESCO, IUGS. https://unesdoc.unesco.org/ark:/48223/pf0000386952

Jamal, T., & Getz, D. (1995). Collaboration theory and community tourism planning. *Annals of Tourism Research, 22*(1), 186-204. https://journals.scholarsportal.info/details?uri=/01607383/v22i0001/186_ctactp.xml

Johunis, E. C., Talib, H., & Abdul Rahsid, R. (2021). Local Community Involvement in Geotourism Hiking in Kampung Kinirasan, Ranau, Sabah. *Journal for Sustainable Tourism Development, 10*(1), 22-34. https://doi.org/10.51200/bimpeagajtsd.v10i1.3390

Jones, C. (2008). History of Geoparks. *Geological Society* (300), 273-277. https://doi.org/doi: 10.1144/SP300.21

Jorgenson, J., & Nickerson, N. (2015). Geotourism and Sustainability as a Business Mindset. *Journal of Hospitality Marketing & Management*, 1-21. https://doi.org/10.1080/19368623.2015.1010764

Koh, Y.-K., Oh , K.-H., Youn, S.-T., & Kim, H.-G. (2014). Geodiversity and geotourism utilization of islands: Gwanmae Island of South Korea. *Journal of Marine and Island Cultures, 3*(2), 106-112. https://doi.org/10.1016/j.imic.2014.09.002

Kubalíková, L. (2013). Geomorphosite assessment for geotourism purposes. *Czech Journal of Tourism, 2*(2), 80-104. https://doi.org/10.2478/cjot-2013-0005

Kubalíková, L., & Kirchner, K. (2016). Geosite and geomorphosite assessment as a tool for geoconservation and geotourism purposes: a case study from Vizovická vrchovina Highland (eastern part of the Czech Republic). *Geoheritage, 8*(1), 5-14. https://doi.org/10.1007/s12371-015-0143-2

Kubalíková, L., Kirchner, K., & Bajer, A. (2021). Geomorphological Resources for Geoeducation and Geotourism. In R. Singh, D. Wei, & S. Anand, *Global Geographical Heritage, Geoparks and Geotourism* (pp. 343-358). Springer. https://doi.org/10.1007/978-981-15-4956-4

La Ghezza, L. (2022). Heritage Tourism: The Case Study of I Benedettini (BARI). In A. Mandić, A. R. Alexandre , & U. Stankov, *Cultural Sustainable Tourism: Strategic Planning for a Sustainable Development* (pp. 15-27). Springer. https://doi.org/10.1007/978-3-031-10800-6

Lee, Y., & Jayakumar, R. (2021). Economic impact of UNESCO Global Geoparks on local communities: Comparative analysis of three UNESCO Global Geoparks in Asia. *International Journal of Geoheritage and Parks, 9*, 189-198. https://doi.org/10.1016/j.ijgeop.2021.02.002

Leung, Y.-F., Spenceley, A. & Hvenegaard, G. (2018). Tourism and Visitor Management in Protected Areas: Guidelines for Sustainability (Best Practice Protected Area Guidelines Series No. 27 ed.). Gland, Switzerland: International Union for the Conservation of Nature IUCN. https://portals.iucn.org/library/node/47918

Megerle, H. E., & Pietsch, D. (2017). Consequences of overlapping territories between large scale protection areas and Geoparks in Germany: Opportunities and risks for geoheritage and geotourism. *Annales de Géographie, 717*(5), 598-624. https://www.revues.armand-colin.com/geographie/annales-geographie/annales-geographie-ndeg-717-52017/consequences-of-overlapping-territories-between-large-scale-protection-areas-and

Mohd Fadil, M., Hairul Nizam, I., & Ghazali , A. (2019). Branding Langkawi Island as a Geopark Desintation. *International Journal of Built Environment & Sustainability, 6*(1-2), 7–14. Retrieved from https://doi.org/doi.org/10.11113/ijbes.v6.n1-2.377

Newsome, D. & Dowling, R. (2006). Chapter 1 - the Scope and Nature of Geotourism. In R. Dowling and D. Newsome, *Geotourism*. Elsevier Ltd. https://doi.org/10.1016/B978-0-7506-6215-4.50009-9

Newsome, D., & Dowling, R. (2010). *Geotourism: the tourism of geology and landscape.* Oxford: Goodfellow Publishers. https://doi.org/doi:10.23912/978-1-906884-09-3-21

Newsome, D., & Dowling, R. (2018). Geoheritage and Geotourism. In E. Reynard & J. Brilha, *Geoheritage: Assessment, Protection, and Management Book* (pp. 305-321). Elsevier. https://doi.org/10.1016/C2015-0-04543-9

Newsome, D., & Ladd, P. (2022). The dimensions of geotourism with a spotlight on geodiversity in a subdued landscape. *International Journal of Geoheritage and Parks, 10*, 351-366. https://doi.org/doi:10.1016/j.ijgeop.2022.06.001

Ngwira, P. M. (2020). A Review of Geotourism and Geoparks: Is Africa Missing out on this New Mechanism for the Development of Sustainable Tourism? *GeoConservation Research, 2*(1), 26-39. Retrieved from https://doi.org/10.30486/gcr.2019.666592

Noll, D., Scott , A., Danelutti, C., Sampson , J., Galli, A., Mancini, S., . . . Lang, M. (2019). *A guide to plan and promote ecotourism activities and measure their impacts in Mediterranean Protected Areas following the MEET approach.* DestiMED project, Interreg Med Programme. Retrieved from https://wwfeu.awsassets.panda.org/downloads/destimed_guide_2019.pdf (15/01/2024)

Olson, K., & Dowling, R. (2018). Geotourism and Cultural Heritage. *Geoconservation Research, 1*(1), 37-41. https://doi.org/10.30486/gcr.2018.540021

Page, S., & Connell, J. (2020). *Tourism: A modern synthesis.* (5th ed.). Routledge. https://doi.org/10.4324/9781003005520

Pardo-Igúzquiza, E., Durán-Valsero, J. J., Dowd, P. A., Luque-Espinar, J. A., Heredia, J., & Robledo-Ardila, P. A. (2022). Geodiversity of closed depressions in a high relief karst: Geoeducation asset and geotourism resource in the "Sierra de las Nieves" National Park (Málaga Province, Southern Spain). *International Journal of Geoheritage and Parks, 10*, 196-217. https://doi.org/doi:10.1016/j.ijgeop.2022.04.001

Pasquaré Mariotto, F., Drymoni, K., Bonali, F., Tibaldi, A., Corti, N., & Oppizzi, P. (2023). Geosite Assessment and Communication: A Review. *Resources, 12*(2), 29. https://doi.org/10.3390/resources12020029

Pereira, L. S., & Farias, T. D. (2020). Assessing the cultural values of the geodiversity in a Brazilian city: The historical center of João Pessoa (Paraíba, NE Brazil), Mata da Aldeia chart. *International Journal of Geoheritage and Parks*, 59-73. Retrieved from https://doi.org/10.1016/j.ijgeop.2020.03.002

Rais, J., Barakat, A., Louz, E., & Barka, A. A. (2021). Geological heritage in the M'Goun geopark: A proposal of geo-itineraries around the Bine El Ouidane dam (Central High Atlas, Morocco). *International Journal of Geoheritage and Parks, 9*, 242-263. Retrieved from https://doi.org/10.1016/j.ijgeop.2021.02.006

Reynard, E. (2009). Geomorphosites: Definitions and characteristics. In E. Reynard, P. Coratza, & G. Regolini-Bissig, *Geomorphosites* (pp. 9-20). München: Verlag Dr. Friedrich Pfeil.

Reynard, E., Fontana, G., Kozlik, L., & Scapozza, C. (2007). A method for assessing "scientific" and "additional values" of geomorphosites. *Geographica Helvetica, 62*(3), 148-158. https://doi.org/10.5194/gh-62-148-2007

Reynard, E., Perret, A., Bussard, J., Grangier, L., & Martin , S. (2016). Integrated Approach for the Inventory and Management of Geomorphological Heritage at the Regional Scale. *Geoheritage*(8), 43-60. https://doi.org/10.1007/s12371-015-0153-0

Ritchie, J., & Crouch, G. (2003). *The competitive destination: A sustainable tourism perspective.* CABI. https://www.cabidigitallibrary.org/doi/10.1079/9780851996646.0000

Rocha , D., & Duarte, A. (2022). The Management of Arouca Geopark's Route of Geosites: A Strategic Geologically Based Product in a Geotourism Destination. In Braga, Duarte, & C. Marques, *Economics and Management of Geotourism* (pp. 87-104). Springer Cham. https://doi.org/10.1007/978-3-030-89839-7

Rodrigues, J., & Neto de Carvalho, C. (2009). Geoproducts in Geopark Naturtejo. *Proceedings of the VIII European Geoparks Conference*, (pp. 82-86). Finland: Idanha-a-Nov. https://doi.org/10.13140/2.1.3247.8724

R**odrigues, J., Neto de Carvalho, C., Ramos, M., Ramos, R., Vinagre, A., & Vinagre, H. (2021).** Geoproducts – Innovative development strategies in UNESCO Geoparks: Concept, implementation methodology, and case studies from Naturtejo Global Geopark, Portugal. *International Journal of Geoheritage and Parks, 9*, 108-128. https://doi.org/10.1016/j.ijgeop.2020.12.003

Rodrigues, M. L., & Fonseca , A. (2008). A valorização do geopatrimônio no desenvolvimento sustentável de áreas rurais. *Coloquio Iberico de Estudos Rurais - Cultura, Inovacao e Territorio.*

Romeo, R., Russo, L., Parisi, F., Notarianni, M., Manuelli, S., & Carvao, S. (2021). *Mountain tourism – Towards a more sustainable path.* Rome: Food and Agriculture Organization & United Nations World Tourism Organization. Retrieved from: https://www.fao.org/documents/card/es?details=cb7884en/

Rozenkiewicz, A., Widawski, K., & Jary, Z. (2020). Geotourism and the 21st Century–NTOs' Website Information Availability on Geotourism Resources in Selected Central European Countries: International Perspective. *Resources, 9*(4), 1-28. https://doi.org/10.3390/resources9010004

Setiadji, P., Sulistyantara, B., Pramudya, B., & Suwardi, B. (2022). Determination of the Attractiveness Index and Carrying Capacity of the Geosites for Sustainable Geotourism Development in the Cycloops Mountains of Papua, Indonesia. *GeoJournal of Tourism and Geosites, 42*(2), 817-823. https://doi.org/10.30892/gtg.422spl22-893

Somarriba-Chang, M., Garnier , M., & Laguna , V. (2006). Estimation of the tourist carrying capacity of the Natural Reserve Mombacho Volcano, Granada, and the Natural Reserve Datanlí-El Diablo, Jinotega, Nicaragua. *Transactions on Ecology and the Environment, 97*, 341-351. https://doi.org/10.2495/ST060321

Spenceley, A., Kohl, J., McArthur, S., Myles, P., Notarianni, M., Paleczny, D., . . . Worboys, G. (2015). Visitor Management. In G. Worboys, M. Lockwood, A. Kothar, S. Feary, & I. Pulsford, *Protected Area Governance and Management* (pp. 715-750). Canberra: Australian National University Press. https://press-files.anu.edu.au/downloads/press/p312491/pdf/CHAPTER23.pdf

Štrba, L., Kolackovská, J., Kudelas, D., Kršák, B., & Sidor, C. (2020). Geoheritage and Geotourism Contribution to Tourism Geoheritage and Geotourism Contribution to Tourism Slovakia—Theoretical Considerations. *Sustainability, 12*(7), 2979. https://doi.org/10.3390/su12072979

Sumanapala, D., & Wolf, I. D. (2022). Introducing Geotourism to Diversify the Visitor Experience in Protected Areas and Reduce Impacts on Overused Attractions. *Land, 11*, 2118. https://doi.org/10.3390/land11122118

Suzuki, D. A., & Takagi, H. (2017). Evaluation of Geosite for Sustainable Planning and Management in Geotourism. *Geoheritage*(10), 123-135. https://doi.org/10.1007/s12371-017-0225-4

Tomić, N., & Božić, S. (2014). A modified Geosite Assessment Model (M-GAM) and its Application on the Lazar Canyon area (Serbia). *International Journal of Environmental Research,, 4*, 1041-1052. https://doi.org/10.22059/ijer.2014.798

Tormey, D. (2019). New approaches to communication and education through geoheritage. *International Journal of Geoheritage and Parks, 7*, 192-198. https://doi.org/10.1016/j.ijgeop.2020.01.001

Tran Nhi Bach, V. (2021). Developing Community-Based Tourism Model In Dak Nong UNESCO Global Geopark. *Abstract Book of the Digital 9th International Conference on UNESCO Global Geoparks* (p. 73). Jeju Island UNESCO Global Geopark, Republic of Korea. Retrieved from http://www.globalgeopark.org/UploadFiles/2022_6_7/Abstract%20Book%20of%209th%20UGGp%20Conference.pdf

UNEP & UNWTO. (2005). *Making Tourism More Sustainable - A Guide for Policy Makers.* United Nations Environment Programme and United Nations World Tourism Organization. Retrieved from https://www.e-unwto.org/doi/book/10.18111/9789284408214

UNESCO. (2014). Guidelines and Criteria for National Geoparks Seeking UNESCO's Assistance to Join the Global Geoparks Network (GGN). United Nations Educational, Scientific and Cultural Organization . https://www.europeangeoparks.org/wp-content/uploads/2012/03/Geoparks_Guidelines_Jan2014.pdf

UNESCO (2015). Statutes of the International Geoscience and Geoparks Programme. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000260675

UNESCO. (2019). *The role of visitor centres in UNESCO designated sites. report of the first regional workshop for Europe, 30 September-2 October 2018, Palermo, Italy.* Venice: UNESCO Office Venice and Regional Bureau for Science and Culture in Europe.

UNWTO. (2004). *Indicators of Sustainable Development for Tourism Destinations.* United Nations World Tourism Organization. https://www.e-unwto.org/doi/book/10.18111/9789284419340

UNWTO. (2011). *Handbook on Tourism Product Development.* Madrid: United Nations World Tourism Organization. https://doi.org/10.18111/9789284413959

UNWTO. (2013). *Sustainable Tourism for Development Guidebook - Enhancing capacities for Sustainable Tourism for development in developing countries.* Madrid: United Nations World Tourism Organization. https://doi.org/10.18111/9789284415496

UNWTO. (2019a). *Guidelines for Institutional Strengthening of Destination Management Organizations (DMOs) – Preparing DMOs for new challenges.* Madrid: United Nations World Tourism Organization. https://doi.org/10.18111/9789284420841

UNWTO. (2019b). *UNWTO Tourism Definitions.* Madrid: United Nations World Tourism Organization. https://doi.org/10.18111/9789284420858

UNWTO. (2022). *Sustainable Tourism Product Development Opportunities in the Pacific Islands.* Madrid: United Nations Wolrd Tourism Organization. https://www.e-unwto.org/doi/book/10.18111/9789284419852

Vujicic, M., Vasiljevic, D., Slobodan, M., Thomas, H., Tin, L., Olga, H., & Sava, J. (2011). Preliminary geosite assessment model (GAM) and its application on fruška gora mountain, potential geotourism destination of Serbia. *Acta geographica Slovenica, 51*, 361-376. https://doi.org/10.3986/AGS51303

Wang, L., Tian, M., & Wang, L. (2015). Geodiversity, geoconservation and geotourism in Hong Kong Global Geopark of China. *Proceedings of the Geologists' Association*, 426-437. https://doi.org/10.1016/j.pgeola.2015.02.006**Wang, Y., Wu, F., Li, X., & Chen, L. (2019).** Geotourism, geoconservation, and geodiversity along the belt and road: A case study of Dunhuang UNESCO Global Geopark in China. *Proceedings of the Geologists' Association*. https://doi.org/10.1016/j.pgeola.2019.01.004

Wartiti, M., Malaki, A., Zahraoui, M., Di Gregorio, F., & De Waele, J. (2009). Geosites And Touristic Development Of The Northwestern Tabular Middle Atlas Of Morocco. In A. Marini, & M. Talbi, *Desertification and Risk Analysis Using High and Medium Resolution Satellite Data* (pp. 143-156). NATO Science for Peace and Security Series C: Environmental Security. Springer. https://doi.org/10.1007/978-1-4020-8937-4_13

Woo, K. (2014). Qualification and prospect of national and global geoparks. *Journal of the Geological Society of Korea, 50*(1), 3-19. Retrieved from https://doi.org/10.14770/jgsk.2014.50.1.3

World Travel & Tourism Council. (2021). *Towards Destination Stewardship.* WTTC. Retrieved from https://wttc.org/Portals/0/Documents/Reports/2021/Destination-Stewardship-Framework.pdf?ver=2021-07-22-091804-637

Zangmo, G. T., Kagou, A. D., Guimolaire, D. N., Wandji, P., & Gountie, M. D. (2014). Geomorphological Features of the Manengouba Volcano (Cameroon Line): Assests for Potential Geopark Development. *Geoheritage, 6*, 226-239. https://doi.org/10.1007/s12371-014-0109-9

unesco

International Geoscience
and Geoparks Programme
National Committee

SUPPORTED BY

Cooperación
Española