

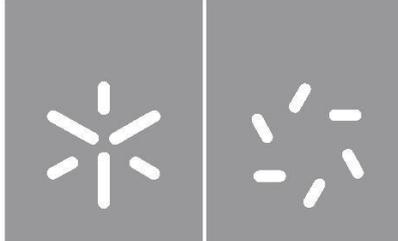


**Universidade do Minho**  
Escola de Ciências

Kanishka Pandey

**Geoconservation and environmental  
development strategy: contributions to  
Rokua UNESCO Global Geopark (Finland)**





**Universidade do Minho**  
Escola de Ciências

Kanishka Pandey

**Geoconservation and environmental  
development strategy: contributions to  
Rokua UNESCO Global Geopark (Finland)**

Relatório de Estágio  
Mestrado em Geociências  
Ramo em Património Geológico e Geoconservação

Trabalho efetuado sob a orientação do  
**Prof. Diamantino Insua Pereira**  
e do  
**Mr. Mikko Kiuttu**

## **DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS**

Este é um trabalho académico que pode ser utilizado por terceiros desde que respeitadas as regras e boas práticas internacionalmente aceites, no que concerne aos direitos de autor e direitos conexos.

Assim, o presente trabalho pode ser utilizado nos termos previstos na licença abaixo indicada.

Caso o utilizador necessite de permissão para poder fazer um uso do trabalho em condições não previstas no licenciamento indicado, deverá contactar o autor, através do RepositóriUM da Universidade do Minho.

### **Licença concedida aos utilizadores deste trabalho**



**Atribuição  
CC BY**

<https://creativecommons.org/licenses/by/4.0/>

## ACKNOWLEDGEMENTS

Sincere gratitude for the people of Rokua Geopark for giving me this opportunity to make a difference while learning through it.

Special thanks to my supervisors Mr. Mikko Kiuttu and Professor Diamantino Insua Pereira, for guiding me throughout the work, without whom this work wouldn't be possible.

To Mari Saastamoinen for fruitful brainstorming sessions regarding sustainability issues and what future of sustainability for Rokua geopark looks like.

To professors Paulo Pereira and Jose Brilha for their support and academic guidance throughout the masters.

To Professor Sebastien Clausen and Erasmus Mundus Joint Master Degree team for giving me this transformative opportunity, which culminates with this master's report.

To my family and friends for their constant encouragement and support.



**PANGEA**

European Master in Paleontology, Geoheritage, Applications  
Erasmus Mundus Joint Master Degree

**FCT** Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



**ICT**  
Instituto de Ciências da Terra  
Institute of Earth Sciences

Este trabalho foi financiado por fundos nacionais através da FCT - Fundação para a Ciência e a Tecnologia, I.P., no âmbito dos projectos Ref<sup>o</sup>s UIDB/04683/2020 e UIDP/04683/2020.

## **DECLARATION OF INTEGRITY:**

I declare that I have acted with integrity in the preparation of this academic work and confirm that I have not resorted to the practice of plagiarism or any form of misuse or falsification of information or results in any of the stages leading to its elaboration.

I further declare that I know and have respected the Code of Ethical Conduct of the University of Minho.

## **ABSTRACT**

### **Geoconservation and Environmental development strategy: Contributions to Rokua UNESCO Global Geopark (Finland)**

Rokua UNESCO Global Geopark - heritage of the ice age, is the first Global Geopark in Finland located in Northern Ostrobothnia, 200 km south of the Arctic Circle. The Geopark holds geology of international significance related mostly to the heritage of the Weichselian Ice Age. The geopark is also nationally significant because of the extensive size of its esker formation and for being the most representative quaternary formation in Finland. The visible geology of the geopark is essentially quaternary with drift geology consisting mostly of deep deposits of sand and gravel and shallower peat deposits in places. The associated features with esker formation include kettle holes, kames, dunes, and heaths while Rokua also has boulder fields, bogs and lakes. Oulujärvi at the eastern end of the geopark is the fourth largest lake of Finland, which is drained by Oulujoki river and produces hydroelectricity for the region. Along with that the geopark has notable flora and fauna because of which a part of its geopark is protected and was made into a national park. With several historic churches and buildings and a rich cultural heritage of folklores, fishing, and tar production dating back to the war times, Rokua geopark is a wholesome touristic destination. This destination has been getting international attention from tourists and all the features mentioned above hold a touristic potential for the geopark, which if explored in the right ways can help Rokua become an unforgettable sustainable tourism destination. The geopark has decided to become a certified sustainable tourism destination and also build an identity around it, and with this report we are trying to get a step closer to that vision.

This report includes the assessment of present status of the geoparks sustainability initiatives and building from there. 1. We will discuss how the geopark associated businesses and tourists can strive for sustainability through defined guidelines 2. We will perform an in-depth qualitative assessment for the most visited and representative geosites for sustainable tourism development 3. We will make applications for certifications Sustainable Travel Finland and self-assessment for good travel seal labels 4. And make an action plan for the geopark to be more precise in their sustainability initiatives. 5. The concluding remarks include recommendations for the geopark.

**Keywords:** Action plan; Esker; Ice age; Sustainable tourism; Sustainable Travel Finland;

## **RESUMO**

### **Geoconservação e estratégia de desenvolvimento ambiental: contributo para o Rokua Geoparque Mundial da UNESCO (Finlândia)**

O Rokua Geoparque Mundial da UNESCO - Património da Idade do Gelo, é o primeiro Geoparque Mundial da Finlândia. O geoparque está localizado na região de Ostrobothnia Setentrional, 200 km a sul do Círculo Polar Ártico. O geoparque possui uma geologia de importância internacional relacionada principalmente com o património da Idade do Gelo, em especial da glaciação Weichseliana. O geoparque é também significativo a nível nacional devido à extensa dimensão da Formação Esker, a formação quaternária mais representativa da Finlândia. A geologia visível do geoparque é essencialmente quaternária, maioritariamente relacionada com depósitos profundos de areia e cascalho e depósitos de turfa superficiais em alguns locais. As características associadas à Formação Esker incluem depressões glaciárias, kames, dunas, pântanos e lagos. Oulujarvi, no extremo leste do geoparque, é o quarto maior lago da Finlândia, que é drenado pelo rio Oulujoki e produz energia hidroelétrica para a região. Além disso, o geoparque tem uma flora e fauna notáveis, pelo que uma parte está protegida como parque nacional. Com um rico património cultural que inclui várias igrejas e edifícios históricos, pesca desportiva e produção de alcatrão que remonta aos tempos da guerra, o Rokua Geopark é um destino turístico saudável. Este destino tem vindo a receber a atenção dos turistas a nível internacional e todas as características acima mencionadas representam um potencial turístico para o geoparque que, se for explorado da forma correta, pode ajudar Rokua a tornar-se um destino de turismo sustentável inesquecível. O geoparque decidiu tornar-se um destino turístico sustentável certificado e construir uma identidade em torno dele, e com este relatório estamos a tentar dar mais um passo em direção a essa visão.

Este relatório inclui a avaliação do estado atual das iniciativas de sustentabilidade dos geoparques e a partir daí: i) discutimos como as empresas associadas ao geoparque e os turistas podem esforçar-se por alcançar a sustentabilidade através de diretrizes definidas; ii) realizámos uma avaliação qualitativa aprofundada dos geossítios mais visitados e representativos para o desenvolvimento do turismo sustentável; iii) apresentámos candidaturas para certificações Sustainable Travel Finland e autoavaliação para selos de boas viagens; iv) elaborámos um plano de ação para que o geoparque seja mais preciso nas suas iniciativas de sustentabilidade; v) as observações finais incluem recomendações para o geoparque.

**Palavras-chaves:** Idade do gelo; Esker; Plano de ação; Sustainable Travel Finland; Turismo sustentável;

## INDEX

ACKNOWLEDGEMENTS.....	iii
DECLARATION OF INTEGRITY:.....	iv
ABSTRACT .....	v
RESUMO .....	vi
INDEX .....	vii
INTRODUCTION.....	1
1.1 GENERALITIES.....	1
1.2 METHODOLOGY.....	1
2. ROKUA GEOPARK AND SUSTAINABILITY .....	3
2.1 SUSTAINABILITY REPORT (Rokua UNESCO Geopark) .....	3
2.2 ISSUES AND ROADBLOCKS.....	4
2.3 ETIS (EUROPEAN TOURISM INDICATOR SYSTEM).....	5
3. CONTRIBUTIONS TO THE GEOPARK.....	10
3.1 CLIMATE GOALS.....	10
3.2 SUSTAINABILITY AND GEOPARKS.....	12
3.2.1 GEOTOURISM, The better tourism .....	12
3.2.2 ROKUA GEOPARK: where Geotourism Leads the Way in Sustainable Practices .....	13
3.3 SCOPE AND GUIDELINES FOR INDIVIDUALS AND BUSINESSES .....	15
3.3.1 GUIDELINES FOR BUSINESSES TO BECOME SUSTAINABLE.....	17
3.3.2 WHAT CAN TOURISTS DO TO HAVE THE LEAST ENVIRONMENTAL IMPACT ON THE TERRITORY.....	18
3.3.3 BROCHURE FOR BUSINESSES .....	19
3.4 QUALITATIVE ASSESSMENT OF SITES .....	20
3.4.1 SYVYDENKAIVO KETTLE GEOSITE (Esker Formation complexes) .....	21

TOURISTIC VALUE AND POTENTIAL EDUCATIONAL USE .....	22
3.4.2 KILONNIEMI SHORE ROCKS GEOSITE (Bedrock sites).....	25
3.4.3 MUHOS FORMATION CONGLOMERATE GEOSITE (Bedrock Sites) .....	28
3.5 GEOCONSERVATION STRATEGY.....	30
3.6 OUTREACH STRATEGY .....	32
3.6.1 A TRIP TO ROKUA.....	34
3.7 STF (SUSTAINABLE TRAVEL FINLAND) .....	36
3.7.1 Application for STF .....	38
3.8 SELF-ASSESSMENT FOR GOOD TRAVEL SEAL; GREEN DESTINATION.....	42
4. ACTION PLAN FOR SUSTAINABILITY.....	44
4.1 PLAN FOR THE NEXT TWO YEARS.....	45
5. CONCLUSIONS .....	51
ANNEX 1.....	54
ANNEX 2.....	56

## **INTRODUCTION**

### **1.1 GENERALITIES**

Rokua Geopark aims to develop its identity as a sustainable tourism destination, and hence, we will assess the present status of sustainability initiatives to then create guidelines (for businesses, individuals, and Humanpolis Ltd.), to follow through on its ambitions, we also highlight the importance of geotourism in sustainable tourism development.

We will explore the touristic value and potential educational use of its three most visited and representative sites and devise a site management and overall outreach strategy, for sustainability.

The Finnish government has given out objectives for sustainable development in travel and we shall also discuss how Rokua Geopark can adapt to align with those objectives. Eventually, to further the sustainability actions for the geopark it must become a greener destination and pledge to become a zero emissions entity, hence, as the first step we prepare the application for the STF (Sustainable travel Finland) and self-assess for Good Travel Seal.

After all these parameters have been weighed and every aspect is known we proceed to make an action plan for Humanpolis Ltd, so they can tread on a path which is clearly defined for the next two years.

With this report we are trying to develop a sustainable tourism development and action plan for Rokua UNESCO Global Geopark while conserving its geological heritage.

### **1.2 METHODOLOGY**

This Report is based on the three-month (March-may) internship at Rokua Geopark, the aim of the internship was to create a sustainable tourism development strategy, site management proposals and guidelines to help businesses become more sustainable.

Step1. Understanding the geopark, geology, management body, protected areas.

Step 2. Understanding the needs of the geopark in the context of sustainable tourism.

Step 3. Gauge the present status of sustainability actions.

Step 4. Devise guidelines for sustainability for individuals, associated businesses and Humanpolis Ltd. (the company liable for Rokua Geopark).

Step 5. Create content for the geopark, such as articles on geotourism (for the website), brochure for SMEs (small and medium scale enterprises) on how to be sustainable, site management plan for the

most relevant geosites based on their touristic value and potential educational use (based on Brilha 2016) through field visits (Fig. 1), suggest an itinerary for a three-day trip to Rokua Geopark.

Step 6. Create a Geoconservation and Outreach Strategy for the geopark.

Step 7. Create application for STF (Sustainable Travel Finland) label, and self-assessment for good travel seal; green destination.

Step 8. Create a general action plan for the geopark based on the objectives set out by STF label, and a two-year specified action plan for Rokua Geopark to become a sustainable tourism destination.



Figure 1. Field work at Rokua Geopark

## **2. ROKUA GEOPARK AND SUSTAINABILITY**

### **2.1 SUSTAINABILITY REPORT (Rokua UNESCO Geopark)**

#### **Present Status:**

Rokua Geopark and associated organizations aim to preserve the distinctive and characteristic natural assets of the Rokua area, so both present and future generations enjoy the natural experiences offered by the Rokua area (Krokki 2009).

For a UNESCO global geopark the SDGs (sustainable development goals) are at the core of all the actions and sustainability is the non-compromised factor in every setting. UNESCO Global Geoparks have ten priority areas, the main tasks. With the implementation of the tasks, geoparks contribute to the realization of the sustainable development goals (<https://www.unesco.org/en/igpp/geoparks>).

1. Sustainable use of natural resources
2. Geological and other hazards
3. Climate change
4. Education
5. Science
6. Culture
7. Women
8. Sustainable development
9. Local and indigenous knowledge
10. Geoconservation

Rokua Geopark with its initiatives such as geotourism, geoeducation, selling of locally harvested food products and upliftment of cultural identity, implementing a bottom-up approach, creating awareness and pride in the community for being a UNESCO geopark strives to incorporate as many SDGs as possible it can in its actions.

Rokua Geopark in its **environmental policy** mentions interest in working on:

1. Commitment - have a stronger and defined commitment towards sustainability, including the associated entities.
2. Interest groups - have a stronger stand and identity as a sustainably driven organization and affect policy making.

3. Planning and operation – have a better administrative and community-based actions to support sustainability.
4. Environmentally sustainable building planning - Incorporate environmentally conscious initiatives such as green building, circular economy etc.
5. Light traffic control – have a better traffic management
6. Waste management - employ sorting, reducing, reusing and recycling principles throughout the geopark.
7. Condition of waters - keep the water quality in check and minimize any adverse impacts on the water bodies of the area.

## **2.2 ISSUES AND ROADBLOCKS**

Based on my observations, and through discussions with personnel at Rokua Unesco Global Geopark, these are the issues that are hindering the development of Rokua Geopark as a sustainable tourism destination:

1. Seasonality of travel – More tourists during certain months of the year.
2. Need for diversification of travel goals – Have varied travel goals for the same destination.
3. Accessibility - most areas difficult to access with public transport
4. Presence and visibility in and around the geopark – inability to set up hoarding on the way to the geopark (part of nationally significant scenery hence not allowed to set up advertisements)
5. Transition to cleaner energy
6. Investment – lack of enough funding poses threat to geopark development.
7. Targeted marketing and advertising- for different kinds of tourists.
8. Inclusivity- better aids for people with disability and different orientations.
9. Involvement of community and enterprises- Involvement of local businesses.
10. Labels and certifications- Sustainability labels affiliation.
11. Measurement of greenhouse gas emissions

## 12. Raising awareness regarding sustainability

Still the biggest challenge that remains is bringing together the enterprises and aligning interests for a sustainable future in a top to bottom approach. Humanpolis Ltd. is the mediator entity here bringing together and disseminating information about such actions.

For associated organizations and SMEs that do not know where to start their journey towards sustainability they can take support and guidance from Rokua Geopark and transition for STF affiliation or while Rokua Geopark as a destination can perform ETIS self-assessment (starting with core indicators and subsequently additional indicators), as they're on the initial steps of STF affiliation.

## **2.3 ETIS (EUROPEAN TOURISM INDICATOR SYSTEM)**

### **What is ETIS?**

The European Tourism Indicator System is specifically intended for tourism destinations. It is designed as a locally owned and led process for monitoring, managing, and enhancing the sustainability of a tourism destination. It has been developed as a result of lessons learned from previously existing Indicator System initiatives and fine-tuned as a result of feedback collected from field testing, in several different destinations in Europe. The System is made up of a set of Indicators, a Toolkit, and a Dataset. It is drawn up as an instrument that any destination can pick up and implement without any specific training. It can be a useful way to track destination performance and make better management decisions, as well as influence adequate policies. The present System has a structure of 27 core and 40 optional indicators. These can be used on a voluntary basis, together or integrated into existing destination monitoring systems. The System is flexible. It can be expanded or contracted to meet the needs of the destination, the interest of local stakeholders, and the specific sustainability issues that the destination faces. The basic principle of the Indicator System is that destination responsibility, ownership, and decision-making is shared. Engaging a group to come together and work together to collect and report information is a powerful way to undertake effective destination management (Fig. 2) (ETIS 2016).

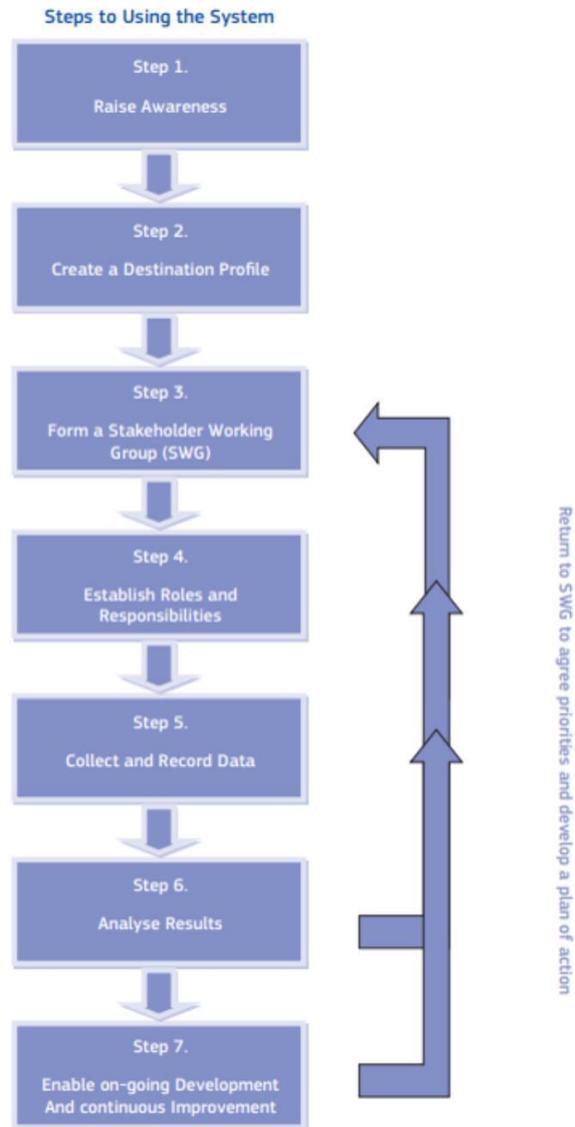


Figure 2. Steps to use ETIS system

## **CORE INDICATORS FOR THE ASSESSMENT**

Core indicators Core indicators are the starting point for measuring the level of sustainability of tourism in your destination. There are 27 core indicators divided in four sections.

### **Section A: Destination Management Core Indicators**

Destination management indicators emphasize important decision-making and communication issues that contribute to sustainable tourism management in the destination.

#### A.1 Sustainable Tourism Public Policy

Percentage of the destination with a sustainable tourism strategy/action plan, with agreed monitoring, development control and evaluation arrangement

#### A.2 Sustainable Tourism Management in Tourism Enterprises

Percentage of tourism enterprises/establishments in the destination using a voluntary verified certification/labelling for environmental/quality/sustainability and/ or CSR measures

#### A.3 Customer Satisfaction

Percentage of visitors that are satisfied with their overall experience in the destination.

#### A.4 Information and Communication

The percentage of visitors who note that they are aware of destination sustainability efforts.

### **Section B: Economic Value Core Indicators**

Economic value indicators help track the contribution of tourism to economic sustainability in the destination.

#### B.1 Tourism Flow (volume & value) at Destination

- a. Number of tourist nights per month
- b. Daily spending per tourist (accommodation, food and drinks, other services)

#### B.2 Tourism Enterprise(s) Performance Indicator

- a. Average length of stay of tourists (nights) Indicator.
- b. Occupancy rate in commercial accommodation per month and average for the year

#### B.3 Quantity and Quality of Employment Indicator

Direct tourism employment as percentage of total employment

#### B.4 Safety and Health Indicator

Percentage of tourism enterprises inspected for fire safety in the last year.

#### B.5 Tourism Supply Chain Indicator

Percentage of tourism enterprises actively taking steps to source local, sustainable, and fair-trade goods and services

### **Section C: Social and Cultural Impact Core Indicators**

Social and cultural impact indicators focus on the effects of tourism on the residents and cultural heritage in the destination.

#### C.1 Community/Social Impact Indicator

Number of tourists/visitors per 100 residents

#### C.2 Gender Equality Indicator

Percentage of men and women employed in the tourism sector.

#### C.3 Equality/Accessibility Indicator

a. Percentage of commercial accommodation with rooms accessible to people with disabilities and/or participating in recognised accessibility schemes Indicator

b. Percentage of visitor attractions that are accessible to people with disabilities and/or participating in recognised accessibility schemes.

#### C.4 Protecting and Enhancing Cultural Heritage, Local Identity and Assets Indicator

C.4.1 Percentage of the destination covered by a policy or plan that protects cultural heritage

### **Section D: Environmental Impact Core Indicators**

Environmental impact indicators focus on those elements that are critical to the sustainability of the natural environment of the destination.

#### D.1 Reducing Transport Impact Indicator

a. Percentage of tourists and same day visitors using different modes of transport to arrive at the destination (public/private and type) Indicator.

b. Average travel (km) by tourists to and from home or average travel (km) from the previous destination to the current destination

#### D.2 Climate Change Indicator

Percentage of tourism enterprises involved in climate change mitigation schemes– such as: CO2 offset, low energy systems, etc. – and “adaptation” responses and actions.

#### D.3 Solid Waste Management Indicator

a. Waste volume produced by destination (tonnes per resident per year or per month) Indicator.

b. Volume of waste recycled (percent or per resident per year)

#### D.4 Sewage Treatment Indicator

Percentage of sewage from the destination treated to at least secondary level prior to discharge.

#### D.5 Water Management Indicator

Fresh water consumption per tourist night compared to general population water consumption per person night

#### D.6 Energy Usage Indicator

Energy consumption per tourist per night compared to general population energy consumption per

person per night

D.7 Landscape and Biodiversity Protection Indicator

Percentage of destination (area in km<sup>2</sup>) that is designated for protection

D.8 Light and Noise Management Indicator

The destination has policies in place that require tourism enterprises to minimise light and noise pollution

D.9 Bathing Water Quality Indicator

Level of contamination per 100 ml (fecal coliforms, campylobacter)

### **3. CONTRIBUTIONS TO THE GEOPARK**

#### **3.1 CLIMATE GOALS**

The Finnish government has set climate goals which state that Finland will be carbon neutral in 2035. Nine sub-objectives have been established to achieve carbon neutrality (<https://www.visitfinland.com/en/>). Rokua Geopark aims to become a certified STF destination and hence, in order to achieve these objectives in Rokua Geopark and contribute to Finland's overall sustainability goals, the following actions can be taken, (these are my suggestions for each objective):

##### **Objective 1: Finland will be carbon neutral in 2035.**

- Encourage all sectors in Rokua Geopark to actively participate in measuring and reducing greenhouse gas (GHG) emissions.
- Implement energy efficiency measures in buildings and promote the use of energy-saving technologies.
- Promote public awareness campaigns and educational programs to encourage sustainable practices and behavior change.

##### **Objective 2: Finland aims to be the world's first fossil-free welfare society.**

- Develop a comprehensive plan to transition to renewable energy sources in the region, such as wind, solar and hydropower.
- Support and incentivize the adoption of electric vehicles (EVs) and the development of EV charging infrastructure
- Develop partnerships with local businesses and organizations to accelerate the transition to greener energy sources.
- Support research and development of innovative green technologies in the geopark.

##### **Objective 3: Strengthening carbon sinks and stocks.**

- Implement conservation measures to protect and restore the peatbogs in Rokua National Park.
- Promote sustainable forestry practices and reforestation efforts in the geopark.
- Encourage local farmers to adopt climate-friendly agricultural practices, such as agroforestry and organic farming, to enhance carbon sequestration in the soil.

- Collaborate with scientific institutions to monitor and assess the potential as a carbon sink and effectiveness of carbon sink initiatives.

#### **Objective 4: Reducing the carbon footprint of housing and construction.**

- Develop sustainable building guidelines and standards for new construction projects in Rokua Geopark.
- Encourage the use of energy-efficient materials and construction techniques.
- Provide incentives for retrofitting existing buildings to improve energy efficiency.
- Associate with certification program for sustainable housing and construction practices.

#### **Objective 5: Halting biodiversity loss in Finland**

- Protect and expand natural habitats in Rokua Geopark, including forests, glacial landforms , biodiversity and lakes.
- Implement measures to control and mitigate invasive species in the region, and protect the endemic species.
- Educate people about forest fires and take initiatives to curb them.
- Promote sustainable land-use practices that prioritize geodiversity and biodiversity conservation.
- Support research and monitoring programs to assess the status of local flora and fauna.

#### **Objective 6: Strengthening Finland's role in the circular economy.**

- Encourage local businesses in Rokua Geopark to adopt circular economy principles, such as waste reduction, recycling, and resource efficiency.
- Establish networks and platforms for sharing best practices and promoting circular economy initiatives.
- Support and incentivize the development of local recycling and upcycling industries.

#### **Objective 7: Climate-friendly food policies**

- Promote sustainable and locally sourced food production in Rokua Geopark eg. Geofood.
- Encourage farmers to adopt regenerative agricultural practices that reduce environmental impact.
- Develop programs to educate consumers about sustainable food choices and the benefits of a plant-based diet.

- Support local food markets and initiatives that promote traceability and reduce food waste.

**Objective 8: Improving the environmental protection of mines.**

- There are no mines in the Rokua geopark area but affect from nearby mines should be monitored.

**Objective 9: Improving animal welfare.**

- Collaborate with local farmers to ensure humane treatment of livestock and promote sustainable animal farming practices.
- Raise public awareness about animal welfare issues through educational campaigns and community outreach programs.

**3.2 SUSTAINABILITY AND GEOPARKS**

Touristic destinations face some constant threats such as alienated residents, a degraded tourist experience, overloaded infrastructure, damage to nature, and threats to culture and heritage (Mckinsey, 2017), but geotourism that takes place in the context of geoparks, tends to be better organized works in line with the SDGs and is less likely to face such threats. Supporting geoparks ensures, an enabled community a healthier environment and management of the area by professionals. Given are two articles for Rokua geopark to explain the importance and advantages of geotourism.

**3.2.1 GEOTOURISM, The better tourism**

Geotourism is the environmentally friendly, culturally responsible, and synergistic way of traveling. It is traveling for admiring the geological marvels of the world, along with understanding the community the environment and culture associated with it. Reinforcing this geographical perspective, Bosak et al. (2010) mentions that geotourism corresponds to an approach as a global phenomenon, in which a series of tourist products and experiences are related to the different character and identity of the destination and are incorporated into it, hence, with geotourism you add more dimensions to your travel goals. While understanding the geological heritage of that area, you also witness how the culture of the place is intertwined with the environment.

When these aspects are highlighted and public is made aware of their impact and contribution the travel for tourists becomes more rewarding and adds value to their otherwise simple plans, they realize that without any extra effort and just by choosing certain destinations they can leave a positive impact on the society and environment. Not only that the local people develop a sense of pride for their territory and feel empowered.

Geotourism was considered a niche tourism, but in reality, it overlaps with many categories of tourism (Ólafsdóttir 2019) at the same destinations and is very wholesome and sustainable if proper management actions are put into place and not a one size fits all approach is applied. Geotourism in the context of geoparks works on the triple bottom line of sustainability and a bottom-up approach, so it supports the community with destination safety being the central theme. It is a scientific way to travel and gives back to the society (<https://www.unesco.org/en/igpp/geoparks>)

Geotourism in Rokua Geopark benefits you by making you more aware of your surroundings and geological heritage, how has the ice age carved the present geology we reside with, and since it is managed by specialists you get to have the proper guidance for the right experience. You will learn how to live-in harmony with earth and understand the dynamic processes. Along with that you can have multiple geological adventures such as snowmobile, skiing, snowshoeing in a sustainable manner.

Dense ecosystems at Rokua National Park can potentially support carbon sequestration processes, the areas inside the geopark which are untouched are a probable nature-based solution and a carbon sink which needs to be scientifically studied.

Geotourism in the context of geoparks has become an integrated government model leading to regional development (Duarte et al. 2020). It needs to be in the public eyes, so it can garner the attention it deserves, the roadblocks to geotourism becoming a thriving industry are lack of awareness and proper marketing strategies to target audience, availability of management bodies in the scenarios of overcrowding or seasonality of travel and keeping the interests of conservation of geologically important sites and local communities at the heart of every project.

### **3.2.2 ROKUA GEOPARK: where Geotourism Leads the Way in Sustainable Practices**

Nestled in the picturesque Finnish countryside lies Rokua Geopark, a true gem for nature and geology enthusiasts. However, Rokua Geopark is not just a stunning landscape; it is also a beacon of sustainability and responsible tourism. Through the principles of geotourism, Rokua Geopark is

successfully fostering a harmonious relationship between tourism, conservation, and local communities, creating a model for sustainable development. Let's explore how Rokua Geopark supports sustainability through geotourism in its territory.

**Preservation of Geological and Natural Heritage:** Rokua Geopark is renowned for its exceptional geological formations, from ancient eskers and kettle holes to magnificent sand dunes. Geotourism if used properly can play a vital role in preserving and conserving these natural wonders. Visitors are encouraged to explore the park's designated trails, minimizing their impact on the delicate ecosystem, through geotourism, Rokua Geopark raises awareness about the importance of preserving geological and natural heritage for future generations.

**Promoting Sustainable Practices:** Geotourism in Rokua Geopark goes beyond appreciating the natural beauty; it actively promotes sustainable practices among local businesses and tourists alike. Accommodation providers, restaurants, and activity operators in the area are encouraged to adopt environmentally friendly measures such as energy efficiency, waste reduction, and responsible water usage. Visitors are educated about sustainable behavior, such as staying on designated trails, practicing leave-no-trace principles, and respecting wildlife and local communities.

**Cultural Preservation and Community Engagement:** Rokua Geopark is not only a geological wonder but also a place with rich cultural heritage. Geotourism in the area aims to preserve and promote the local culture and traditions of the communities. Through partnerships and collaborations, geotourism actively engages these communities in tourism activities, ensuring they benefit from the industry while maintaining their cultural identity. This approach fosters community pride, empowerment, and a sense of ownership over the geopark's sustainable development.

**Environmental Education and Interpretation:** Geotourism in Rokua Geopark provides valuable opportunities for environmental education and interpretation. Visitor center (Muhos library) and guided tours offer a wealth of information about the park's geology, flora, and fauna. Through these educational initiatives, visitors gain a deeper understanding and appreciation of the unique natural environment, fostering a greater sense of responsibility towards its preservation. Geotourism acts as a vehicle for raising environmental consciousness and inspiring sustainable practices.

**Collaboration and Partnerships:** One of the pillars of geotourism in Rokua Geopark is collaboration and partnerships among various stakeholders. Local communities, businesses, educational institutions, and government authorities work together to ensure sustainability is a shared goal. By involving all

parties in decision-making processes, geotourism at Rokua geopark fosters inclusivity, transparency, and a holistic approach to sustainable development. These collaborations strengthen the park's resilience and contribute to the long-term preservation of its natural and cultural heritage.

**Economic Development and Tourism Revenue:** Geotourism in Rokua Geopark is not just about preserving nature and culture; it also fuels economic development. The presence of geotourism activities generates employment opportunities, stimulates entrepreneurship, and supports local businesses. The revenue generated from tourism activities can be reinvested in conservation efforts, infrastructure development, and community projects, further enhancing the park's sustainability. Geotourism serves as a catalyst for economic growth while ensuring the preservation of Rokua Geopark's unique identity. (Duarte et. al. 2020)

### **3.3 SCOPE AND GUIDELINES FOR INDIVIDUALS AND BUSINESSES**

Post-corona steep increase in tourism has been reflected in the numbers at Rokua geopark and the decision to incorporate sustainability in all the actions comes at the right time. With multiple stakeholders involved it becomes a fairly elaborate task to incorporate sustainable actions into all the aspects of the geopark. So, if we divide sustainability domains broadly into ecological, cultural, and economic, below are the subareas businesses can work on (derived from STF guidelines).

#### **Ecological sustainability**

- Sorting, recycling, and a verifiable reduction in the amount of waste.
- Reducing energy consumption.
- Reducing the use of fossil fuels.
- Verifiable reduction of water consumption.
- Providing services in an environmentally friendly way, without leaving traces on the environment and without consuming nature.
- Contributing to the preservation of biodiversity.
- The introduction of an environmental management system at enterprises.
- Training staff to be environmentally conscious.

- Reducing and utilizing food waste.
- Increasing the use of organic and vegetarian food.
- The use of environmentally friendly cleaning products.
- Adoption of circular economy practices.
- Climate change mitigation / use of carbon footprint calculator.
- Communication and customer perspective. The company communicates green choices to customers to make them act more responsibly.

### **Socio-cultural sustainability**

- Protecting and nurturing the local cultural heritage, influencing vitality. The tourism industry does not cause the loss of cultural heritage through its actions.
- Respect and authenticity of local culture in the exploitation of culture.
- Well-being for the surrounding community; engagement and interaction with locals.
- Respect and appreciation of the local community, integration of the local community.
- Hiring local labor and considering workers' rights.
- Preference for local food.
- Preference for local products such as souvenirs and local services.
- The visibility of locality, local culture and / or Finnishness in marketing (truthfully).
- Utilization of local elements in tourism products.
- Management of tourism and the creation of borders.
- Reconciling the needs of traditional livelihoods and tourism (e.g. land use).
- Building collaboration and inclusion.
- verification of the impact of tourism on the internal structures of the Community.
- Communication and customer perspective. The company communicates responsibility to customers and thus strives to make them act more responsibly.

- Stakeholder cooperation and selection of partners: the company selects actors who follow the same set of values as partners.
- Equality/ equality/ accessibility e.g., staff/ customers, etc. encounters and treatment (including specific target groups such as LGBTQ).

### **Economic sustainability**

- The retention of income from tourism in the region for the benefit of local communities and individuals.
- Employment of locals.
- The integration of the tourism industry into the local community in order to distribute the benefits to the region.
- Implementation of sustainable investments (carbon footprint, etc.) and long-term business operations.
- Business transparency.
- Rokua geopark has multiple associated companies which are majorly small to medium scale companies.

Whenever we think about sustainability, we must always think in a big picture scenario, because sustainability traverse segments, we cannot have a niche mentality while employing sustainability actions. While all companies must work in the areas mentioned above there can be specific guidelines for each type of company.

#### **3.3.1 GUIDELINES FOR BUSINESSES TO BECOME SUSTAINABLE**

Given below are certain guidelines for the regional businesses relevant for the Rokua geopark area, on how to be more sustainable, these guidelines are derived from discussions with Rokua Geopark personnel and understanding the needs of STF to align common interests.

- Understand the concept of sustainability

- Understand why is it important for your business to be sustainable? (With support from Humanpolis Ltd.)
- Learn how can you be sustainable and still be profitable? (With support from Humanpolis Ltd.)
- Employ the 6R principles; refuse, reduce, reuse, repurpose, recycle and rot.
- Measure and manage using different sustainability toolkits.
- Keep tabs on your visitors and strategize using that data.
- Employ a circular economy model.
- Share your journey and data in the SME community.
- Measure carbon emissions and strive for net zero.
- Employ land use management tactics for the area.
- Invest in technological innovation.
- Invest in inclusivity.
- AND become a sustainability champion! Sign the pledge (sustainable travel Finland pledge) to show your conviction.

### **3.3.2 WHAT CAN TOURISTS DO TO HAVE THE LEAST ENVIRONMENTAL IMPACT ON THE TERRITORY**

These guidelines derived from discussions with Rokua geopark personnel and understanding the needs of STF to align common interests, they are suitable for tourists and how they can contribute to sustainability in Rokua Geopark area.

1. Make informed choices, make an itinerary and budget before the journey, keeping sustainability in mind.
2. Prefer a train journey over a flight and use public transport over individual means.
3. Support local businesses, when looking for accommodation such as locally run homestays.

4. Consume local and seasonal produce, visit local restaurants with recognition such as geofood.
5. Understand the waste sorting system of the destination and follow that.
6. Do not litter, leave the natural spaces as you find them.
7. Refrain from creating any kind of pollution (sound, light, air, water)
8. Consume less meat.
9. Invest in quality products, it reduces waste, as they last longer.
10. Understand the geological and cultural heritage of the area and reflect on what you are witnessing, support the geopark by supporting the ongoing campaigns e.g., adopting a rock/plant etc.
11. Invest in local handicraft and artisan works.
12. Plan longer trips.
13. Research about the destination and visit the lesser-known gems of the area.
14. Learn about the complexity of the ecosystem you are visiting especially in the deeper natural setting do not interfere with the natural processes.
15. Perform berry picking and mushroom picking in designated spots.
16. Try to use the three Rs (reduce, reuse, recycle) in everyday life.

### **3.3.3 BROCHURE FOR BUSINESSES**

After understanding the area and its needs and also having an overview about profitability in sustainability (Manniche et al. 2017, Wayne 2021) I created a brochure (Annex 1) to be used as an outreach tool during meetings with regional SMEs (small and medium scale enterprises):

#### **HOW CAN YOU BE PROFITABLE BY BEING SUSTAINABLE?**

1. SELLING POINT: Having a sustainability label will give you a unique selling point and attract a new stratum of tourists, giving you a competitive advantage.

2. MORE PROFITABLE: These people are happy to pay more, in order to support sustainability actions in the area, this also leads to a better customer-entrepreneur experience.
3. MORE INVESTMENT: Massive shift in investment patterns has been observed and green businesses are going to have more and more investment in the coming years.
4. REDUCED OPERATIONAL COSTS: When we employ sustainability principles e.g., circular economy, we reduce waste, optimize our functions and in turn save money.
5. BETTER RESOURCE MANAGEMENT: The overall business management tactics refine from waste management to human resource management we identify loopholes and overall business strategy is transformed.
6. PROCESS INNOVATION: Sustainability is a cross functional aspect; it brings together all the domains of the system/business/organization, laying out the present drawbacks and strengths of your organization giving you more at hand to strategize with.
7. INCREASES LONGEVITY FOR EXISTING BUSINESSES: With your business principles aligned with sustainability you are more likely to stay in business than your non-sustainable counterparts.
8. INCREASES COOPERATION BETWEEN LOCAL BUSINESSES AND SUPPORTS NEW ENTREPRENEURS: sustainability principles support local businesses; businesses lead by women and people working with regional products and services.
9. SUPPORTS YEAR-ROUND TRAVEL: So, you will never be out of business!
10. MORE INCLUSIVE DESTINATIONS: International tourists and minorities would prefer you over other places.
11. INCREASE IN OVERALL WELLBEING, A WIN-WIN SITUATION FOR EVERYONE!

### **3.4 QUALITATIVE ASSESSMENT OF SITES**

The geopark has more than 40 geosites divided into:

- i) Bedrock sites, ii) geological features created by continental ice, iii) esker formation complexes, iv) formations created by wind, v) formations created by shoreline forces, vi) moraine formation, vii) bogs and viii) other geosites.

I performed the assessment of three geosites to understand and explore the touristic and educational potential of most visited and representative areas of the geopark. The proposals for each geosite are about site management and also, to support sustainability actions. The assessment is based on Brillha (2016), and Crofts et al. (2020) and involved field work.

### **3.4.1 SYVYDENKAIVO KETTLE GEOSITE (Esker Formation complexes)**

#### **DESCRIPTION**

“The Well of Deepness”, Syvydenkaivo is Finland’s deepest natural-state kettle hole with a measured depth of more than 50 metres (Fig.3) (Tervo T 2012). A bog has formed at the bottom of it, about eight metres thick, which covers part of the actual depth of the kettle hole. There are hiking and biking trails going through the kettle hole, and there are naturally occurring mosses and lichens in and around the area. One of the sides of the kettlehole shows natural weathering processes. There is supporting infrastructure to walk down the kettle hole. This is one of the most visited geosite for tourism purposes.



Figure 3. Syvydenkaivo Kettle Geosite

## **TOURISTIC VALUE AND POTENTIAL EDUCATIONAL USE**

The geosite is vulnerable to erosion which directly affects the main geological element of the geosite which is the geomorphology, the presence of the hiking and biking trails form over the geosite gives rise to human induced erosion of the soft sandy terrain, reducing the TV (Touristic value) and PEU (potential educational use). The accessibility is not very good, with bus/personal means, after the parking one must walk a while to reach the site. Apart from the snow cover during a certain period of the year which makes it a bit harder to observe the structure of the geosite, there is no other use limitations that exist, if only observation of the site is considered. The site is safe to visit with infrastructure to support the visit and proper paths to access the site, presence of healthcare services is available in Rokua municipality, and other amenities are available at Rokua health and wellness resort, which is less than 6 kms from the site. Tour options to the geosite do not exist unless it is a big group where private tour buses can take you to the site, the closest information center is Rokua health and spa hotel, it is not the designated information center, but a substitute where you can avail some services, there is no restroom/ toilet at the site. The closest residential area of the municipality is at 25 kms with as small population of 3000 people, the closest big city is Oulu, which is at 83 kms from the geosite, with a population of 212,127 people. There are associated biological elements (Endemic plant species) and a peat bog at the bottom of the site. The scenery is beautiful with a strong presence of the geology of the site, the kettle hole is surrounded by pines, birches, lichens and mosses (Fig.4) and the undulation of the terrain emphasizes on the geological beauty of the geosite, it is presently used in local tourism campaigns. The site is internationally significant, with one of the best places to understand the Esker formations. The observation conditions of the geosite are very good, except the seasonality (snow cover). The site has high interpretative potential. The income level of people living in vicinity to the site is average. With a hotel and spa close to the geosite along with multiple adventure related options such as camping, skiing, trekking there is a proximity to recreational areas. The site can be visited by people of all educational levels, and they will be able to understand something about the geology. The site is geologically diverse with geomorphological features, glacial features and peat bogs.



Figure 4. Reindeer moss

## **DEGRADATION RISK**

The site is very fragile, with direct threat to its intrinsic value. The site is prone to both human induced and natural erosion (Fig. 6), presence of hiking and biking trails through the kettle hole, and presence of infrastructure on the geosite increase the fragility as they aid erosion (Fig. 5). A legal protection exists with no obstacles to access. The site is only accessible by personal means, so not everyone can easily access and degrade the site. Very low density of population near the geosite.



Figure 5. Human induced erosion (biking tracks)



Figure 6. Natural erosion

## **PROPOSALS**

The access to the site needs to be restricted, and the possibility to change the hiking and biking trails must be pondered upon as it is affecting the intrinsic geological value of the site. The site can be developed both as a touristic and educational site but should be observed as a geomorphosite from afar. Special emphasis must be laid on the peatbogs and their ecological importance. Additional infrastructure to reduce erosion or removal of existing infrastructure must be discussed with the stakeholders. The seasonality of travel to the site can be fixed by diversifying the use of site, for example using the site for adventure activities during winters while for both educational and touristic activities during summers. Having season-based trails and routes may also serve favorably for the case.

### **3.4.2 KILONNIEMI SHORE ROCKS GEOSITE (Bedrock sites)**

#### **DESCRIPTION**

The Kilonniemi gneiss geosite located on the breath-taking Manamansalo island is a must visit for everyone coming to Rokua geopark, as visitors can see the oldest bedrock area in the European Union (gneiss bedrock 2,700 – 2,600 million years old) (Fig. 7). The remains that can be seen today are from the ancient landmass, which over the course of history, several times, found itself in the zone where the tectonic plates collided, it was folded into a mountain range, and was then once more, worn down into a smooth rock face. The striped and folded appearance of the gneiss bedrock bears witness to the tumultuous events it has been through (Krökki 2009).



Figure 7. Kilonniemi shore rocks

### **TOURISTIC VALUE AND POTENTIAL EDUCATIONAL USE:**

The site is not protected by a barricading and can easily be accessed by people, but overall, the site has low vulnerability because of its location and structure. The site is only accessible by transportation like a small bus or smaller vehicles, they can easily go uptill the site. The site is covered by snow for certain months and presence of this site on an island with no public transportation are the two use limitations. The emergency services are located very far away from the site reducing the safety factor. It is easy to facilitate a tour for any age group, except when a group is very big, infrastructural aids are required. The site does not have hotels and information centres nearby, there is a bench next to the site and interpretative boards. The density of population close to the geosite is very low. Two cultural sites at 5 kms from the site, a folklore associated with the island, and multiple recreational, ecological, educational, and cultural sites are present all over the island. Site is used as a tourism destination in local campaigns. The site is close to the oldest outcrop in Europe (Fig. 8), therefore reducing the uniqueness for the site. All the geological elements can be easily observed. The interpretative potential is not very high as the public needs to have some geological background to understand the geological

elements of the site, but the panels at the site are good aids. The income of people living close to the site is average. It is located close to recreational areas, and the island itself is a tourism destination especially during summers. The site can be used by all age groups mainly, middle school going upwards. The site is not very geologically diverse because of one main feature showing the metamorphic rock and other associated elements of a gneiss as folds, faults, veins, intrusions.

## **DEGRADATION RISK**

The site is not very fragile, yearly cleaning and weeding is needed, along with a cover preventing snow cover. The site is not prone to degradation, except natural processes as erosion, snow, vegetation etc. The site is not legally protected and is easy to access, with roads leading to the site. The density of populations close to the site is very low.



Figure 8. Oldest bedrock of Europe on Manamansalo island.

## **PROPOSALS**

The interpretative boards next to the site are very helpful but require categorization (based on type of tourists, and level of understanding of geology) to ease dissemination. Infrastructural aids are needed at the site such as a shade over the site to prevent from direct rainfall and hail and a barricade for visitors. The site can also benefit from weeding and cleaning every few years. The site needs to be advertised better and it holds the potential to help increase overall tourism to the island. The site should be included in trails which would increase visibility. With beautiful beaches and multiple recreational activities, the island is a known touristic destination, which is a favorable factor for the site.

### **3.4.3 MUHOS FORMATION CONGLOMERATE GEOSITE (Bedrock Sites)**

#### **DESCRIPTION**

The oldest part of the Muhos Formation (which is petrified gravel) is present on the Lemmenpolku trail (Fig. 9) which means “lovers’ path”, it runs along the northern bank of the Oulujoki river on top of the granite rock. The path showcases the natural and cultural history of the Oulujoki river from the ancient landmass to its use in transporting tar and the advent of hydroelectric power. The exposed site is a protected area access is restricted with a physical barrier (Krökki 2009).



Figure 9. Entrance of Lemmenpolku trail

## **TOURISTIC VALUE AND POTENTIAL EDUCATIONAL USE**

The conglomerate itself is prone to erosion being next to the river and the slope, people can aggravate the process. The site is located on a trekking trail around 500 meters into the trek. Apart from snow cover in certain months of the year and the trek not being suitable for people with disability there is no other use limitation. The site needs more infrastructure and probably redoing the trekking trail to make it safer for students and tourists both and decrease impact on the geosite and risks for tourists. presently the trail goes from over the geosite. The site is located next to a camping site with a restaurant with various amenities, the closest hotel is in Oulu. Density of population is average (compared to other two sites, this site is in a larger municipality) around the geosite. There is one cultural element and one ecological element associated with the trek. The site and trek are used in local tourism advertisements. The sedimentary rock is one of a kind and hence internationally important. People cannot view the geosite in the outcrop as they're standing on it hence the observation conditions are not ideal. The site is not easy to explain general people, prior knowledge of geology is needed. The economic level of people living close to the geosite is similar to the national average. The site has proximity to recreational areas such as fishing, camping, swimming and more. The site can be used by all educational levels, more suitable for middle school and higher. The site is not very geologically diverse showing only the conglomerate.

## **DEGRADATION RISK**

The site is fragile in the sense that its already undergoing natural erosion (Fig. 10) being on the riverbank of the river, proximity to so many recreational activities close to it makes it more vulnerable to degradation. The site is not legally protected it is easy to access, located next to a road and on a designated trekking route. The density of population is a bit higher near the geosite than rest of the geopark, but it is manageable. The didactic potential is low and touristic potential is low as well because of the inability to explain and visualize the conglomerate in the outcrop.



Figure 10. Erosion on the trail

## **PROPOSALS**

The site is under stress because of natural erosive processes. The inability to see the site in scale is another drawback because the route runs on a basal moraine on top of the conglomerate, so, the access to the site is limited. But a different viewpoint is not possible as the site is next to the river. The site is very low in didactic and interpretative potential., hence investment in educational tools to easily explain the site is necessary. This site to become an educational site needs amends in the safety aspects with proper infrastructure, also the markings and path needs to be clearer at points and during summers a guided tour can make this geosite a success for educational trips. As a touristic site better advertisement about the geological aspects of the trail is a must, this is already a known nature trail but as a geopark highlighting the geological importance of the trail is necessary.

### **3.5 GEOCONSERVATION STRATEGY**

This section proposes a geoconservation strategy for Rokua Geopark (based on Brilha 2016, Crofts et al. 2020).

#### **Inventory and Documentation**

- Rokua geopark already has a comprehensive inventory.

- They can with the support of the geological survey create a detailed database or GIS system that captures the location, characteristics, and scientific value of each geological feature, ensuring their preservation and future monitoring.

#### **Geological Research and Monitoring:**

- The geopark has multiple research initiatives and doctoral thesis with the university of Oulu.
- They can support studies on conservation of geological sites in the geopark.

#### **Risk Assessment and Mitigation:**

- Rokua geopark should conduct regular risk assessments to identify potential threats to the geopark's geological features, such as erosion, human activities, or natural disasters.
- They should develop and implement mitigation measures to minimize risks, such as erosion control, habitat restoration, or visitor management strategies.

#### **Site Protection and Management:**

- The geopark already has multiple protective labels.
- Regular checks must be put in place regarding the protected areas, and guidelines reinforced.

#### **Education and Interpretation:**

- Rokua geopark needs to develop a visitor center that provides information about the geopark's geological heritage, explaining the formation processes and the significance of each feature.
- They can also offer guided tours depending on visitor needs and number of visitors, giving them an essence of the heritage of the ice age.

#### **Community Engagement and Awareness:**

- Humanpolis Ltd. should organize workshops, seminars, and training programs for the local community to raise awareness about the importance of geoconservation and promote local involvement in monitoring and preservation activities.

#### **Partnerships and Collaboration:**

- Forge partnerships with geological societies, conservation organizations, and government agencies to leverage funding opportunities, and support for geoconservation efforts.

- Collaborate with neighbouring geoparks or UNESCO Global Geoparks to exchange best practices, share knowledge, and collaborate on research and conservation initiatives.

#### **Sustainable Tourism Practices:**

- Promote sustainable tourism practices that minimize the impact of visitors on the geological features, such as designated trails, visitor codes of conduct, and responsible tourism guidelines.
- Educate visitors about the fragility of the geological heritage and the importance of preserving it for future generations.

#### **Public Outreach and Advocacy:**

- Develop public outreach campaigns to raise awareness about the geopark's geological heritage among the wider public, emphasizing its scientific, educational, and cultural value.

#### **Regular Review and Adaptation:**

- Conduct periodic reviews and evaluations of the geoconservation strategy to ensure its effectiveness and make necessary adjustments based on new scientific findings or changing priorities.

By implementing this geoconservation strategy, Rokua Geopark can effectively preserve its unique geological heritage, contribute to scientific research, and educate and inspire visitors about the geological wonders of the region.

### **3.6 OUTREACH STRATEGY**

Based on observations and discussions at Humanpolis Ltd., the following is an outreach plan specifically tailored for attracting tourists to Rokua Geopark.

#### **Visitor Persona Analysis:**

- Conduct research to understand the characteristics, interests, and preferences of the target tourist segments visiting Rokua Geopark.
- Identify key personas, such as nature enthusiasts, adventure seekers, families, and cultural explorers, to tailor outreach efforts accordingly.

**Website and Online Presence:**

- Optimize the website for search engines to ensure it appears prominently in search results when tourists search for geotourism-related and sustainable tourism related information and make the website easy to navigate through.
- Use visual aids such as pictures and videos that showcase the natural beauty and unique geological features of the geopark.

**Social Media Engagement:**

- Establish a presence on popular social media platforms frequented by tourists and regularly share content, that highlights the geopark's geology, biodiversity, cultural heritage, and geotourism experiences.
- Encourage user-generated content by creating hashtags and running social media campaigns that encourage visitors to share their experiences and tag Rokua Geopark.

**Geotourism Packages and Experiences:**

- Collaborate with local tour operators and businesses to develop geotourism packages and experiences tailored to different tourist interests, such as adventure trips, wellness trips etc.

**Visitor Information Centers:**

- Establish a visitor information center at a strategic location within the geopark, staffed with knowledgeable personnel who can provide guidance and recommendations to tourists.

**Collaborations with Accommodation Providers:**

- Encourage accommodation providers to offer geotourism packages or special discounts for visitors interested in exploring the geopark.

**Online Booking and Reservation System:**

- Implement an online booking and reservation system that allows tourists to easily book geotourism experiences, accommodation, and other services related to their visit to Rokua Geopark.
- Ensure the system is user-friendly, secure, and provides clear information about available options and pricing.

**Collaborative Marketing Campaigns:**

- Rokua Geopark already works with multiple organisations to increase its reach as a tourism destination, they can soon collaborate with international tourism organizations, travel agencies to launch joint marketing campaigns that promote Rokua Geopark as a geotourism destination.

- Participate in international and national trade shows, travel fairs, and industry events to showcase the geopark's unique geological features and sustainable tourism practices.

#### **Visitor Feedback and Reviews:**

- Encourage visitors to provide feedback and reviews about their experiences in Rokua Geopark through online platforms, such as Google Reviews, or the geopark's website.
- Monitor and respond to reviews, addressing any concerns, and utilizing positive feedback to further enhance the geotourism offering.

#### **Continuous Evaluation and Improvement:**

- Regularly assess the effectiveness of the outreach plan through visitor surveys, website analytics, and other performance metrics.

### **3.6.1 A TRIP TO ROKUA**

A suggestive itinerary for a 3-day trip to Rokua Geopark in Finland.

#### **Day 1:**

Morning:

- Arrive at Rokua Geopark and check into your accommodation.
- Start your day with a visit to the Rokua Geopark Visitor Center (Muhos library) to gather information about the geopark, its geological features, and available activities.
- Explore the exhibition and interactive displays to learn about the geopark's unique geology and cultural heritage.

Afternoon:

- Enjoy a guided geological hike or nature walk led by experienced guides who can provide insights into the geological formations, flora, and fauna of the geopark.
- Visit the Rokua Health & Spa, where you can relax and rejuvenate in the natural mineral-rich waters or indulge in a spa treatment.

Evening:

- Experience the local cuisine at one of the restaurants in the area, savoring traditional Finnish dishes

made with locally sourced ingredients.

- Enjoy a peaceful evening stroll along the picturesque trails, taking in the tranquility and beauty of the geopark's surroundings.

## **Day 2:**

Morning:

- Embark on a thrilling adventure by joining a fat biking or mountain biking excursion through the geopark's scenic trails.
- Discover the Rokua UNESCO Global Geopark's famous kettle hole formations, ancient sand dunes, and vast forests as you cycle through the diverse landscape.

Afternoon:

- Take part in a guided canoeing or kayaking trip on the pristine lakes and rivers of the geopark, enjoying the tranquility and stunning views of the surrounding nature.
- Enjoy a picnic lunch in a scenic spot, immersing yourself in the peaceful atmosphere of the geopark.

Evening:

- Head to Rokua Geopark's observation tower to witness a breathtaking sunset over the unique landscape.
- Participate in a traditional Finnish sauna experience, enjoying the heat and relaxation while immersing yourself in Finnish culture.
- End the day by stargazing in the clear night sky, marveling at the beauty of the stars in the geopark's pristine environment.

## **Day 3:**

Morning:

- Join a guided cultural tour to learn about the history and cultural heritage of the local communities in the geopark area.
- Visit nearby attractions, such as Rokuanvaara Hill or Rokua Esker, to explore their geological features and enjoy panoramic views of the geopark.

Afternoon:

- Indulge in some outdoor activities, such as fishing, berry picking, or nature photography, in the geopark's stunning natural surroundings.
- Explore the hiking trails or rent a fat bike to further immerse yourself in the geopark's unique landscape.

Evening:

- Enjoy a farewell dinner at a local restaurant, savoring delicious Finnish cuisine and reflecting on your memorable experiences in Rokua Geopark.
- Take a leisurely walk around the geopark, soaking in the last moments of tranquility and natural beauty.

**Rokua Geopark aims to become an STF certified destination, let's take a look at what that entails.**

### **3.7 STF (SUSTAINABLE TRAVEL FINLAND)**

Becoming an STF (Sustainable Travel Finland) destination involves meeting certain criteria and demonstrating a strong commitment to sustainable practices. Here are steps that Rokua Geopark can take to become an STF destination:

#### **Assess Current Practices:**

Conduct an in-depth assessment of the geopark's existing sustainability practices across various aspects, such as waste management, energy consumption, community involvement, and visitor education. Identify areas where improvements can be made and set targets for sustainable development.

#### **Sustainable Tourism Certification:**

Pursue sustainable tourism certifications, such as the Sustainable Travel Finland label offered by Visit Finland. This certification demonstrates a commitment to sustainable practices and provides recognition as a trusted and responsible destination.

#### **Collaboration and Partnerships:**

Strengthen collaborations with local communities, businesses, educational institutions, and government authorities. Actively engage stakeholders in the planning and implementation of sustainable initiatives,

fostering a collective effort towards sustainable development.

**Environmental Management:**

Develop and implement an environmental management system that addresses key sustainability challenges. This includes monitoring and minimizing the environmental impact of tourism activities, promoting energy efficiency and renewable energy use, and implementing effective waste management and recycling programs.

**Visitor Education and Awareness:**

Create comprehensive visitor education programs that raise awareness about sustainable behavior, local culture, and environmental conservation. Provide information through visitor centers, interpretive signage, and online platforms, highlighting the geopark's commitment to sustainability and providing practical tips for visitors to minimize their environmental footprint.

**Cultural Preservation and Community Engagement:**

Enhance initiatives that preserve and promote the local culture and traditions of indigenous communities and other local stakeholders. Involve them in tourism activities, develop community-based enterprises, and encourage visitors to support local businesses, artisans, and cultural events.

**Sustainable Mobility:**

Promote sustainable transportation options within the geopark. Encourage visitors to use public transportation, cycle, or walk whenever possible. Develop cycling and walking trails and collaborate with local transport providers to offer eco-friendly transportation services.

**Monitoring and Reporting:**

Establish a comprehensive system for monitoring, evaluating, and reporting on sustainability indicators. Regularly assess progress, collect data, and analyze the results to measure the effectiveness of implemented sustainability initiatives and identify areas for improvement.

**Continuous Improvement and Innovation:**

Foster a culture of continuous improvement by seeking innovative solutions and embracing new technologies that support sustainability goals. Encourage research and development initiatives that contribute to sustainable tourism practices and enhance the geopark's overall sustainability performance.

**Marketing and Communication:**

Promote the geopark's sustainable practices and commitment to responsible tourism through various marketing channels. Utilize social media, website content, and collaborations with travel agencies to highlight Rokua Geopark as an STF destination and attract sustainability-conscious travellers.

By following these steps and demonstrating a strong commitment to sustainable practices, Rokua Geopark can work towards becoming an STF destination, further solidifying its reputation as a leader in sustainable tourism within Finland and beyond.

### **3.7.1 Application for STF**

Following the official format by STF given below is the application checklist for Rokua Geopark. This questionnaire was filled during a discussion with the sustainability in charge of Rokua Geopark.

- Questions
- Answers

Some of the questions are not answered or are not applicable at this stage for the geopark.

## **SUSTAINABLE DEVELOPMENT PLAN**

### **Introduction**

Description of the company and the company's desire for sustainable development and responsible business

- Why do you want to develop sustainable tourism? What are the values of your company?
- Rokua UNESCO geopark run by Humanpolis Ltd. with the support of municipalities is already a sustainable tourism destination, a UNESCO global geopark is governed by the SDGs, but in order to quantify, be more organized, educate tourists and community regarding sustainable actions and have sustainable businesses in the territory which can last for years to come the company is pushing for the sustainable development of the territory.

Involvement and commitment of staff

- How is the staff involved and committed to sustainable tourism?
- Most of the staff, which are small businesses the municipality and humanpolis ltd. are enthusiastic about this transformation, the commitment is strong and with proper guidelines and action plan this destination becoming more sustainable is imminent. People at humanpolis are committed to work towards sus tourism, and while funding comes from municipalities, they are supporting sus

actions. Our executive board has signed the commitment towards sus development through STF.

Current state analysis / mapping of the company's sustainable development (e.g. based on the self-assessment of step 2)

- How do you do things today, before taking development measures?
- How did you end up on this path of sustainable tourism?

Developing skills

- How do you develop your own and your staff's knowledge of sustainable tourism?
- By holding seminars, supporting them with scientific and business knowledge and guiding them in order to become more sustainable, humanpolis ltd. is the mediator which supports such actions and transitions. Humanpolis ltd. has designated people to lead sustainability actions they keep themselves updated by attending workshops and keeping tabs on the latest updates on STF website.

## **Socio-cultural sustainability**

Developing the visitor experience

- How do you collect customer feedback and react to it?
- In 2022 we began collecting such data from visitors through an online questionnaire, we plan on continuing this yearly. Then we communicate the information within our organization, and relevant stakeholders.
- How do you measure customer satisfaction?
- Through the online questionnaire
- How could you improve the visitor experience?
- We read the responses to the questionnaire regularly and discuss with companies how they can improve their services based on these. We try our best to recognize key markets and plan our marketing/product development actions based on that.

Consideration of the local community as part of one's own business operations

- What local products do you currently use and offer?

- We have a network of local companies that we market to travelers.
- How do you participate in the activities of the local community?
- As a geopark we take part in some events that local companies/ municipalities organize
- How do you take local special features into account and train your staff about them? (e.g. nature, culture, history, operating methods)
- Our main task is to study the environment and raise awareness about the local nature, culture and history for locals and tourists.

#### Inclusive tourism and equality

- Which special groups do you consider and how?
- We have a few outdoor tracks which are suitable for wheelchair users.
- How do you consider special groups in marketing/websites/social media?
- No

#### Communicating responsibility work to customers

- How do you communicate responsibility work to customers on the website/social media/other marketing?
- We have a website dedicated to communicating about sustainability.
- How do you communicate responsibility on site?
- We tell about the purpose of geoparks (Following the SDGs) and examples of our everyday actions towards sustainability.

### **Environmental sustainability**

Minimizing the adverse effects of own operations and maximizing the benefits in one's operating environment (geoconservation)

- Define your company's operating environment. How do you affect it? (e.g., energy, water consumption, materials, waste management)
- The impact of own operations on the sustainability of the infrastructure used.
- What public means of transport do you use to get there?
- You can arrive by train/bus in certain parts of the geopark.
- What vehicles do you use and own?

- Our employees use their own cars to get around the geopark when needed.

Adapting to climate change and curbing it: NA (Not applicable)

- Have you already calculated your company's carbon footprint?
- How is your company's carbon footprint formed?
- What measures do you take to reduce your carbon footprint?

The welfare of animals used for tourism (if animals are related to your business): NA

- What kind of living conditions do the animals have?
- What kind of rest periods do animals have?
- How are the animals moved in the off-season?
- How are the animals trained for the season?
- How are animals medicated?
- What is the retirement plan for animals?

## **Financial sustainability**

Financial profitability and maximizing the regional economic effects of tourism.

- How do you ensure that your operation is financially profitable?
- We are a non-profit organization.
- How do you affect the regional economy with your choices?
- Through our marketing and development actions we support the regional economy by enhancing the business opportunity for local companies.

Product development, marketing and stakeholder communication that promotes and supports sustainable tourism

- What kind of sustainable tourism products do you have or are you planning?
- Geotourism
- How do you market and communicate sustainable tourism products to customers and stakeholders?
- Geofood, hiking trails, regulated canoeing activities and berry/ mushroom picking activities, marketing through geopark channels.

### Acquisitions and investments: NA

- How is the circular economy reflected in your purchases?
- What kind of procurement guidelines does your company have?
- How do you ensure that your production chain is responsible?

Necessary financial and human resources

- Do you use e.g., full-time or seasonal labor?
- We have both depending on the season.

### 3.8 SELF-ASSESSMENT FOR GOOD TRAVEL SEAL; GREEN DESTINATION

The geopark will be scored as Sufficient, Insufficient, partially sufficient, and not applicable, in the following areas (Table 1)

(Good Travel Seal: <https://www.greendestinations.org/home/what-we-do/solutions-for-businesses/good-travel-seal/>).

Table 1. Checklist for Good Travel Seal; Green Destination

1.PURCHASING AND SALES	SUFFICIENT
2.SOCIAL WELL-BEING AND LOCAL EMPLOYMENT	SUFFICIENT
3.PREVENTION OF EXPLOITATION	SUFFICIENT
4.HEALTH AND SAFETY	SUFFICIENT
5.ACCESSIBILITY	PARTIALLY SUFFICIENT
6.ENERGY AND CLIMATE	PARTIALLY SUFFICIENT
7.WASTE	INSUFFICIENT
8.WATER	PARTIALLY SUFFICIENT
9.PREVENTION OF POLLUTION AND NUISANCE	PARTIALLY SUFFICIENT
10.NATURE, SCENERY, AND GREEN ZONES-	SUFFICIENT

11.CULTURAL HERITAGE	SUFFICIENT
12.PUBLIC REPORTING AND SUSTAINABILITY	PARTIALLY SUFFICIENT

The list of factors to determine if the category is sufficient or not is in the Annex 2.

### **PROGNOSIS**

Out of the 12 factors that the Rokua Geopark will be assessed on; 6 are sufficient, 5 are partially sufficient and 1 is insufficient in self-assessment. We can certainly with a focused action plan convert some of the partially insufficient factors to sufficient before applying for the good travel seal and there is a moderate to high chance of getting a good rating.

## **4. ACTION PLAN FOR SUSTAINABILITY**

According to STF (Sustainable Travel Finland website, Visit Finland website) following is a three-step action plan for sustainability and a proposed set of roles for Humanpolis Ltd.

### **Step 1: CARBON NEUTRALITY BY 2035**

It is imperative that all organizations, businesses, and stakeholders understand carbon neutrality and how to achieve it. We cannot manage what we can't measure, all the stakeholders need to use online tools and measure their carbon emissions.

### **Step 2: MAKING AN ACTION PLAN FOR CARBON EMISSIONS REDUCTION**

Each stakeholder must report their emission and their plan to reduce them, using different approaches for different types of businesses, some approaches can be used by all the stakeholders, such as Better waste management practices, employing circular economy, using 6R principles, using locally sourced products and raw materials, using renewable energy over fossil fuels, maintaining healthy environment for plants, animals and humans by reducing pollution of any kind, having better management practices especially, supply chain management, supporting women businesses and employing women in their businesses, increasing overall awareness about sustainability etc.

### **Step 3: CARBON OFFSETTING**

The concept of carbon offsetting is that it negates or offsets the same amount of carbon you release into the atmosphere. The offset is created either by supporting/creating a renewable energy source or funding activities like plant a tree.

### **ROLE OF HUMANPOLIS Ltd.**

The mediator organization which in this case is Humanpolis Ltd. must perform the role of

- Aligning incentives, the short-term goals of stakeholders must align with the long-term collective interest for all.
- It should build a comprehensive fact base and update it regularly.
- Creating more contextualized solutions than a one size fits all approach.
- Establish a sustainable growth strategy through rigorous, long-term planning.

- Involve all sections of society—commercial, public, and social.
- Find new sources of funding.
- Support businesses in the territory in the transition to becoming a sustainable business eg. help in getting certifications etc.
- Define the target number of visitors after studying the carrying capacity of the destination and equip the destination for such footfall.
- Support vegan and vegetarian food entrepreneurs.
- Check if the destination can benefit from nature-based solution, ecosystem restoration.
- Prepare a plan to support new businesses and how can they impact job creation in the territory and increase GDP.
- Incentivize women to take up leadership roles.
- Support local artisans and craftsmen.
- Make Rokua geopark a more inclusive destination.
- Hold campaigns to help individuals and companies in carbon offsetting.
- Collaborate with companies that already hold some sort of sustainability certification.
- Educate visitors on sustainability and climate change.
- Reducing overall environmental impact of Rokua geopark.

#### **4.1 PLAN FOR THE NEXT TWO YEARS**

##### **Year 1:**

##### 1. Stakeholder Engagement and Collaborative Planning:

- Engage local communities, businesses, educational institutions, and government authorities in regular meetings and workshops to develop a shared vision and action plan for sustainability in Rokua Geopark.

- Identify key sustainability challenges and prioritize areas for improvement based on stakeholder

input and expert advice.

## 2. Sustainable Tourism Certification:

- Encourage local businesses within the geopark to pursue sustainable tourism certification programs, such as the Global Sustainable Tourism Council (GSTC) certification or national eco-labels.
- Provide guidance and support to businesses throughout the certification process, including training on sustainable practices, waste management, energy efficiency, and responsible tourism behavior.

## 3. Visitor Education and Awareness:

- Develop and implement an extensive visitor education program that highlights the importance of sustainable behavior and respect for the environment and local communities.
- Install interpretive signage, develop visitor information materials, and conduct guided tours to educate visitors about the geopark's unique geological features, biodiversity, and cultural heritage.

## 4. Conservation and Restoration:

- Collaborate with environmental organizations and experts to develop conservation plans for sensitive areas within the geopark.
- Implement habitat restoration projects, reforestation initiatives, and biodiversity conservation measures to protect and enhance the natural ecosystems.

## 5. Community Empowerment:

- Work closely with local communities to identify opportunities for their active involvement in geopark management and tourism activities.
- Support community-based enterprises and initiatives that showcase local culture, traditional crafts, and indigenous knowledge, thereby empowering communities and diversifying tourism offerings.

## **Year 2:**

### 1. Sustainable Transportation:

- Encourage the use of sustainable transportation options, such as cycling, walking trails, and public transportation, within and around the geopark.
- Develop partnerships with local transport providers to promote eco-friendly transportation services

and reduce the carbon footprint associated with tourism.

## 2. Waste Management and Recycling:

- Implement comprehensive waste management systems, including recycling facilities, within the geopark and promote responsible waste disposal practices among visitors.
- Conduct awareness campaigns and provide educational materials to raise awareness about waste reduction, recycling, and the harmful impacts of littering.

## 3. Renewable Energy and Energy Efficiency:

- Collaborate with local energy providers to promote the use of renewable energy sources within the geopark.
- Encourage businesses and accommodations to adopt energy-efficient practices, such as LED lighting, smart building management systems, and renewable energy installations.

## 4. Monitoring and Evaluation:

- Establish a system for monitoring the progress of sustainability initiatives within the geopark.
- Regularly evaluate the effectiveness of implemented measures and adapt strategies as needed based on monitoring results and stakeholder feedback.

## 5. Partnerships and Networking:

- Strengthen collaborations with national and international sustainable tourism organizations, geoparks, and conservation networks.
- Participate in knowledge-sharing platforms, conferences, and events to exchange best practices and learn from other sustainable destinations.

By implementing this two-year action plan, Rokua Geopark can further enhance its commitment to sustainability, promoting the preservation of its natural and cultural heritage while providing economic opportunities and a high-quality experience for visitors.

## 4.2 Procedure plan

(As discussed with the in charge of sustainability initiatives at Humanpolis Ltd.)

### Environmental sustainability

Table 2. Strategy of Humanpolis Ltd. For the coming years for supporting environmental sustainability

Procedure	Objective	Schedule	Person in charge	Budget	Reporting and measuring
Geoconservation and geotourism strategy put into action	Maintain or improve conditions of the geosites in Rokua Geopark	Ongoing	Mikko Kiuttu		
Updating and maintaining info signs along routes	Providing safe conditions for people moving in the nature, provide information about Rokua Geopark's natural and cultural heritage, mitigate nature erosion caused by humans	Ongoing / specific projects running in 2023-2024	Mikko Kiuttu, Susan Forsblom, Birgitta Mäki (workers in the projects)		Collect feedback from customers

### Socio-cultural sustainability

Table 3. Strategy of Humanpolis Ltd. For the coming years for supporting Socio-cultural sustainability

Procedure	Objective	Schedule	Person in charge	Budget	Reporting and measuring
Hold more workshops regarding tourism development in Rokua Geopark area	Provide locals a possibility to take part and be heard in planning	Ongoing	Humanpolis team	Human resources / project funding	Keeping a list of participants. Communicating results.

	processes				
Provide general awareness regarding the presence of the geopark for locals	Maintain and increase locals' pride about their living environment	Ongoing	Humanpolis team	Human resources / project funding	
Inclusivity of the destination	Provide more travel services and infra for example for the disabled and minorities	By the end of 2025	Humanpolis team, Mari Saastamoinen (project manager)	Project funding	Number of accessible attractions / routes, number of LGBTQ+ friendly companies
Support more companies to apply for Sustainable Travel Finland label	Get more sustainably labelled companies in the area	By the end of 2025	Humanpolis team, Mari Saastamoinen (project manager)	Project funding	Number of STF labelled companies

## Financial sustainability

Table 3. Strategy of Humanpolis Ltd. For the coming years for supporting financial sustainability

Procedure	Objective	Schedule	Person in charge	Budget	Reporting and measuring
Apply funding for development projects	Help local companies to develop their businesses with support provided by our projects	Ongoing	Humanpolis team		Number of companies taking part in the actions of the project
Collect tourism data of Rokua Geopark	To get the information about tourism turnover and traveller numbers in the area and	Ongoing	Humanpolis team	4000€/year	Number of answers in the questionnaire

	communicate to decision makers and companies				
--	---	--	--	--	--

## **5.CONCLUSIONS**

Sustainable Tourism Counts for Development, and while Rokua Geopark is on a mission to become a more sustainable destination, it is presently at first step of that transition, there is scope of improvement from getting everyone onboard, measuring emissions, understanding the potential of the area (as a carbon sink), and building a sustainable tourism destination brand image. But, taking sustainability-oriented actions from the geoparks' end is a positive step in the right direction, keeping in mind that an increase in funding for the geopark is an essential prerequisite to all these goals.

They need to better establish the geosites of the Rokua Geopark and monitor them for risks and threats. This report gives a better account for the sustainability actions and what they can do irrespective of the stage they're at. Overall, there is a need to highlight all the aspects of the geopark better, support local entrepreneurs to offer various activities (handicraft, food, services), show how much more can be done at the geopark apart from adventure related activities, increase accessibility, decrease seasonality of travel, set up a visitor information center and increase know-how to have a greater footfall of tourists.

Following the action plan and keeping the interests of the community and environment at the center will eventually lead to sustainability in actions.

## REFERENCES

Bonini S and Swartz S (2014). Profits with purpose. McKinsey & Company. <https://www.mckinsey.com/~ /media/McKinsey/Business%20Functions/Sustainability/Our%20Insight>

Brilha, J (2016). Inventory and quantitative assessment of geosites and geodiversity sites: a review. Geoheritage, 8(2), 119-134.

Crofts R, Gordon J, Brilha J, Gray M, Gunn J, Larwood J, ... & Worboys G L (2020). Guidelines for geoconservation in protected and conserved areas. IUCN, Monographic Series: Best Practice Protected Area Guidelines Series doi: <https://doi.org/10.2305/IUCN.CH.2020.PAG.31.en>

Dichter A and Manzo G (Ed) (2017) Coping with success; Managing overcrowding in tourism destinations. McKinsey & Company. <https://www.mckinsey.com/~ /media/mckinsey/industries/travel%20logistics%20and%20infrastructure/our%20insights/coping%20with%20success%20managing%20overcrowding%20in%20tourism%20destinations/coping-with-success-managing-overcrowding-in-tourism-destinations.pdf>

Duarte A, Braga V, Marques C & Sá A (2020.) Geotourism and Territorial Development: a Systematic Literature Review and Research Agenda. Geoheritage, springer

ETIS (2016). The European Tourism Indicator System ETIS toolkit for sustainable destination management March 2016. <https://ec.europa.eu/docsroom/documents/21749>

Krökki V (2009). Rokua Geopark Application. Humanpolis Ltd. Utajärvi, Finland. 30 pgs.

Manniche J, Larsen K T, Broegaard R B and Holland E (2017) Destination: A circular tourism economy. Centre for Regional & Tourism Research (CRT). [https://circulareconomy.europa.eu/platform/sites/default/files/cirtoinno-handbook\\_eng-rev.-4.pdf](https://circulareconomy.europa.eu/platform/sites/default/files/cirtoinno-handbook_eng-rev.-4.pdf)

Tervo T (2012). Rokua Geopark: Heritage of the Ice Age: Geological outdoor guide. Geological Survey of Finland. Kopijyvä Ltd. Kuopio, Finland.

Wayne E (2021). How Sustainability Can Be Profitable for Your Business. Forbes Business Development Council. <https://greenzebra.io/strategy/how-sustainability-can-be-profitable-for-your-business/>

## WEBSITES

Good Travel Seal: <https://www.greendestinations.org/home/what-we-do/solutions-for-businesses/good-travel-seal/>

National Parks Finland: <https://www.nationalparks.fi/rokuap/nature>

Sustainable Travel Finland: <https://www.visitfinland.fi/en/liiketoiminnan-kehittaminen/vastuullinen-matkailu/sustainable-travel-finland>

UNESCO Global Geoparks: <https://www.unesco.org/en/iggp/geoparks>

Visit Finland: <https://www.visitfinland.com/en/>



## HOW CAN YOU BE PROFITABLE BY BEING SUSTAINABLE?

**SELLING POINT**



Having a sustainability label will give you a unique selling point and attract a new stratum of tourists which you do not attract right now giving you a competitive advantage.

---

**MORE PROFITABLE**



These people are happy to pay more, in order to support sustainability actions in the area, this also leads to a better customer-entrepreneur experience.

---

**MORE INVESTEMENT**



Massive shift in investment patterns has been observed and green businesses are going to have more and more investment in the coming years.

---

**REDUCED OPERATIONAL COSTS**



When we employ sustainability principles e.g., circular economy, we reduce waste, optimize our functions and in turn save money.

---

**BETTER RESOURCE MANAGEMENT**



The overall business management tactics refine from waste management to human resource management we identify loopholes and overall business strategy is transformed.

---



#### PROCESS INNOVATION

Sustainability is a cross functional aspect; it brings together all the domains of the system/business/organization, laying out the present drawbacks and strengths of your organization giving you more at hand to strategize with.

---



#### INCREASES LONGEVITY FOR EXISTING BUSINESSES

With your business principles aligned with sustainability you are more likely to stay in business than your non-sustainable counterparts..

---



#### INCREASES COOPERATION BETWEEN LOCAL BUSINESSES AND SUPPORTS NEW ENTREPRENEURS

Sustainability principles support local businesses; businesses lead by women and people working with regional products and services.

---



#### SUPPORTS YEAR-ROUND TRAVEL

So, you will never be out of business!

---



#### MORE INCLUSIVE DESTINATIONS:

International tourists and minorities would prefer you over other destinations.

---



#### INCREASE IN OVERALL WELLBEING, WIN-WIN SCENARIO FOR EVERYONE!

## **ANNEX 2**

For good travel seal

### **Responsible offer**

– When purchasing and offering goods and services, the organization gives priority to local, eco-friendly and fair trade suppliers whenever these are available and of sufficient quality.

### **Environmentally preferable purchasing**

– Purchasing policies favour environmentally sustainable suppliers and products, including capital goods, food, beverages, building materials and consumables.

### **Efficient purchasing**

– Carefully manages the purchasing of consumable and disposable goods, including food, in order to minimise waste.

### **Good food on offer\***

– Offers vegetarian, vegan, gluten-free, dairy-free and other special dietary options upon request.

### **Info on good food\***

– Communicates which F&B options are local and which are Fairtrade, vegetarian, vegan, or organic.

### **Reducing meat consumption**

– Takes initiative to reduce the offer/purchase of meat products and offers no products from endangered fish, seafood or other species.

### **Local art & craftwork**

– Local art/craft is reflected in design and furnishings.

### **Legal compliance**

– Is in compliance with all applicable local, national and international legislation and regulations including, among others, health, safety, labour and environmental aspects.

### **Responsible social contribution**

– Actively supports initiatives for local infrastructure and social community development. Examples of initiatives include education, training, health and sanitation, and projects which address the impacts of climate change.

### **Community services**

– Activities do not jeopardize the provision of basic services, such as food, water, energy, healthcare or sanitation, to neighboring communities.

### **Local livelihoods**

– Activities do not adversely affect local access to livelihoods, including land and aquatic resource use,

rights-of-way, transport and housing.

### **Involuntary resettlement**

– Acquisition and expansion of the property has not lead, nor is leading to, the involuntary resettlement of residents.

### **Guests hosted by resident**

– The host of the B&B lives in the apartment (apartment is not entirely rented out to tourists).

### **Local ownership**

– The owner is a local resident actively participating in the business.

### **Local entrepreneurs**

– Supports local entrepreneurs in the development and sale of sustainable products and services that are based on the area's nature, history, and culture.

### **Destination engagement**

– Is involved with sustainable tourism planning and management in the destination, where such opportunities exist.

### **Destination engagement – Cruise operators\***

– Prevents adverse cultural and socio-economic impacts on destination and their local communities through involvement with sustainable tourism planning and management in visited destinations.

Ensures destinations visited have the necessary carrying capacity of local infrastructure to host the large influx of visitors.

### **Local student internships**

– Offers internships to local students.

### **No human exploitation**

– Has implemented a policy against commercial, sexual or any other form of exploitation or harassment.

### **Good employment**

– Labour rights are respected, a safe and secure working environment is provided and employees are paid at least a living wage.

### **Local employment**

– Local residents are given equal opportunities for employment and advancement, including in management positions.

### **Equal employment**

– Offers employment opportunities, including in management positions, without discrimination by

gender, race, religion, disability or in other ways.

### **Training**

– Employees are offered regular training, experience and opportunities for advancement.

### **Employee insurance**

– Employee contracts show support for health care and social security.

### **Employee well-being**

– Focuses on ways to prevent physical and mental strain for employees by including complaint management systems. Employees have regular breaks and do not work excessive hours.

### **Employee engagement**

– Employees are engaged with development and implementation of the sustainability management system and receive periodic guidance and training regarding their roles and responsibilities in its delivery.

### **Ensure health & safety**

– Never causing health or safety hazards. Any risk factors are identified and addressed.

### **Safe location**

– Location and immediate surroundings are safe, e.g. with security guards, security cameras, surveillance, or locks.

### **Emergency protocols**

– Emergency procedure is established regarding e.g. first aid, safety training, and emergency exits.

### **Virus-awareness**

– Implements all legally required measures against virus transmission (Virus-Aware Seal can be obtained upon separate check).

### **Swimming pool**

– Regularly checks the water quality and safety of the swimming pool.

### **Diver to dive master ratio**

– Ensures that the diver to dive master ratio safeguards proper and responsible supervision of underwater diver behaviour.

### **Access for all**

– Provides access and information for persons with special needs, where appropriate.

### **No discrimination**

– Welcomes all guests without discrimination by gender, race, religion, disability or in other ways.

### **Transport**

– Seeks to reduce transportation requirements and actively encourages the use of cleaner and more resource efficient alternatives by customers, employees, suppliers and in its own operations (e.g. by informing about the availability of local public transportation).

### **Info on accessibility**

– Clear and accurate information is provided on the level of accessibility.

### **Property rights & access**

– Acquisition of land and water rights and of property is legal and complies with local communal and indigenous rights, including their free, prior and informed consent. User and access rights for key resources, including land and water, are documented where applicable.

### **Climate friendly**

– Minimizes energy consumption and does not waste energy (e.g. no terrace heaters in open air).

### **Energy consumption**

– Energy consumption is measured by type and steps are taken to minimize overall consumption.

### **Renewable energy**

– Makes an effort to increase its use of renewable energy.

### **Energy saving practices**

– Implements equipment and practices that minimize energy use.

### **Heating & A/C**

– Prevents unnecessary use of heating or air conditioning.

### **Renewable energy producer**

– Produces its own renewable energy (solar, wind, bio) or applies solar water heaters.

### **Electric cars**

– Only uses fully electric cars, powered by renewable energy.

### **Crypto currencies**

– No usage of crypto-currency transactions because of their high energy use.

### **Minimizing disposables**

– Prevents the use of single-use disposables (especially plastic) and offers reusable alternatives instead (e.g. cutlery).

### **Waste reduction**

– Waste, including food waste, is measured and mechanisms are in place to reduce waste.

### **Waste separation**

– Mechanisms are in place to reuse or recycle waste where reduction is not feasible.

### **Waste disposal**

- Any residual waste disposal has no adverse effect on the local population or the environment.

### **Engine oil usage\***

- Responsible oil storage, recycle, re-use, and disposal of engine oil. Ensures no oil is spilled into the (ground)water.

### **Waste storage & disposal\***

- Waste is safely stored, separated, and disposed of in a responsible manner, with no adverse effect on the local population or the environment.

### **No single-use bottles**

- Promotes drinking of (safe) tap water and provides access to refill reusable bottles, does not offer bottled water.

### **Recycling actions**

- Actively organises or participates in recycling actions which go beyond basic waste separation.

### **Water conservation**

- Takes steps to minimize water consumption and prevents water pollution.

### **Water consumption**

- Water risk is assessed, water consumption is measured by type, and steps are taken to minimize overall consumption. Water sourcing is sustainable and does not adversely affect environmental flows. In areas of high water risk, context-based water stewardship goals are identified and pursued.

### **Sewage treatment**

- Connected to sewage water treatment system (or safe septic tank option).

### **Water saving devices**

- Has devices such as toilets, taps, and showers, that reduce the consumption of water.

### **Towel/linen washing policy\***

- Guests are encouraged to indicate when towels and linen should be changed (preferably after the duration of their stay), otherwise it should be limited to twice a week.

### **Good use of water**

- Wastewater, including grey water, is effectively treated and is only reused or released safely, with no

adverse effects to the local population or the environment.

### **No pollution**

– Implements practices to minimise pollution from noise, light, runoff, erosion, ozone-depleting substances, and air, water and soil contaminants.

### **No air pollution**

– Identifies potential causes of air pollution and takes steps to prevent or minimise them.

### **Greenhouse gas emissions**

– Significant greenhouse gas emissions from all sources controlled by the organization are identified, calculated where possible and procedures implemented to avoid or to minimize them. Effective compensation of the organization's remaining emissions is encouraged.

### **Harmful substances**

– The use of harmful substances, including pesticides, paints, swimming pool disinfectants, and cleaning materials, is minimised, and substituted when available by innocuous products or processes. All storage, use, handling, and disposal of chemicals are properly managed.

### **Nature friendly**

– Supports and contributes to biodiversity conservation. Any disturbance of natural ecosystems is minimised, rehabilitated and there is a compensatory contribution to conservation management.

### **Invasive species**

– Takes measures to avoid the introduction of invasive species. Native species are used for landscaping and restoration wherever feasible, particularly in natural landscapes.

### **Animal welfare**

– No species of wild animal is acquired, bred or held captive, except by authorized and suitably equipped persons and for properly regulated activities in compliance with local and international law. Housing, care and handling of all wild and domestic animals meets the highest standards of animal welfare.

### **Wildlife interactions\***

– Interactions with free roaming wildlife, taking into account cumulative impacts, are non-invasive and responsibly managed to avoid adverse effects on the animals concerned and on the viability and behaviour of populations in the wild.

### **Visits to natural sites\***

– Follows appropriate guidelines for the management and promotion of visits to natural sites in order to minimise adverse impacts and maximize visitor fulfilment.

### **Biodiversity management**

– Has an appropriate management of biodiversity on its own property. Particular attention is paid to natural protected areas and areas of high biodiversity value.

### **Wildlife trade**

– Wildlife species are not harvested, consumed, displayed, sold, or traded, except as part of a regulated activity that ensures that their utilization is sustainable, and in compliance with local and international laws.

### **Local conservation work**

– Participates in wildlife conservation and monitoring activities led by local NGOs.

### **Buildings and infrastructure**

– Planning, siting, design, construction, renovation, operation and demolition of buildings and infrastructure take account of the capacity and integrity of the natural and cultural surroundings, and use locally appropriate and sustainable practices and materials.

### **Culture friendly**

– Has not seriously damaged local heritage in favour of modern business development over the past 5 years.

### **Protecting cultural heritage**

– Contributes to the protection, preservation and enhancement of local properties, sites and traditions of historical, archaeological, cultural and spiritual significance and does not impede access to them by local residents.

### **Authentic experiences**

– Values and incorporates authentic elements of traditional and contemporary local culture in its operations, design, decoration, cuisine, or shops, while respecting the intellectual property rights of local communities.

### **Cultural interactions\***

– Follows international and national good practice and locally agreed guidance for the management and promotion of visits to indigenous communities and culturally or historically sensitive sites in order to minimise adverse impacts and maximize local benefits and visitor fulfilment.

### **Cultural interactions – Cruise operators\***

– Obtains consent from indigenous communities and residents near cruise ship home ports and destinations. Promotes good practice of visitors when visiting culturally or historically sensitive sites.

### **Artifacts**

– Historical and archaeological artifacts are not sold, traded or displayed, except as permitted by local and international law.

### **Sustainability reporting**

– Publicly communicates its sustainability policy, actions and performance to stakeholders, including customers, and seeks to engage their support.

### **Sustainability management system**

– Has implemented a long-term sustainability management system that is suitable to its size and scope, addresses environmental, social, cultural, economic, quality, human rights, health, safety, risk and crisis management issues and drives continuous improvement.

### **Sustainability report**

– The sustainability report of this certification procedure (or any previous certification) is made publicly available via the internet or openly available to clients (applicable from the second year onwards).

### **Accurate promotion**

– Promotional materials and marketing communications are accurate and transparent with regard to the organization and its products and services, including sustainability claims. They do not promise more than is being delivered.

### **Info on nature & culture**

– Provides information about and interpretation of the natural surroundings, local culture, and cultural heritage, as well as an explanation of appropriate behaviour while visiting natural areas, living cultures, and cultural heritage sites.

### **Info on sustainability\***

– Visitors are informed about sustainable options concerning accommodations, restaurants, F&B, excursions, trips & tours and transportation to and within the destination.

### **Info on health & safety\***

– Visitors are informed about any risks and precautions related to health and safety matters in the destination.

### **Customer experience**

– Customer satisfaction, including aspects of sustainability, is monitored and corrective action taken.

### **What more do you do?**

– What other important action or measure have you taken that is not legally required or covered by any of the previous criteria?



**01 PURCHASING AND SALES**

- Writing to offer local & regional products, eco-friendly or Fairtrade options.
- Implementing a purchasing policy which favours sustainable suppliers.
- Buys locally produced goods and services, if available, or from its own country.
- No souvenirs and products made of coral and marine life are offered.
- Extensively uses furniture, art etc. crafted locally or in the wider region (50 kms).
- Communicates which F&B options are local, Fairtrade, vegetarian, vegan etc.
- Offers local F&B options where possible.
- Offers several Fairtrade, vegetarian, vegan or organic F&B options / products.
- Avoids offering meat products (unless ordered).
- Even if no vegetarian on the menu, will offer vegetarian upon request.

**02 SOCIAL WELL-BEING & LOCAL EMPLOYMENT**

- Contributing to the local leisure economy, no violation of relevant legislation.
- Mainly employs residents to support employment in the local community.
- The owner is a local resident actively participating in the business.
- Engages in corporate social responsibility (volunteering, donating etc).
- Offers internships to local students.

**03 PREVENTION OF EXPLOITATION**

- Mainly employs residents to support employment in the local community.
- The owner is a local resident actively participating in the business.
- Engages in corporate social responsibility (volunteering, donating etc).
- Offers internships to local students.

**04 HEALTH & SAFETY**

- Never causing safety or health hazards or unnecessary noise.
- Location and immediate surroundings are safe (security guards, surveillance).
- Measures to prevent disease and to promote health.
- Minimisation of unnecessary noise for guests and local community.
- All legal measures in place against virus transmission.
- Eco-friendly control of harmful insects.

**05 ACCESSIBILITY**

- Facilitating disabled people's access to the location where possible.
- Fully accessible for people with special needs (e.g. wheel-chairs, disabilities).
- Location is well accessible by public transportation.
- Publicly communicates accessibility re: public transportation & special needs.

**06 ENERGY & CLIMATE**

- Prevents unnecessary waste of energy (e.g. no terrace heaters in open air).
- 100% user of green energy.
- Applies energy-efficient measures (lighting on/off).
- Mainly applies energy-efficient devices (LED, A++).
- No unnecessary use of heating or airconditioning.
- Producer of green energy (solar, wind, bio) or applies solar water heaters.
- Only uses fully electric and hybrid cars, 100% charged with green energy.

**07 WASTE**

- Offers re-usable alternatives instead of single-use disposables, cutlery etc.
- Waste reduction measures in place locally.
- Appropriate waste separation in place.
- Maximum reduction of single-use plastic items.
- Actively prevents food waste.
- Active participation in recycling actions.

**08 WATER**

- Prevents water pollution, not using much more water than necessary.
- Connected to sewage water treatment system (or safe septic tank option).
- Reduction of water use of toilets and showers.
- Use of ecolabel cleaning products, soap and shower gel.
- Towels & linen are changed twice a week, unless agreed differently with guests.
- Promotes drinking of (safe) tap water, not bottled water.
- Use of rain water and grey/waste water.

**09 PREVENTION OF POLLUTION & NUISANCE**

- Prevents unnecessary litter, light, air or soil pollution.
- Prevents air pollution.
- Prevents and controls litter(ing).
- Minimisation of nuisance to guests and local community incl. smell and light.

**10 NATURE, SCENERY & GREEN ZONES**

- Over the past 5 years, applicant has not seriously damaged local heritage in favour of modern business development, or violated relevant legislation.
- Protects or maintains authentic or heritage features in or around its building.
- Provides information about local culture and traditions (dos and don'ts).
- Promotes or offers authentic cultural tours, restaurants or experiences.

**11 CULTURAL HERITAGE**

- Over the past 5 years, applicant has not seriously damaged local heritage in favour of modern business development, or violated relevant legislation.
- Protects or maintains authentic or heritage features in or around its building.
- Provides information about local culture and traditions (dos and don'ts).
- Promotes or offers authentic cultural tours, restaurants or experiences.

**12 PUBLIC REPORTING OF SUSTAINABILITY**

- Applicant publicly reports on its own sustainability.
- Certification report publicly available via internet or openly available to client.
- Report an important action or measure that is not legally required.



**Conventions**

- Sufficient
- Insufficient
- Partly sufficient
- Not Applicable

Powered by The Good Travel Seal

Certificate at the end of assessment