

# **A study into the sustainable development of Hațeg Country Dinosaurs Geopark**

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Case study group GEO

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## Summary

A case study has been conducted into the sustainable development of Hațeg Country Dinosaurs Geopark. The international multidisciplinary research group that conducted the study consisted of students with different backgrounds, from various European universities, studying geography, geoconservation and environmental science.

Hațeg Geopark, located in Romania, is run by a management team under the responsibility of the University of Bucharest. As these stakeholders continually strive to improve the way in which the Park is being developed, the problem definition of the study is to set up and conduct a research study, that will result in practical recommendations on how sustainable development of Hațeg Geopark can be improved. The central research question of the study is: ‘How can sustainable development in Hațeg Country Dinosaurs Geopark be further improved?’. This question has been split up in six derived research questions, which comprise describing Hațeg’s valuable features and conservation measures, describing recent activities and developments in the Park, establishing the effects of these activities, comparing Hațeg Geopark with other Geoparks and drawing up recommendations. A SWOT analysis forms part of the report.

The research approach consists of studying the research questions from six different perspectives (dimensions). Apart from the three dimensions of sustainable development – the environmental, the economic and the social dimension – the political, organizational and educational/public awareness perspectives were included. Each member of the research group conducted individual research from one of these perspectives, with the aim to answer the research questions from that particular perspective. The perspectives were divided among the group members according to their experience, background and interests.

The results of the research show that Hațeg Country Dinosaurs Geopark is a territory with an abundance of valuable features. These features are not only geological, but also paleontological (dwarf dinosaur remains), biological (rare butterfly species), cultural and historical. Various measures have been taken to conserve vulnerable features. Although the team that manages the Park and the yearly budget are small, a range of activities has been undertaken in recent years to

stimulate development of the Park. These activities included measures in various areas, such as conservation, education and awareness and tourism.

Although it is hard to establish the effect of the various activities, they can all be deemed to have had a positive effect on the sustainable development of Hațeg Geopark. The research results show, however, that other Geoparks seem more successful than Hațeg with respect to attracting (eco- and geo)tourists. This is an important finding, as tourists are a source of income for local communities and the local population in the Hațeg area is poor.

It is recommended that Hațeg Country Dinosaurs Geopark focus on promoting the Park and attracting more tourists. Several strong symbols connected to the Park (dinosaur, rare butterfly) can be used to help build up a strong brand. It is also recommended that additional ways of funding be explored and the collaboration with other Geoparks be intensified to speed up the Park's development.

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## **1. Introduction**

This report discusses a case study that was carried out on sustainable development in the Hațeg Country Dinosaurs Geopark in Romania. A Geopark is a territory in possession of a particular geological heritage and a sustainable development strategy for the territory (European Geoparks Network (EGN), n.d.a.). Hațeg Geopark is an example of a Geopark with a particularly rich heritage.

### Problem Definition

Balancing the three dimensions of sustainable development (the environmental, the economic and the social dimension) is a continual challenge for Hațeg, as well as for other Geoparks. Hațeg Geopark welcomes scientific studies to help it meet this challenge. The purpose of this study is to draw up research-based practical recommendations for the Hațeg Geopark team on how sustainable development of the Park can be further improved. To this end, a research study has been set up that consists of an analysis of sustainable development in Hațeg Geopark from 6 different perspectives, specified in section 2. The recommendations that result from this study are required to be concrete and financially feasible.

### Research Objectives

The following objectives have been defined for this research:

- Describe the current situation of Hațeg Country Dinosaurs Geopark in terms of the three pillars of sustainable development - the environmental, economic and social dimension - and in terms of other relevant aspects: public awareness and nature education, the role of the (political) system and the management of Hațeg Country Dinosaurs Geopark.
- Compare the performance and development of Hațeg Country Dinosaurs Geopark to the performance of other (successful) geoparks.
- Find explanations for the outcome of the comparison with other Geoparks.
- Identify suggested improvements for Hațeg Country Dinosaurs Geopark, based on best practice in other Geoparks.

- Identify any other recommendations, based on the results of this or other research and own insights.

### Research Questions

Based on the practical nature of the problem definition and the above research objectives, the following central research question and derived research questions have been defined:

Central research question: “How can sustainable development in Hațeg Country Dinosaurs Geopark be further improved?”

Derived research questions:

1. What are the valuable geological, biological and cultural features of Hațeg Country Dinosaurs Geopark and what are the measures through which it is conserved?
2. Which activities and developments have been undertaken during the last few years in Hațeg Country Dinosaurs Geopark?
3. What were the effects of these activities and developments (on the performance of the Park)?
4. How does the performance of Hațeg country Dinosaurs Geopark compare to that of other successful geoparks and how does this translate into strengths and weaknesses?
5. What concrete recommendations can be made to improve sustainable development in Hațeg Country Dinosaurs Geopark?
6. What are the external circumstances and developments influencing the performance of Hațeg Country Dinosaurs Geopark?

The remainder of this introduction consists of two more sections: a background description of the Hațeg Country and the definition of sustainable development as adhered to in this study. The sections that follow the introduction describe the target group, the relevance of the study and the research approach and methodology. After that, the Geopark concept is described and Hațeg is placed in the context of the European Geopark Network (EGN) and the Global Geopark Network (GGN). Next, the research results are presented, including recommendations, followed by a SWOT analysis of Hațeg Geopark. The final sections of the report cover discussion and conclusions.



## **1.1 Background of the Hațeg Country**

Hațeg Country in Southern Transylvania is an area of over 100.000 hectares (1000 km<sup>2</sup>) with a rich geological, archeological, historical and cultural heritage. Geologically, the area's history dates back more than 500 million years with regard to igneous and metamorphic rocks and more than 200 million years with regard to sedimentary deposits. This long geologic history has led to an impressive landscape with many interesting sites. Spectacular unique fossil remains have been found in the area. These remains, of prehistoric animals known as the 'dwarf dinosaurs of Transylvania', are internationally unique (Andrasanu, Palcu & Oelerer, 2008). Biologically, the territory also has much to offer. Many animal species are represented in Hațeg, among them several rare species of butterflies. With regard to flora, the area comprises no fewer than five vegetation districts. Last but not least, Hațeg country also has a rich cultural heritage. Traces of human life have been found from (amongst others) Neanderthals, Dacians and Romans. A range of historic artefacts and (remains of) buildings have been preserved (Andrasanu, Palcu & Oelerer, 2004).

In spite of this rich geological, archeological, historical and cultural heritage, however, the Hațeg Country area suffers high unemployment, due to the economic recession. In order to protect and promote the area's heritage, while at the same time promoting sustainable development, Hațeg Country Dinosaurs Geopark was created. By joining international Geopark organizations (see also section 10), Hațeg assured enhancement of its geoconservation activities and promotion of its heritage. The Park was accepted in 2005 as a member of the EGN and the GGN (Andrasanu et al., 2008). The fact that Hațeg was accepted as a member of these organization proves the international significance and value of the heritage of Hațeg and the sound way this heritage has been managed and developed by the management of the Geopark management.

## **1.2 Definition of sustainable development**

To guide the research, the following definition has been drawn up by the case study group:

'Sustainable development is defined by a plan or/and goals that meet the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). These needs regard three dimensions: the social equity and cohesion, the economic prosperity and the environmental protection. The significance of each dimension may differ from case to case, but it is important that activities on one dimension have as little negative impact as possible on other dimensions.

For Hațeg Country Dinosaurs Park this means, that the sustainability plan must ensure the economic growth of the agriculture and tourism without conflicting with preserving natural resources or the traditional economic activities of the Geopark. Furthermore, the plan must also provide a social system that addresses social, cultural, educational and training issues, which relates to the region of the Geopark.

As the European Union is a community of solidarity there must also be a focus on European integration and promotion. So it is important to ensure a development which offers every country equal opportunities to reach those goals.'(Sustainable Development Knowledge Platform n.d.).

## **2. Research approach and methodology**

As mentioned in the introduction, the research is approached from six different perspectives (dimensions/aspects), determined by the case study group; these perspectives have been divided

between the group members on the basis of their interests and skills. The six perspectives and the names of the authors responsible for the research are listed below:

- The economic dimension (geotourism and other economic developments). Researcher: Svetlana Romanova.
- The environmental dimension (protection of geological and environmental heritage). Researcher: Désirée Brakenhoff
- The social dimension (local communities, cultural heritage and history). Researcher: Luchiana Faur.
- Public awareness and nature education. Researcher: Dennis Powierski.
- The political system (in particular its role in the sustainable development of Hațeg Country Dinosaurs Geopark). Researcher: Paul Ionita.
- The management and organization of Hațeg Country Dinosaurs Geopark. Researcher: Désirée Brakenhoff.

## **2.1 Data sources and research methods**

Each group member individually gathered the information needed to answer the research questions from the specific perspective studied by him/her and reported the results in the group report. Group members discussed issues related to the research with each other whenever appropriate, during Skype meetings or on the EVS site. Various data sources have been used, such as the internet, scientific literature methods like scientific articles, and documents, official government documents and sociological methods such as interviews.

Used sources and methods for each research question:

- With regard to the question on the valuable geological, biological and cultural features: scientific literature, documents and previous studies on this subject, to be found on the internet, interviews with experts.
- With regard to the question on recent activities and developments: search for relevant documents and information on the internet.
- With regard to the question on the effects of recent activities and developments: study relevant documents and official information on the Hațeg Geopark and the Hațeg area.

- With regard to the question on the performance of Hațeg compared to that of other Geoparks: (government) documents, reliable internet sites.
- On the question of recommendations: websites of other successful Geoparks, scientific literature, own experience, skills, insights and ideas.

A SWOT analysis is included in the report. Derived research question number 6 was added after the final research proposal had been submitted, as the research group realized that information needed to be collected on opportunities and threats for the SWOT analysis, and this information would not be supplied by answering derived research questions 1-5.

## **2.2 Knowledge and skills in the group**

Knowledge and skills in the group are mainly related to past and current courses and studies. All group members have some knowledge of environmental issues. Apart from that, there is an assortment of knowledge and skills in the group:

- knowledge of political science and law
- knowledge of environmental protection legislation
- practical knowledge about implementation at the local level (politics, schools)
- local knowledge
- knowledge of business (including market research)
- geographical know-how
- educational working experience
- knowledge of (maintaining a) social economy

## **3. Target group**

The target group for this research consists primarily of those individuals and organizations responsible for managing Hațeg Country Dinosaurs Geopark. There are many more groups,

however, to whom this study and report can be useful, such as local communities, volunteers, experts, EVS tutors, students, (inter)national tourists, the EGN, the GGN, scientists interested in Geopark issues and other stakeholders. Furthermore, the results of the research might be helpful for public institutions not just in the Hațeg area, but all over Romania or even Europe. For example, the results of the educational parts can be interesting for schools or other educational facilities to promote awareness of Geoparks and their significance. Associations which work on nature preservation can profit from the results of this study and use them. There might also be museums or touring organizations which want to promote nature and geologic awareness, to whom the results of this study can be useful.

Starting with small steps and reaching at least a modest audience might offer a possibility to spread the message of sustainable development bottom-up. If this project succeeds on a small scale there might be others who embrace these ideas, leading to the concept of sustainable development taking root on a wider scale.

#### **4. Relevance**

This research is not only relevant to Hațeg Country Dinosaurs Geopark, it has relevance for other stakeholders as well, as is shown in the following sub-sections.

#### **4.1 Scientific relevance**

In this case study an analysis is made of Hațeg Country Dinosaurs Geopark and a comparison is made with other Geoparks. Although only a limited number of other Geoparks is used for comparison and the method of comparison is different for each of the perspectives chosen in this research, this case study can nonetheless be deemed scientifically relevant, as it will contribute to the body of knowledge on Geoparks. As Geoparks are a relatively new phenomenon, it can be assumed that any research, if properly carried out, is relevant for the scientific community, especially for those members who are associated with Hațeg or other Geoparks, geoconservation or political science.

The students belonging to the case study group might also profit from scientific studies such as this one and so will the universities they are studying at. By promoting the topic of sustainable development in Hațeg, scientists from universities offering the EVS (European Virtual Seminar) might be attracted to a new work field.

#### **4.2 Relevance to society**

According to McKeever, Zouros and Patzak (2010), Geoparks are about promoting geological conservation and sustainable development. As these concepts have appeal in society, the relevance of Geoparks such as Hațeg Country Dinosaurs Geopark for society is clear. Conservation and development go hand in hand in geoparks. McKeever et al. (2010) state that the ultimate aim of Geoparks is to improve employment opportunities for people living in or near a Geopark. This clearly has relevance for local communities. But Geoparks are also relevant to tourists, young people (from an educational standpoint) and various (other) stakeholders.

As Geoparks have relevance for society, this research study has relevance too, as it aims to result in recommendations that will improve sustainable development of Hațeg Country Dinosaurs Geopark. This study is also relevant because it encourages any person reading it to reassess his/her own behavior and to participate in politics or innovative projects on the local level. Furthermore, recommendations included in this report might have some positive impact on further policies about Geoparks, contributing to the development of good and innovative practices.

Finally, this case study might have impact in improving society through education, starting early and at low levels with the implementation of innovative projects in schools or/and at local levels. Another point which also is highly relevant, is, that the members of the case study group learn a lot about an area, which is not present in the media or in all-day life. By focusing on this periphery area it attracts public attention, not only from the students involved, but also from people from their private surroundings with whom they might talk about it. This might have positive effects for the Hațeg area, in the form of more people taking an interest in the area, visiting the Park or even starting a business there.

### **4.3 Relevance to group members**

The relevance of this case study to the group members consists essentially of matching interests and expectations:

- Work in a group with people from different institutions and different countries with different backgrounds. This also means work in an interdisciplinary team.
- Get deeper knowledge of (European) legislation, its application and relevant results in the Parks studied.
- Take notice of innovative actions being taken by different stakeholders with regard to Geoparks and geoconservation (local and national level).
- Understand how education can play an important role in understanding and raising awareness of sustainable development and geoconservation.
- Make a helpful contribution by offering new proposals to the local community in the surroundings of the Geopark's regional area.
- Improve writing skills in English.

## **5. Geoparks**

In this section, the concept of a Geopark is described, as well as existing international Geopark organizations and Hațeg's membership of these organizations.

## **5.1. What is a Geopark?**

According to the European Geoparks Network (EGN), a Geopark is a territory with great geological heritage which is developed through geotourism and the help of its inhabitants. The sustainability of the site is made possible with the support of a European program, EGN, and the According to the European Geoparks Network (EGN), a geopark is a territory with great economic development of the region. To ensure its further development, a Geopark must work with local enterprises and other fellow EGN members. (EGN, n.d.a.).

## **5.2 Hațeg Geopark's membership of EGN and GGN**

The European Geoparks Network (EGN) was established in 2000 with the purpose of protecting the geodiversity and the geological heritage while at the same time supporting the sustainable economic development of the European Geopark territories. As of November 2009, EGN has approved of 35 members. (Zouros & Valiakos, 2010). Currently, EGN has 64 members (EGN, n.d.a.).

Hațeg Country Dinosaurs Geopark is one of the 64 members. The Romanian Geopark was accepted in 2005, when it also joined the Global Geoparks Network (GGN). The aim of the Hațeg Geopark was to promote and develop a geopark in Romania with the EGN and GGN principles of geoconservation.

Since becoming a member, the Geopark was able to enhance geoconservation, promote Hațeg heritage and start partnerships with local projects that make development of the region and knowledge transfers possible. (Andrasanu et al., 2008).

## **6. Results**

In this section, the results of the research that was conducted by the case study group are described. In 6.1., external circumstances and developments are described that are relevant for Hațeg Geopark. This sub-section answers research question 6. See also the SWOT analysis (6.3.). In 6.2.,



the main section of this report, research questions 1-5 are answered from all perspectives except the political. The political situation is seen as an important external factor for the performance of Hațeg Geopark and, as such, is discussed separately.

## **6.1. Results of research into derived research question 6: External circumstances and developments**

The political system, insofar as relevant for Hațeg Geopark, is discussed first, in sub-section 6.1.1. The following sub-section, 6.1.2. covers other external factors that are important for Hațeg.

### **6.1.1. The political system**

In 1998 by UNESCO concept and conditions for becoming a Geopark explosion followed by a national applications filed in the institutions and decision-making, first in Europe shortly, then, all around the world. Geopark concept is the result of many discussions in international meetings, held on the 90 between members of the European Association for the Conservation of the Geological Heritage - ProGEO, whose findings have resonated in structures associated UNESCO World Cultural and Natural Heritage. Following the launch concept by UNESCO shortly, in 2000 the first four Geoparks, created in France, Germany, Greece and Spain formed the nucleus of European Geopark Network, which counts the middle of 2014, 58 Geopark in 25 countries. Created in 2004 by the European Network model, Global Geopark Network currently includes Geoparks in the world, besides the 59 European, 33 are located in Asia (23 in China), North America and South America. Unlike other types of protected areas, as they are among the most common Natural Park and National Park, whose territories are located mostly outside the human community, a Geopark area is included in their territory, it is part of the community.

Consequently, while the main purpose of national parks and nature protection in a natural way is a concern for the protection, Geopark is closely intertwined with concern to highlight all that is valuable in nature and culture of the region. As the name of the new type of protected area, a Geopark geological sites in the spotlight who manages the area, in addition to measures for their protection, geosites are used to illustrate events of different nature, biological, structural, tectonic, magma in Earth's past, thus their valences educational value; often educational scientific

importance of geosites and add aesthetic value, beautiful views, interesting natural phenomena that make these places tourist attractions.

Who knows this place better would say Hațeg means places built in stone landscapes, rich history of soil and subsoil, folk customs and traditions, crafts and read the conditions to become Geopark remark is immediate: "Land it fully meets the conditions set!" Here, in brief, are those conditions:

- a geographically well-defined territory, with an area large enough to allow activities related to economic development: Hațeg is bounded by mountain peaks all around: it created the status of "country"- a geographic region in which individuality generated in specific time folk and artisanal surface is 1024 square kilometers, comprising Hațeg and villages Densuș, General Berthelot, Totești, Răchitova, Santamaria Orlea Sarmisegetusa, and partially the villages: Baru Mare, Sălașu de Sus, Pui, Râu de Mori. The presence in the territory of geological sites with scientific value and / or aesthetics: sites with bones, dinosaur eggs and chicks, along with many other groups of animals contemporane with dinosaurs were discovered, and make the country's most famous region Hațegului (*Hatzeg - Hatzak; Hatzeg oder Hötzing german Wallenthal*) world faunas from the late Mesozoic era; In addition, the Hațeg dinosaurs, most of them were dwarfs - unique case in the world, and paradoxically, in Hațeg was met one of the largest flying animals - *Hatzegopteryx pterosaurs, 12 m membranous extremities (Geodiversity of Hateg, 2014)*.

Not only do dinosaurs and their contemporaries fame geological region: the picturesque landscape of mountain ridges surrounding land hategan, rocks and volcanic phenomena reconstituted in igneous rocks, caves, a wide range of minerals, fossils of marine animals reefs formed in the Mesozoic and more enrich the country's geological wealth of Hațeg. (*ACTA PALAEONTOLOGICA ROMANIA E- V nr. 5 (2005)*)

- present with geological sites of environmentally valuable archaeological sites, historical and cultural: Hațeg is famous for the remains of antiquity and the Middle Ages, more numerous and better preserved than in many other regions: Roman fort at Sarmisegetusa Ulpia Traiana, medieval churches; Densuș, Santamaria Orlea, Ostrov, Suseni - Mills River (Râu de Mori), many

rare and endemic plant species, bison reservation, customs and crafts, folk traditions and cultural pregnant customize Hațeg land. Conditions to form a Geopark, made by UNESCO in 1998 and which fully meets the description is Hateg, but only prerequisites are other conditions that no longer related to the natural environment and the historical and cultural center of the region, must be met to become a Geopark. Thus, these conditions require that "*all of a Geopark sites to be protected and enhanced through a single integrated management system. It also requires a Geopark become a place of initiation and demonstration of geological conservation methods, and everything is being done in this area aim to have sustainable economic social development of this region and its inhabitants default.*" Finally provisions of UNESCO," *a park is administered by a designated authority in the State in which there is, who will be in charge of developing the management plan and monitoring its realization.*". A unique case in Romania, in Hunedoara county three distinct types of protected areas Retezat National Park, Hateg Country Dinosaur Geopark, and Natural Park Gradistea Muncelului - bordering Cioclovina. (UNESCO 2013)

Project Initiation "Dinosaur Geopark Hategului Country" in 2001, started with good knowledge of the region by Professor Dan Grigorescu, who for over 25 years at that time, perform geological research in the region to discover the treasures of paleontology, a good opportunity to meet people and places in the deep Hateg realm. A group of founding members joined an initiative to launch the project: director Ioan Radu from SC Hidroconstructia Raul Mare Retezat Hategului then Mayor John Glodeanu, Hunedoara County Council Vice President - John Russian, Professor Dan Manoleli and lecturer at the University of Bucharest Alexander Andrașanu, Florin Lupescu presidential adviser and not the least promoter of Geoparks Erika Stanciu. In November 2004 Geopark Hațeg has been recognized nationally as a protected area, and a few months later, in March 2005 was received in the European Geopark Network under the auspices of UNESCO Geopark 18th in order of receipt and Romania to 9th European country and the first in the area of the former communist regime countries, the innovative structure type Geopark was founded. Geopark administration is assumed by contract with the Ministry of Environment of the University of Bucharest, the first and so far the only institution of higher education in Romania who has assumed the responsibility of a protected area, all over 45 protected areas in Romania, most National Parks and Natural Parks administered by National Forest - ROMSILVA or by county councils. By taking over management of dinosaurs Hateg Geopark University of Bucharest has

stated capacity to ensure coordination of complex activities, some of which are his own teachers and students education and scientific research, but others, such as nature protection and involvement in development problems mean an innovative way, a challenge for the university environment. Along with the University of Bucharest, defense effort and commissioning of the natural heritage and cultural history of Hațeg land pledged Romanian Academy and four other universities: Babes Bolyai University of Architecture and Urbanism "Ion Mincu" Bucharest, University of Petroșani and the University of Agricultural Sciences and Veterinary Medicine of Banat, Timișoara. The objectives contemplated by academic partners in the Hațeg Geopark are various problematic: Fitting a tourist and educational geological sites and to protect them, new sights, geotourism and developing infrastructure related to cultural tourism, ecological education of students from schools in the region, advising residents in given localities in the Geopark development. In moving towards harmonious development of Hațeg Land, University of Bucharest and other partners from academic consortium collaborate with Hunedoara County Council and the mayors of the 11 towns in Geopark, meeting Intercommunal Association Hațeg. For academics active presence in a region of teachers, students and research has multiple meanings and consequences, particularly important in modernizing education and training of students in the development of interdisciplinary research, launching projects with different themes: environment, rural development sustainable tourism infrastructure etc.

Under the approval of the National Landscaping Plan - Section III – nr.5.6.2000/Official Monitor protected areas, it is imperial to rescue and protect habitats, promoting landscapes and it is of great interest for the enhancement of the potential of heritage that must survive posterity throughout projects based on science, throughout sustainable development and through *“protected areas that are public utility of national interest”* (Official Monitor nr. 152/2000)

The government regional policy in this area has been designated as *“industrial restructuring areas with growth potential”* - clusters of villages in need, high unemployment problems of environmental pollution, but that would have growth potential and *“disadvantaged areas”*, both territories, which historically constituted Hațeg a pool of labor recruitment, competing for obtaining project financing - internal and external capital for domestic and foreign investment, creating jobs and opportunities for enhancement of the local potential even more with how many social problems generated by mono-industrial collapse modeling are of great acuity, among the

initiatives of recent years directed towards better knowledge of the component inanimate nature, geological values and their importance in various fields, educational, scientific, cultural, tourist, economic, who has demonstrated efficiency is the most coherent, undoubtedly related to the creation of the Geopark. This priority axis aims mainly to promote recovery and sustainable cultural heritage and natural resources with tourism potential, and improving the quality of accommodation and leisure tourist infrastructure in order to increase the attractiveness of regions, local economies and create new jobs. As for *the industrial restructuring areas with growth potential*, self-interests and other priorities are higher than ever and we look at Programs that allow recording and modification of the main information of priority axes, key areas of intervention and operation and this led to certain difficulties for employment for example the lack of interest for areas of great interest that might be the key to new opportunities for employment

#### Areas properly for Sustainable Development

- Tourism
- Research in Science
- Agricultural Landscape

#### Delimitation of the Area of the Park

- Restrictive protection zone (where the geological site is )
- Integral protective zone
- Sustainable Conservation(for implementing a Sustainable Management

County centers and commission projects that together reflect the broad range of functionalities the System is designed to perform, as follows:

- The Commission's committee forms Programs through meetings conducted by the influential members of the councils that allow recording and modification of the main information of priority axes, key areas of intervention and operation; National Spatial Plan in the Section III of the Protected Areas under paragraph built-up Areas in the implementation of Urban Zonal Plan, the commission has different alternatives and different interests and views and even if many projects are on the top of the list assessment

which by growth will result in a list which will contain all the projects recommended for funding and projects that are not recommended, accompanied by appropriate justification, appearing for instance on the new list of historical monuments

In *LMI code: HD-II-mB-03439.01* (*List of Historical Monuments in Hunedoara County*) due to the advanced state of degradation (in the past have fallen pieces from the ceiling and façade) it was denied the access of visiting from the Hunedoara County Council to avoid accidents, this is none other than Count Nopcsa Castle of Săcel's surroundings (photo.1), the well known to have fame from *Le Château des Carpathes of Jules Verne*. The castle was built during the XIXth century. it was the residence of the Nopcsa family, one of the richest families in Transylvania.

- *The building was later used as a boarding house. The school built its own building in 1978. The castle was then used for different workshops and class rooms until 1990.*
- *The park surrounding the castle dates back to the XIXth century (The Administration of the National Cultural Fund)*



photo.1: Count Castle Nopcsa village Săcel; Sântămăria Orlea

National Strategy for Regional Development, drawn up on the basis of Regional Development Plans and National Strategic Reference Framework 2007-2013 identified the development of tourism as a development priority, given the existing tourism potential in all regions. This justifies the potential financial support for rehabilitation of tourist areas infrastructure and valorization of natural, historical and cultural, for inclusion in the tourist circuit and their promotion to attract tourists. (*National Strategic Reference Framework 2007-2013*)

Unemployment in the area is the highest in Hunedoara: 1500 in the city Hațeg unemployed in August 2008. In recent years there has been the improvement of the economic situation. Romania had to pass a long line of changes in behavior and mentality, for instance and passing through a system that is being recognizable, globally by the Global Sustainable Tourism Council (GSTC). (*Regional Operational Programme, 2012*)

The Hațeg GeoPark management managed to achieve a great importance as a touristic destination being one from nine touristic places worth visiting from Romania and having also the quality of services in ecotourism destinations, On the other hand, data on population structure by economic activity indicates a weak employment market development services necessary to support tourism activities and other sectors of modernity and competitive carrier based on the continental and global context.

However a relatively low number of hostels are located in the studied area, and promoting accommodation in homes of the locals thus experiencing life in Hațeg land in the traditional way is a future dream. Locals trying to obtain approval to implement such a project are overwhelmed by the situation when you are required to obtain planning approval for housing with rent, and the amount exceeds expectations of local people's budget. The primordial Social and economic function is agriculture whose structure is adequate to the specific mountain area, it benefits from an "*agricultural land accounting for 48.82%*" of the total. After the change of regime in 1989 was strongly affected Hațeg industry collapse adjacent areas: one in Hunedoara and Calan its steel and mining in the Jiu Valley .Unemployment in recent years percentages between "*33 and 37%*". In 1990, the Hațeg worked around "*20 business units with 5,700 employees*", and in 2002, in Hațeg

there were “*cca.1700 employees*”. The old economic units created as a workforce of several thousand people skilled industrial, industrial and traditional way of life with potential for retraining. In the absence of short-term employment opportunities, male population migrates to the city so that sex structure of the population is unbalanced. (*PATZ Intercomunal - Geoparcul Dinozaurilor, Tara Hațegului, 2003*)

Hațeg is characterized by poor education offers (So it relates to the lack of experts and promoting jobs for the local community), only upper and secondary qualifications ensure employment in related tourism. Even though there are poor offers on the market for locals, there are summer schools in the studied region of Hațeg Country that can be accessed throughout classes to learn and also achieve qualification in the tourist guide as a competent informer who can hold an audience providing information of the surroundings and promoting Hațeg realm which for the locals that proved to be of great interest making this a strong case in the detriment of the management of the GeoPark . There are facilities of camping and guest houses, pensions etc. In all developing regions of Hațeg, recovery attractions is largely limited by the quality of environmental infrastructure services in general, and accommodation and leisure services, in particular, these are the obstacles to tourism development seen by the European policies, however Hațeg meets all the conditions for the implementation of priority axis of the Regional Operational Programme, by improving infrastructure and tourist areas of accommodation and entertainment, to increase quality, to European standards, in most cases Protected Areas have a management plan built, This is concerning regarding the political system in Romania that does not create jobs for experts which in Hațeg’s case **is** the lack of a biologist. For example, other issues occur: for instance the management plan is still under construction since 2005, but in this case the Park is independent knowing the fact that in Hunedoara county three distinct types of protected areas function and the Geological Park relies on the management plan of the Retezat National Park which manages wide borders.

The government regional policy in this area have been designated as "*areas industrial restructuring with growth potential* " clusters of Places distressed, high unemployment problems of environmental pollution, but should have growth potential and "disadvantaged areas", both of territories, which historically constituted Hațeg a pool of labor recruitment, competing for



obtaining project financing - domestic and foreign capital investment domestic and foreign, for creating jobs and for enhancement of the local opportunities and potential, especially since the social problems generated by ‘*mono industrial modeler collapse*’ are of particular acuity.(PATZ *Intercomunal - Geoparcul Dinozaurilor, Tara Hațegului, 2003*)

GeoPark interest is in developing tourism activities, that has close links with ecotourism. Ecotourism provides sustainable and responsible natural tourism, which is guided by ethical rules and specific practices: respect for natural values (travel charge by nature), support long-term conservation of nature (an income stream to help conserve biodiversity and culture) and contributions to improving the welfare of the local community (through participation in tourism activities). (Revista Română de Statistică nr. 12/2008).

Dinosaur Geopark Hațeg marks on 3-8 June 2013, the European Geopark Week with a series of events held in Bucharest in Hațeg, designed to attract public attention to the importance and beauty of this objective in Hunedoara County. European Geopark Week is an event held simultaneously in 39 European Geopark. (site of Hateg geopark - [Geoparcul Dinozaurilor / Noutăți](#) - Dinosaur Geoparks News section)

Another major objective of the Dinosaur Geopark is the education of the youth, to bring them closer to the nature and to the understanding of its equilibria, aiming thus to determine, among the young generation the development of a new attitude, of protection and conservancy towards the nature. (*Global Geoparks Network*)

### **6.1.2. Other external circumstances and developments**

In this sub-section, a number of external factors and developments, judged to be of importance for the (future) operations of Hațeg, is identified. The various factors are grouped as threats and opportunities. The list is not claimed to be complete.

Threats:

- Fossil hunters. They are a source of concern for Hațeg Geopark (Andrasanu et al., 2008). A few years ago three dinosaur eggs were stolen from one of the fossiliferous sites in Hateg;

luckily they were later found by the police and returned to the Park (Dumbrava & Solomon, 2012).

- Too many tourists. If the number of tourists visiting Hațeg Geopark were to increase, this would lead to increased environmental pressure, due to the need for new infrastructures, potable water, waste treatment, etc. (Andrasanu et al., 2008). It would also increase the risk of damage at botanical, historical and cultural sites.
- Too few tourists. The local population in the Hațeg area can benefit economically from tourists visiting the Park. Tourists need goods and services that can stimulate the local economy. Few tourists mean little income for local shops, restaurants etc..
- Lack of economic resources. As the whole Hateg Region suffers from a lack of economic gains, the general regional development is stunted. This takes again a bad influence on the single resources. The Geopark may be seen as one of those economic resources, which still is deficient.
- High rate of unemployment. Unemployment produces a lot of negative effects for the affected region. As it is a source for a lack of taxes, a bad image for the whole region, migration of labor forces, etc. a downward spiral is created which affects all dimensions of the region.
- Lack of funding. As university regulations make it difficult to have a direct income, and as the Park does not receive funding from the Ministry of Environment, obtaining sufficient funds is a challenge (Andrasanu, A., personal communications, January 21, 2015). This threatens the development of the Park.
- Losing the Geopark status. Being a member of EGN is very beneficial to Hațeg Geopark (University of Bucharest, 2010). Losing its Geopark status after a revalidation visit can therefore be considered a threat.

#### Opportunities:

- Twinning. ‘Twinning’ refers to the establishment of special mutually beneficial relationships between Geoparks. The Geoparks involved formally agree to exchange information and cooperate more closely. Examples of Geoparks with several twinning arrangements are Fangshan and Zigong Global Geopark (Fangshan Global Geopark 2014a;GGN, 2012)

- Growing interest in ecotourism and geotourism. Although there are many different definitions of these concepts in the literature, there is apparent agreement on the fact that interest in these forms of tourism is growing (Glover, 2012; Boley, Nickerson and Bosak, 2009).
- New sources of funding. Other Geoparks use multiple methods to fund their activities (see 6.2.4.). Applying (some of) these methods might be an opportunity for Hațeg.
- Appeal of dinosaurs It is safe to say that people have always been fascinated by dinosaurs. Their enduring appeal offers an opportunity for Hațeg to build a strong brand and attract visitors and funds. To a lesser extent, the same probably applies to the rare butterflies in the Park.
- A larger amount of visitors, means more income that can be used for sustainable development projects.
- Geopark development, can benefit the local economy, in the short run, but in the long run it can put also Romania on the map.

## **6.2. Results of research into derived research questions 1-5**

In sections 6.2.1.-6.2.5., the results are presented of the individual research of the members of the case study group into research questions 1-5. Each research question is covered by a separate sub-section. In order to give the text a clear structure, each sub-section contains 5 parts, one for each perspective.

### **6.2.1. Results of derived research question 1: Valuable features of Hațeg Geopark, conservation measures and facilities to ensure conservation**

#### **6.2.1.1. Environmental aspects (geological and biological)**

Hațeg Country Dinosaurs Geopark is located within the Hațeg Basin, an intramontane depression surrounded by mountain chains. As mentioned in 1.1., the history of the Hațeg area dates back hundreds of millions of years, a span of time in which diverse tectono-thermal events took place. These events explain the presence of igneous rocks, metamorphic rocks and sedimentary deposits in the area. The deposits, which comprise both continental and marine sediments, contain a wealth

of fossils, for which the area is renowned. Particularly appealing and unique are the fossil remains of the ‘dwarf dinosaurs of Transylvania’ . As fossil hunters are a source of concern (see 6.1.2.), the valuable geologic sites in Hateg need to be protected. (Andrasanu et al., 2008).

Spectacular geological features are not all that Hateg Country Dinosaurs Geopark has to offer: the biological features are valuable as well. The great variety of natural habitats in the Park and the wild areas that surround it have led to the presence of a wide range of species of mammals, birds, reptiles and amphibians (Andrasanu et al., 2004). A number of these species are endangered or have a limited distribution in this area of Romania (Andrasanu et al., 2008). Especially noteworthy is the presence of 86 species of butterflies in the nature reserves of the Park. Several of these species are listed as endangered in the Red List of butterflies of Romania (Burnaz & Ruști, 2009).

Another valuable feature of Hațeg Country Dinosaurs Geopark is the flora. The area comprises five vegetation districts: alpine shrubs and grasslands, spruce fir forests, beech forests, sessile oak forests and finally turkey oak and Hungarian oak forests (Andrasanu et al., 2004).

A number of conservation measures has been put in place to preserve above mentioned valuable environmental features. Hațeg Geopark has the status of a natural park and is part of the National Network of Protected areas. All work that can have a negative impact is forbidden, according to Law 462. Permission is needed to collect fossils or conduct scientific studies. Furthermore, two geological sites have official protection under Law 5/2000 and custodians have been assigned. Another six geological sites are due for protection at the local level. Valuable non geological sites are also conserved: there are five botanical reserves in the Hateg territory (Law 5/2000). Among these reserves are The Narcissus Hayfields from Nucșoara and Slivuț Forest, where a reservation with *European Bison* was created (Andrasanu et al., 2008). Last but not least, the Geopark status of Hațeg has been embedded (art. 57/2007) in Romanian national law (GGN, 2014).

#### **6.2.1.2. Management and Organization**

Although management and organization are not the same kind of feature as geosites and historic heritage, this section has been included here, since the way in which the Park is managed and organized forms part of the current Hațeg structure and can thus be seen as a (valuable) feature.

Hațeg Country Dinosaurs Geopark was developed by The University of Bucharest in cooperation with other universities and the non-profit organization Hațeg Dinosaurs Geopark Association (HDGA). The University of Bucharest has been contracted by the Ministry of Environment and Sustainable Development to manage the Park. The Park's general strategy is linked with local activities by the Consultative Board; the scientific strategy and activities of the Park are in the hands of the Scientific Board. Administrative matters are handled by the Geopark Administrative Unit, which is also responsible for developing and implementing the Management Plan. There is a signed partnership with all local councils and county council to assure Geopark management (Andrasanu et al., 2008).

The Park is financed from three sources: the University of Bucharest (the biggest financier), the Council of the Hunedoara County (where the Park is located) and the Intercommunity Association of the Hațeg Country (consisting of the mayors of the eleven localities in the Park and other local representatives). The budget for the years 2011 and 2012 was the equivalent of 113850 Euros (University of Bucharest, 2010). Some additional funding is derived from sponsorships and projects. Hațeg Geopark is not supported financially by the Ministry of Environment (Andrasanu, A., personal communications, January 21, 2015).

### **6.2.1.3. Economic aspects (geotourism)**

The establishment of Geoparks was founded in 2000 and had the aim to protect geodiversity, to promote geo-heritage and to support sustainable economic development primarily through promoting and stimulating geotourism.

To promote and stimulate geotourism, activities that revolve around the historical, natural or cultural heritage must be organized. These activities help raise public awareness about the value of the geosites. For instance a network of walking trails could be arranged that link different geological sites to each other. Other examples of geotourism are: guided tours, walks or trekking, and other activities in the vicinity of geosites. (Zouros & Valiakos, 2010). We can find a good example of the combination between heritage and tourism in the Marble Arch Caves, Ireland. The

caves at Marble Arch were turned into an attraction for tourists. Only for this visiting site, the caves attract around 75 000 people a year. (McKeever et al., 2010).

A strategic tourism plan was developed for Hațeg Dinosaurs Geopark. The Hațeg region in Romania is one of the few European sites where the bones and eggs of dinosaurs were found. Images of this (that are visually very strong), local traditions and architecture are included in the strategy for tourism that was developed by County Chamber of Commerce and the Retezat National Park Administration. (Andrasanu et al., 2008).

#### **6.2.1.4. Public awareness and nature education**

After a period of four years, every member of the European Geoparks Network (EGN) is controlled by two independent UNESCO inspectors. A special assessment methodology is used to check if all requirements, which Geoparks have to fulfill to be part of the EGN, are still met. The criterion “Interpretation and Environmental Education” weights 15 percent of this evaluation, so it is quite a big factor. It includes the Geoparks’ measures for promoting the natural and cultural features and for raising the public awareness of the importance of the conservation of those features. These might be measures such as environmental education programs, scientific publications, guided tours, training of rangers and many more (Zouros & Valiakos, 2010).

In the following, Hațeg’s strategies to fulfill this criterion will be presented. Although a lot of projects, especially regarding the educational activities, are still in development, they will be regarded as existing measures.

One big arrangement, which provides progress in educational terms, is the existing cooperation with the University of Bucharest and the University of Petrosani. Another important facility is the Educational Center in Berthelot Village. It offers training courses and consultations on local issues. Furthermore, an information center exists in Hațeg, as well as information points for visitors, which still are in progress. Most important to mention is the network of schools, which exists to teach pupils how to make use of the natural and cultural heritage for a regional and sustainable development. It includes teaching materials, course information and also further education for teachers (Andrasanu et al., 2008). Founded in 2003, the network contains 20 schools, two

universities and the Berthelot Education Center. There already are quite a lot of positive results from the activities that were undertaken. For example new computers were purchased, based on French donations. And also schoolbooks were developed and children exhibitions were organized (Geomedia Center, 2005).

An example of another educational institution would be the “House of dwarf dinosaurs”, a museum located in Sanpetru village and created in partnership with the University of Bucharest, the Romanian Ecotourism Association and many more organizations and volunteers. Visitors can discover the history of Hațeg’s dinosaurs and may even touch reproduced dinosaur models (Drag de Hațeg Association, n. d.).

So education and raising public awareness is a central issue in Hațeg’s Geopark management. Either formal or informal, it assures the sensitization of the public for the value of the whole area in all its dimensions. It can be seen as the link between the Geoparks strategy and the local community.

#### **6.2.1.5. The social dimension**

##### Historical :

The territory of the Hațeg Geopark is one of the most notable hearts of civilization from Romania. As valuable features in this territory there are several valuable items in terms of culture, history and ethnography. In this territory there are some of the first hominid remains in Romania (29.000 years ago) and a large number of prehistoric settlements shows permanent living in the region from Paleolithic to Bronze age.

In this region were important events in historical perspective like the battle between Romans and Dacians(101 A.C.) followed by the installation of roman military forces in the western part of the region and Sarmizegetusa Ulpia Traiana founded and named Capital of the Roman Province of Dacia.

Later, the local ruler Litovoi perished in the combats with the Hungarian armies and his son was captured and then liberated after accepting the rule of Hungary over his lands (beginning of the

XIIth century) Between XVIIth-XIXth century the region became an important center for fur trade.(Andrasanu et al., 2004).

### Monuments

Among the monuments of Hațeg Country covering a 2.000 year long history, the most important are :

***Sarmizegetusa Ulpia Traiana***, the capitol of the roman province Dacia.

The settlement was built at a distance of 8 km from Tapae, a pass between Banat and Transylvania (today known as the Iron Gates of Transylvania) (Wikipedia, 2014).

#### ***Sântămăria-Orlea Church***

The Sântămăria Church was built at the end of the 13th century and she has a Gothic style. Now the church is not very good consolidated and does not allow religious services. On the wall some fragments are preserved of paintings dating from 1311 and 1400 (Andrasanu et al., 2008).

***Sanpetru Church*** dated in the XIVth-XVth with a collection of stones from the antique roman ruins in the façade.

#### ***Densuș Church***

This impressive church was built in the 12<sup>th</sup> century and she has a surprising architecture which is neither Gothic or Roman but we can find elements from both styles. In our days the church is used for some religious and laic festivals.

***Subcetate Fortress***, the most important medieval fortress of the Hațeg Country.

***Colt Fortress***, Colt`s Fortress Church, built in the XVI th century, now belonging to the Colt monastery. In spite the ravages of time the vestiges of the thick walls of the former castle are still preserved, up to 8 m high (Andrasanu et al., 2008)

### Ethnographic values



The ethnographic values are represented by rural localities with households safeguarding the traditional architecture, crafts and customs. Characteristic for the region is the wide celebration of the local ‘Nedeia’, a fest that each village has once per year.

The most important ethnographic elements found in the region are: the costumes, the traditional music and dancing, the local cuisine, the vernacular architecture, the shepherding traditions, local crafts mostly wood carvings, homespun.

All these elements of heritage are the identity of the local population which has developed over time in this area and they must be protected and preserved if we want a Geopark based on the principles of sustainable development (Andrasanu et al., 2004).

For these monuments there are some governmental projects for consolidation, but the maintenance for monuments is left to the care of their owners or managers and they do not have many funding solutions.

Humidity is the main source of degradation for architecture and artistic components

## **6.2.2. Results of research into derived research question 2: Recent activities and developments in Hațeg Geopark**

### **6.2.2.1. Environmental aspects (geological and biological)**

In the last few years, several activities and developments have taken place with regard to the (conservation of) the valuable environmental features in Hațeg. A few examples:

- Measures were taken for protecting the geological and paleontological heritage of Hațeg after dinosaur eggs had been stolen from an incubation site in the Park.
- Preparations were made for the establishment of the ‘Paleontological Research and Conservation Centre’ in the Hațeg Geopark, near the main fossil sites.
- Cooperation with the two neighbouring protected areas to the Park
- Training sessions for the Geopark rangers (EGN, 2012b).

### **6.2.2.2. Management and organization**

In 2008, EGN paid its first revalidation visit to Hațeg Country Dinosaurs Geopark. This visit resulted in a so-called yellow card for the Park, following the identification of several weaker aspects. A follow-up was later carried out. One of the recommendations of EGN was to employ more local staff. Acting on this recommendation, three new staff members were recruited by the University of Bucharest and the County Council of Hunedoara. The three staff members started their duties at the end of 2010. Their responsibilities are related to implementing the Hațeg Geopark Management Plan and promoting tourism (University of Bucharest, 2010). A revalidation of the Park in 2010 resulted in a green card with a list of recommendations. The most recent revalidation process took place in 2014; some major issues were raised concerning tourism development and financial support (Andrasanu, A., personal communications, January 21, 2015).

In 2014, the Hațeg Country Dinosaurs Geopark Development Plan was drawn up. In this plan, four major areas of development were defined: strengthening the position of the Park as a member of the EGN and GGN, fulfilment of obligations as a Natural Park, developing Hațeg as an eco- and geotourism destination and developing the Park's role as center for education, research and training (Andrasanu, 2014).

### **6.2.2.3. Economic aspects (geotourism)**

The Hațeg Country was affected strongly by the economic recession. Unemployment in 2008 reached a rate of 10% and no economic resources, but the natural ones, were present. This means that the region can only support itself economically through natural, historical, cultural and human resources. Local farming, high potential for agro-tourism and the low rate of pollution are examples of activities that sustain economic development of the region.

The strategy of sustainable (economic) development offers a framework for development in the Hațeg region in an attempt to revive the local traditions. The promotions of activities and projects help out the local initiatives, to ensure the increase of local incomes and to create (infra)structures that attract investments.

An Interdisciplinary analysis was done during the period of 2006-2008 to identify which natural elements can support the tourism development in relation to eco- and agro-tourism. The organizations, councils and such that cooperated with this project were: the Ministry of Tourism, Trame, County Council of Hunedoara and HDGA.

A few conclusions were converted from the analysis. First off, there is an increasing interest in tourism that is based on natural and cultural heritage. For Hațeg Country this forms an especially interesting observation because of the potential that the region can offer. Furthermore, there are a lot of attractive local traditions and products that are custom made, which has great economic potential. And lastly, we have the diversity of landscape and geo-points that can be integrated into the sustainable development plan. (Andrasanu et al., 2008).

Specific strategic tourism objectives were integrated in the management plan. Among these objectives were creations that are considered to be developed. For example infrastructures that consist of agro-tourism pensions, roads and information-points. Aside from the infrastructure plans a few attractions are desired as well. For example an open-space museum where you can visit the life-size reconstruction of the dinosaurs that once walked upon the region of the Hațeg Geopark.

To enhance the strategy of the geotourism and revive the local potential, the Hațeg Geopark has also created clear economic objectives that are focused on gathering incomes. (Andrasanu et al., 2008).

- Developing a label for local products
- Put out a calendar of traditional events
- Establish modern cultural activities

Objectives that are incorporated in the plan for socio-economic growth:

- Stimulation of small local businesses near the Hațeg area
- Developing a label for local products
- Developing ecotourism
- Setting up a partnership between local craftsmen and join them in international schemes of equitable trading

Other objectives that direct the economic development are:

- Promoting activities to help local initiatives increase their incomes
- Attracting investments
- Strengthen the local identity

To support the sustainable economic development a few steps were undertaken. Firstly, the management of the Hațeg Dinosaurs Country founded a center for promoting local products, such as handicrafts and souvenirs. An example of this is dinosaur bread, a book for local cuisine. For the promoting to take place, meetings are assembled with locals to exchange knowledge in order to develop local businesses. Furthermore, Facebook is used as an promotion channel. (Coelho, Costa, Farsana & Neto de Carvalho, 2011).

Secondly, policies were made to insure a successful approach. Together with a interdisciplinary team and the formal agreement of local councils (to support objectives and meetings), organized discussions could take place with local stakeholders, among which the local administration. International visits, paleontological field research and international promotion of the geo-heritage have also been incorporated to support the economic development. (Andrasanu et al., 2008).

Economic development thus mainly consists of geotourism, but involves also education and training on the natural and cultural heritage. See also the next section, on Public awareness and nature education.

#### **6.2.2.4. Public awareness and nature education**

In contrast to the previous public awareness and nature education section, which described the existing facilities of Hațeg Geopark, this part deals with activities which took place during the last few years. As it always is a good medium to reach people by organizing special events, Hațeg has a lot of projects and cooperations to take this possibility.

As part of the long lasting work of building up a Transylvanian Dinosaur Museum, a life-size reproduction of *Magyarosaurus dacus* travelled through Rumania and attracted a lot of attention. Starting in Canada, the Dinosaur's journey headed to a lot of different destinations, and informed

interested people about Hațeg's dinosaurs and Geopark projects. In the month June and July of 2014 it stopped in several education centers, museums and research facilities. On 23<sup>rd</sup> of July the journey ended in the Hațeg Geopark, where it is going to be the symbol for the future Museum. *Magyarosaurus dacus* was welcomed by hundreds of children, visitors and media and thus he was able to draw public attention on topics like heritage conservation, sustainability and the idea of Geoparks (UNESCO, 2014).

Still ongoing is the project "Volunteers for the Geopark". It was initiated in 2013 and is a possibility for volunteers to support the local communities and to help protect the geodiversity and biodiversity. Right now it comprises about 80 volunteers, permanent as well as temporary, and everyone who is interested can apply for it (Drag de Hațeg Association, 2014).

Another big event for promoting public awareness and increasing nature education is the European Geoparks Week, taking place every year. It is a great event with a lot of different activities, such as presentations, exhibitions, guided tours, and contests for children. The EGN Week is one of many events organized by the European Geoparks Network and takes place from late May to early June. The activities for the EGN Week 2014 were subdivided into four categories. The first category was called Geo & Geo, which consisted of four guided tours for kids and school classes and two educational packages. The second category was called Geo & Culture/Music/Literature/Art and included workshops, such as handicraft, painting, drawing and many more. Category three was named Geo & Education and offered courses and contests for pupils and for students. Finally, the last category was called Geo & EGN/GGN and included presentations and other activities to promote and to inform about the Geoparks Network (European Geoparks Network, n.d.d.).

Furthermore, a homepage was created to give information about the Geopark and its facilities and activities. But it still is quite poor, as very little information is given and the design is really simple, same as the whole presentation of the Geopark, especially in the English version.

But there is another homepage called Drag de Hateg, which provides much more information. Its design is much more pleasant and it contains many picture and current reports. On this homepage you can book special educational programs, guided tours and workshops, which all are described there (Drag de Hațeg Association, n. d.).

Based on a local needs analysis a strategy was developed to improve the educational situation for sustainable development and public awareness. It included an analysis of existing facilities in the

schools and an analysis of activities which were organized, like public conferences, a national TV-series and different exhibitions. It aims for increasing the cooperation between schools, the community and the Geopark itself (Geomedia Center, 2005).

#### **6.2.2.5. The social dimension**

In the last few years, several activities and projects have taken place in order to help local initiatives, to assure the increase of local incomes, to create structures able to attract investments.

*Study of vernacular architecture in Clopotiva, Sarmizegetusa, Pui, Hateg, Densus and its relation with local economy*

Results of the project : identification of different architectural styles, questionnaires, databases for local architecture, relation between fluctuation of local incomes and construction of houses.

*Clopotiva village after 70 years*

The analysis, starting from the demographic, ethnic and economic situation of the Clopotiva village will compare the reality of today with that of the fourth decade of the 20th Century when detailed studies were made by interdisciplinary teams led by professor Ion Conea (within the large frame of the heritage program initiated by Dimitrie Gusti).

*Identification of traditional houses in Sarmizegetusa as potential places for tourist activities*

Study Plan and recommendation for a financed project that links tourism activity in Sarmisegetusa antique ruins with village tour visit and recreation points .

*The science and art center in General Berthelot Commune*

The center is organized in the University of Bucharest building from General Berthelot commune. The building has a surface of 300 m<sup>2</sup> for exhibitions and installations. Outside there are 1000 m<sup>2</sup> for installations in the yard. The center is destined for visits, educational workshops and outdoor learning.

### *The craft of wool dyeing in the traditional village from Hațeg Country Santamaria Orlea*

The project had two phases

1. Dyeing natural supports wool, cotton using plant paint; works (watercolor, graphics) after local dyeing plants and landscapes + workshop where children from Hațeg Land were invited to participate.
2. An exhibition was organized (watercolors, graphics after Hațeg surroundings and landscape, the results of dyeing with plants, photographs).

### *The House of Volcanoes*

Located on the Ștei valley, at the starting point of the Volcano Trail, the House of Volcanoes is a part of the Geopark's strategy to organize small interpretation centers in accordance with local values and identity. The Volcano House interprets the area with volcano relicts from the Upper Cretaceous and the sedimentary rocks from the bottom of a lost sea.

The House is also an informal education point for the Explorers children clubs and for visiting groups of children.

The project is based on voluntary work and the participation of local authorities and people. The construction is made out of cob, a traditional construction material made of earth, sand and straws, which further relates the construction to the Story of Earth. The form of the house is round and the roof is cone shaped to resemble a volcano (University of Bucharest, 2013).

## **6.2.3. Results of derived research question 3: Effects of recent activities and developments on the performance of Hațeg Geopark**

### **6.2.3.1. Environmental aspects (geological and biological)**

The extra conservation measures as described in the previous sub-paragraph are sure to have had a positive effect on the level of protection level of the valuable geological and paleontological sites in Hațeg. However, it is difficult to quantify this effect, as, for example, theft of fossils can go undetected.

### **6.2.3.2. Management and organization**

The arrival of the new employees mentioned in the previous sub-section is likely to have had a positive effect on Hațeg Geopark operations. The responsibilities they were given reflect an increased focus on the economic and social development of the territory and the two years that followed their employment showed further proof of this: there was a public debate on the Management Plan (EGN, 2012a) and two meetings were held with the 12 localities to plan future developments in the Park (EGN, 2012b).

However, the fact that major issues with tourism development and financial support were identified during the most recent revalidation process - as mentioned in the previous sub-section - shows that there is still a (long) way to go and the positive effects of recent (management) activities should not be overrated.

#### **6.2.3.3. Economic aspects (geotourism)**

The economic aim is to promote local employment by putting a spotlight on the traditional food, arts and culture. Therefore, when Geoparks promote geotourism with innovating strategies, they reduce the negative effects of low tourism on the territory. (Coelho et al., 2011).

Visitors play a big role in geotourism. According to Alexandru Andrasanu (Personal communication, January 21, 2015) in 2008, Hațeg Geopark had up to 50 000 visitors in one year. Last year, in 2014, the number of visitors increased up to 80 – 90 000 visits in one year. The visitors were counted in two different ways: the visitors who were crossing/visiting the archeological site (90,000) and the number of visitors visiting the exhibitions/info points (10,000).

A. Andrasanu (Personal communication, January 21, 2015) also explained that the visits to the Geopark are free of charge, meaning that no money is being retrieved from this. Visits to the Sarmizegetusa Ulpia Traiana Museum, which is located in the Park region, on the other hand works with paying fees.

#### **6.2.3.4. Public awareness and nature education**



Through investments and developments in the public relations, Hațeg Geopark demands attention in the Rumanian population. The main target audience is the local community, children from regional schools and students from the University in Bucharest. By releasing articles in the press and organizing national events, like the journey of *Magyarosaurus dacus*, they also reach people on national level. But regarding the results of the European Geoparks Week 2013, the general feedback still is restricted, regarding the numbers of visitors. In comparison with other Geoparks, Hațeg's performance is slightly below average, also as the disparities in the Geoparks differ a lot. But this topic will be regarded more closely in the next section, 6.2.4. (European Geoparks Network, 2014).

#### **6.2.3.5. The social dimension**

Education and training in formal and informal structures assure the valorization and identification with natural and cultural heritage of the area and to train people to use natural and cultural resources for their economic development and also :

- Stimulate small local businesses;
- Development of a possible label for local Hațeg Country products;
- Development of cultural tourism and geotourism (University of Bucharest, 2013).

#### **6.2.4. Results of research into derived research question 4: Comparing Hațeg with other Geoparks, identifying strengths & weaknesses**

##### **6.2.4.1. Environmental aspects (geological and biological)**

Comparing Hațeg Country Dinosaurs Geopark with other Geoparks (Global Geoparks Network, n.d.), it becomes clear that all Geoparks have an abundance of valuable geological (and biological) features, many of which are unique. Thus, for all geoparks, including Hațeg, the environmental features are clearly a strength.

With regard to conservation measures, some geoparks do a better job than others. A Geopark that got a slap on the wrist in 2011 from UNESCO authorities for not providing a 'responsible duty of

care' is Langkawi Geopark in Malaysia. The problems, thought to be caused by 'unregulated development issues and quick-buck tourism' must be fixed before the next inspection visit (Tyler, 2014). An example of a geopark that has taken a large amount of conservation measures is Fangshan Global Geopark in China. Examples of measures they have taken are the use of video control systems, the use of rock stability monitoring equipment and various ecological conservation projects. In recent years the number and range of measures has been expanded (Fangshan Global Geopark, 2014a). It must be added that Fangshan Geopark attracts many more visitors than Hateg - over 33 million in the period 2010-2013 in Fangshan, compared to about 85,000 last year in Hateg (Fangshan Global Geopark, 2014a; Andrasanu, A., personal communications, January 21, 2015.). Thus, Fangshan Geopark is bound to need more protection measures than Hateg. The question is whether current conservation methods in Hateg Geopark can be called a strength. Fossil hunters in the Park are a source of concern (Andrasanu et al., 2008). Dumbrava and Solomon (2012) are critical of current conservation methods in Hateg Geopark, especially with regard to the Park's paleontological heritage .

#### **6.2.4.2. Management and organization**

In spite of the efforts of the Hateg Geopark team to improve the way in which the park is managed, the list of recommendations handed to Hateg during the last revalidation visits (mentioned earlier), shows that there is still a way to go. Dumbrava and Solomon (2012) are quite critical of the way the Park is being managed, but in 2010 the EGN Coordination Committee acknowledged the fact that improvements were being made in Hateg (University of Bucharest, 2010). All in all, it may be safe to state that the way Hateg is managed is in *in the process* of becoming a strength.

When comparing Hateg with other geoparks, it becomes clear that each park has its own management challenges. Langkawi Geopark, for example, narrowly escaped a yellow card for not showing 'responsible duty of care', as mentioned earlier (Tyler, 2014). This could be related to the management structure of this geopark. Langkawi Geopark is mainly administered by the Geopark Division, which falls under the authority of the Langkawi Development Authority, LADA (Langkawi Geopark, 2015). According to the Malaysian Ministry of Finance, LADA's responsibility is to stimulate and develop infrastructures, industries, tourism, trading and

residential areas. Conservation of valuable features is not specifically mentioned and may therefore get too little attention (Ministry of Finance, Malaysia, n.d.).

Hateg Geopark is a small operation compared to a Geopark such as Fangshan Global Geopark, which had over 1,100 management and staff in 2013 and billions of RMB in income (Fangshan Global Geopark, 2014b). Hateg Geopark employs 14 people, including a number of employments by contract, by externals and on honorary basis (EGN, n.d.c.).

As funding is an important aspect for growth of geopark operations and economic prosperity in the territory, it is interesting to investigate the sources of income of other geoparks. Fangshan Global Geopark is funded by the government and by operating profits (Fangshan Global Geopark, 2014a). Visitors to the park have to pay admission fees (Fangshan Global Geopark of China, 2013). Other methods of funding also exist. North West Highlands Geopark in Scotland, for example, mentions donations, private sector sponsorships and income from bus tours (North West Highlands Geopark, n.d.). Tumbler Ridge Geopark in Canada collects funds from sponsors, memberships and fundraisers (Tumbler Ridge Geopark, n.d.). It seems that employing creative methods to collect funds is not (yet) a strength of Hateg (see 6.2.1. for financing details).

#### **6.2.4.3. Economic aspect (geotourism)**

##### Geotourism in general

National Geographic has described geotourism as tourism with a beneficial effect on the geographical character of the region. These characters are the natural-, cultural-, historical heritage, aesthetics and well-being of the locals. (Tourtellot, 2011). The usage of geo-trails, viewpoints, guided tours and geo-activities will promote tourism, but at the same time conserve the geo-diversity. (Newsome & Downling, 2010).

When geotourism is done right, tourism can protect the Park from irresponsible development and other pressures. To succeed in this the management must follow the following principles: it must be sustainable, economically viable, community enhancing, educative, locally beneficial and generating tourist satisfaction. (Tourtellot, 2011).

Besides the principles, the Geopark must set goals in order to grow:

- Developing awareness of the impact of contribution of geotourism to local economy
- Maintaining the quality of the geosites
- Providing an experience to the visitors
- Improving the life quality of locals
- Promoting an honest geo-development

To reach these goals through the aspects of geotourism, the Geopark needs the help of locals and other partnerships. If the management of the Geopark wants the further development to grow, it must make partnerships with the government, businesses or non-profit organizations. (Downling, 2010).

When the principles are being followed and goals have been set, the Geopark must decide on the Geoproducts, -services and facilities they will provide. Geotourism offers two kinds of products/services: original and derived offer. The first one consists of geosites, for example dinosaur tracks or landforms. The second one consists of products that are derived from the first one, like books or hand crafted souvenirs. These products are best accompanied by the Geopark symbol. The money that is retrieved from geoproducts, cultural patterns or architecture provides a supplementary income for the locals. Apart from the products you can also find facilities or services at the disposal of tourists. Museums, visitor centers, exhibitions, guided tours are a few examples. (Downling, 2010).

### Hațeg Dinosaur Geopark: geotourism

Sustainable geotourism forms overall the biggest challenge for the Hațeg Geopark. This is due to lack of effective destination marketing organizations in the area. The Geopark had to start from scratch to build up tourism, marketing material and partnerships. Until now, the Park has published illustrated guides, and cycling routes have been developed and promoted in all the visitor centers and on the website. On another bright note, the local participation is really strong in the Geopark. Some of the local partners are: EDU-Geopark, Geopark Volunteers, Retezat National Park, Women's Association SMO, ... (Global Geoparks Network, n.d.).

## Comparing different approaches to geotourism

Below you find successful activities, geoproducts and facilities of other Global and European Geoparks. Note: all the activities surrounding geotourism are accompanied by employment and/or help of locals, which benefits their well-being.

### ***Nature sites:***

In Araripe Geopark, Brazil, the area is most known for its important fossiliferous deposits, which proves the evolution history. The geological monument is fostered through brochures, guidebooks,... and brought to attention to visitors in association with local communities. The Lesvos Petrified Forest Geopark in Greece contains accumulations of fossilized tree trunks, four terrestrial and marine fossil sites in an area of 15 000 ha. (Downling, 2010).

### ***Geoproducts, -facilities and -services:***

An example of a geoproduct could be mineral water, which is the case for Vulkaneifel Geopark in Germany. The creation of Vulkaneifel Mineral Water Cocktails promotes the local products. (Coelho et al., 2011). Hațeg Geopark makes use of geoproducts too. Thanks to the 'dwarf dinosaurs' (as described in 1.1.), the locals promote geosciences and the local economy through making products such as dinosaur bread. Furthermore, the locals produce other geoproducts, such as scarfs, mugs, coasters, games, t-shirts and bags. (Global Geoparks Network, n.d.). A French Geopark, Reserve Geologique de Haute Provence, makes ammonite chocolates, -bread and -pastries. (Coelho et al., 2011)).

Apart from material products, services and facilities can also be linked to geotourism. Naturtejo Geopark in Portugal for instance, opened up a GeoRestaurant, a GeoBakery and guest houses in Monsanto Village. (Downling, 2010).

### ***Activities and events:***

Lesvos Petrified Forest Geopark developed activities like tours and guided walks. Naturtejo Geopark build up strong and popular trails that help discover the biodiversity of the region. These trails can be followed by foot, boat, kayak or mountain bike rides. Thematic visits and educational programs form a part of passing these trails. The hikes through the mountains, valleys, forests and farms go up to 439 km. Group activities can also be arranged and they can vary from 40 to 650 participants. All these events are accompanied by local communities and employees. And the last example is from Copper Coast Geopark, Ireland, where they've build a Geological garden where visitors can walk through the evolution of life. (Downling, 2010).

***Events, education and others:***

Other good examples that come from the Lesvos Petrified Forest Geopark are the events that they organize. Apart from scientific and cultural events that are linked directly to the heritage of the region, the Geopark also arranges thematic events. One of them is 'Earth Day', celebrating an international event.

Further, Hong Kong Geopark in China, one of the first urban Geoparks, made an integrated interpretation system to make geology more accessible and understandable. This is linked to the educational dimension of geotourism, which provides a geo-experience to the visitors. The Copper Coast Geopark in Ireland also used educational services and products, and they've used it to raise awareness of the benefits of a Geopark to its local and the site.

Besides events and education, Geoparks pay attention to retrieving funds and incomes through stakeholders. The Beigua Geopark in Italy and Geopark Naturtejo form an example of this. The Italian Geopark created a strategy that increased the attention from local authorities, tourist organizations, operators, entrepreneurs, farmers, universities, ... This strategy resulted in connecting landscapes, cultural heritage, foods and sport facilities with the geological features of the Geopark. The Geopark Naturtejo in Portugal encourages local organizations to invest in local development. (Downling, 2010).

**6.2.4.4. Public awareness and nature education**

In this section examples of successful methods and activities of Geoparks worldwide are presented. The focus is on the promotion of public awareness and nature education in comparison with Hațeg Country Dinosaurs Geopark.

The first Geopark which is examined is the Fangshan Global Geopark of China. In comparison with Hațeg Geopark it has a quite big team, as it is employing over 1100 staff members. So it is quite another dimension than Hațeg, but it is still helpful to have a closer look at its strategies.

Regarding the expert panel for example, Fangshan exists of five experts, which work for different scientific geological institutions and work in the fields of research, geosite conservation, on-site guidance and development of geopark facilities. Those facilities include a library, data archives, conference and e-classrooms. Furthermore they have professional staff training since 2010.

Several promotion campaigns were launched to sensitize the public for geosite protection and nature conservation. Those campaigns included geoscience summer camps, the construction of promotional boards along important connection roads to the Geopark, and public exhibitions during popular science weeks and special earth days. To promote earth science education not only in the vicinity, the geopark invited Dutch exchange student groups (Fangshan Global Geopark, 2014a).

They also provide a well-structured interactive website, which gives a lot of information about ongoing activities, the state of research and conservation and a lot of touristic offers. Those touristic offers for example include a digital tour guide system with English and Chinese E-Maps, QR-Code technologies.

Another great idea for attracting attention and involving the public was the national campaign for inventing a Geopark logo. Everyone interested could send a creative idea of a logo and the winning idea was adopted as official park logo (Fangshan Global Geopark, 2014a).

So far over 100 films, articles and news reports were broadcasted and transmitted in the media to popularize geological knowledge among the public. Besides that there were many scientific publications published in the past few years (Fangshan Global Geopark, 2014).

Another Geopark which can be seen as an excellent example for successfully raising public awareness is the Idrija Geopark in Slovenia. Even though Idrija Geopark still is a pretty young Geopark, it already accomplished quite a lot of activities in the field of nature education and public awareness. To increase the local communities' participation and to prepare them to get involved in the activities, local newspaper articles are published constantly. Furthermore public trails with marked sites exist, which can be discovered on one's own or with a tour guide.

Moreover, the cooperation with several Universities is quite intensive, as students may write their Bachelor thesis in collaboration with the Geopark, field exercises of several days duration take place, students carry out geological maps of the Geoparks area and they are introduced into the project plans of Idrija Geopark.

Very positive approaches for nature education in Idrija Geopark are the regularly organized student exchanges. As a yearly tradition students from the University of Zagreb visit the Geopark and participate in a geological and historical learning program. A very interesting part of the program is the underground mapping, which is taught and tried out in practice. Another big event was the study exchange between Magma Geopark in Norway and Idrija Geopark in 2010. The goals were the intensification of the cooperation between the Geoparks, the knowledge transfer and the presentation to a foreign Geopark to Slovenia's publicity. The event received public attention, as it was presented in radio, national TV and national newspapers (Kavcic, Rezun, & Peljhan, n.d.).

So all these examples show that there are many different strategies to raise the public awareness and increase the nature education, not only local, but also cross-border. Hačeg Geopark already has very good initiatives catching up with this goal, but still has a high potential of improving the momentary situation. In the next part (6.2.5.) recommendations to make use of this potential will be demonstrated.

#### **6.2.4.5. The social dimension**

In accordance with the principles of a Geopark, the Geopark area must meet certain conditions like elements of geodiversity, culture, traditions and unique landscape. Also, this region must work in accordance with the principles of sustainable development.



Hațeg Country Dinosaurs Geopark is still in the early stages of development. A good example of a Geopark that is further ahead, meaning it has a good management, conservation measures and brings in economic profit is the Geopark “Reserve Geologique Haute Provence” from France (Musée Promenade, n.d.)

The geological reserve covers an area of 200.000 hectares of the southern Alps in France, incorporating a total of 55 communities and it's the biggest geopark in Europe.

The “Reserve Geologique de Haute Provence” acts in association with local enterprises that work together for a systematic development of tourism in zones which have so far been ignored by the public (EGN, n.d.e.).

### ***Cultural heritage***

#### **Notre-Dame du Bourg**

Mentioned for the first time in 1180, the Notre Dame cathedral of the Bourg is one of the most beautiful Romanesque churches in Provence, thanks to its unique nave and it's four large spans. Built on the foundations of a primitive basilica, in the heart of the ancient city, it was decommissioned from the fourteenth century, to become a necropolis.

#### **Saint Jérôme**

St-Jerome underwent many adjustments up to its current aspect of neo-Gothic style, dating from the nineteenth century. Enlarged and embellished, it is erected in cocathedrale in 1962 and classified as a Historical Monument (Office de Tourisme Digne les Bains & Pays Dignois, n.d.).

#### **Archeological crypt**

Also restored and consolidated during the nineteenth and twentieth centuries, Our Lady of the Bourg houses an Archeological crypt, open since 2010. The excavations carried out on almost 900 m<sup>2</sup> provide evidence of the remarkable evolution of the building and the neighborhood of the Bourg at different times (Office de Tourisme Digne les Bains & Pays Dignois, n.d.).

In this geopark in this Geopark there are several museums such as:

**Promenade museum** which has: exhibition hall, outdoor park (including places for picnic), boutiques (with souvenirs / posters / cards) , parking for vehicles and buses and guided tours for groups of adults and children throughout the year.

The Museum Promenade is also a partner in a European project that aims to educate children and adults alike to the problem of earthquake risk .

### **Butterfly garden**

### **The Sirens and Fossil Museum**

### **Earth and Time Museum**

The website lacks scientific information and a map of the Geopark. A weakness also present in Hațeg Country Dinosaurs Geopark is that the official site of the geopark is not translated into English which decreases the number of potential tourists.

In terms of culture, Hațeg Country Dinosaurs Geopark is better developed with a wider heritage (churches, castles etc.) but geotourism is not so well developed. The information centers and museums aren't promoted as well as those of the Haute-Provence Geologique Reserve.

In the area of the Geopark Reserve Géologique de Haute Provence 34.3% of the total population is retired and 19% has no professional activity and this situation is also present in Hațeg Country. Industry is virtually non-existent in the département as a whole and in the territory of the Reserve; the entire economy is based on agricultural activity centered around sheep raising. In this area where human activity exerts little pressure, except for those traditional modes that have contributed to shaping the landscapes, tourism represents a considerable economic asset, whether in the area of sport or the arts, or oriented towards nature and geology.

By 1996, with support from the European Leader II programme, an action plan for the development of geotourism was started, in particular, the preparation in stages of three heritage trails: Hautes Vallées de l'Asse (Upper Valleys of the Asse River), Massif du Blayeul (Blayeul Massif), Route du Temps (Road of Time).

Another type of action involves encouraging artists and craftsmen to seek inspiration in the geologic heritage for their creations. For example, ammonites inspired a small number of partners in shaping bread, chocolates and ceramics. Now the Geopark is one of the best Geoparks in France in the field of tourism and geoconservation (La Lettre de l'OCIM, n.d.).

## **6.2.5. Results of derived research question 5: Recommendations to improve sustainable development in Hațeg Geopark.**

### **6.2.5.1. Environmental aspects (geological and biological)**

It is recommended that the conservation measures taken by Hațeg Geopark be evaluated regularly, as rising visitor numbers may lead to increased environmental pressure. As new or increased conservation measures cost money, additional funds will need to be secured. This is discussed in the next section.

### **6.2.5.2. Management and organization**

It is recommended that new methods of funding be explored. Other Geoparks actively seek funds through fundraisers, donations, private sector sponsorships, memberships, admission fees, etc. People visiting the websites of these geoparks are constantly made aware of the possibility to donate. Perhaps Hațeg can attract income in a similar way. At the moment, university regulations make it difficult (for Hațeg) to have direct incomes. The current partnerships with local associations are a way to circumvent this problem, but perhaps the issue can even be discussed with the authorities to see if the regulations can be changed. Ultimately, it is in everyone's interest that Hațeg geopark thrives. Extra income would give Hațeg Geopark the possibility to hire more staff, carry out plans and attract more visitors, thus bringing economic benefits to local communities. It is the key to further development.

It is also recommended that Hațeg Geopark find twinning partners. Twinning agreements with other geoparks would give Hațeg the opportunity to discuss in detail the various matters related to managing a geopark, which would be beneficial both for Hațeg and the twinning partner(s). The final recommendation in this sub-section concerns the collection of management information, especially with regard to visitors. Information about visitors is important, as they are a major stakeholder group, whose opinions (should) count. Ideally, information is gathered on a regular basis, so that trends become visible. The type of information gathered could include the number of people visiting the Park, their origin, how satisfied they were with their visit, how much money they spend on average, if there are aspects of their visit they were unhappy about,

etc. This information could be collected with the help of questionnaires. If students are used to help set up the surveys and conduct them, it need not cost a lot of money. Suggestions for conducting visitor surveys are given in the annex.

### **6.2.5.3. Public awareness and nature education**

Based on the analysis of Hațeg Country Dinosaur Park and the comparison with other Geoparks, this section focuses on recommendations which can be seen as opportunities for an improvement in the field of public awareness and nature education. They are based on successful examples from other Geoparks, but also on own ideas, which came up during the research.

The first recommendation might point out one of the most important characteristics for presenting Hațeg Geopark to the public, the homepage. The website definitely should be improved and expanded, especially the English version. Maybe a combination of the main homepage and the website “Drag de Hațeg” could be a first step to solve this problem, as it is very confusing that some information only are available on the homepage and others only on the website. Also confusing is the mixture of the Romanian and the English language and the obvious work in progress. The pictures on the top of the homepage do not say anything about the Geopark, neither about activities, nor about its great heritage. It has a lack of information and a design that is simple rather than attractive. As it only was created little time ago, there is a lot of potential of improving the homepage. In our medial times it is very important to have a profound medial presence to reach people but also to make a serious and reliable impression.

Another step towards catching attention, what is the first step for public awareness, would be the promotion of the Geopark. This could be improved by putting up promotion boards in the nearby cities, in Bucharest and also along important connection roads, leading to Hațeg. Other promotional events could be regularly organized theme days, which could take place in the area of Hațeg and which are promoted in the media.

Regarding nature education it is always good combining fun and learning. So a suggestion would be to organize summer camps for children and youth in the Geopark. This way, adolescents could discover the beauties of nature, its sensibility and its importance for human being. By arranging games, like hunts, quizzes or competitions, kids could be taught in a joyful way. Camping always

connects with nature, so I think just experiencing living in the wild will sensitize the children in a very sustained way.

The last suggestions referring to public awareness and nature education regard cross-border exchange. As a method of international learning, student exchanges could be organized. Therefore, partnerships with other Geoparks should be organized, so that they can profit from each other. In terms of experience, methods and knowledge, a transfer could take place and suggestions could be made for the partner. Students could participate in these exchanges and visit the foreign Geopark, so a cultural benefit would as well be part of the partnership. This would strengthen the relation of the Geopark, Universities and Students, which might be a benefit for all participants.

If the economical and the political situation allow the development as suggested, the opportunities are great to establish a sustainable and reliable Geopark, from which everyone can benefit.

#### **6.2.5.4. Economic aspect (geotourism):**

Hațeg Geopark has a natural heritage which provides possibilities to create activities, such as tours and hikes. The Park also pays attention to its geoproducts, for example dinosaur bread or t-shirts. To attract more income the management of the Park is trying make partnership with private and local businesses.

After having made the comparison with other Geoparks in 6.2.4., it can be concluded that although Hațeg Geopark is making progress, a few developments could be implemented to benefit the economical and sustainable development of the region.

A first observation is that opening a facility (outside museum) like a restaurant or a guest house, could create employment while making use of the local traditions (food, accessories,...). This can boost the economic development, while at the same time involving local inhabitants, traditions and heritage. A specific suggestion for the Hațeg Region would be: keep the development of the open museum alive, open up guest-houses and restaurants that celebrate the local heritage.

The Park can also be more creative with the activities they provide. Outside walking trails that already exist (as they do for every Geopark), activities like a Geological Garden can attract and amuse different visitors. Meaning, that you can take aspects like history, heritage, local festivities

and such and make them fun, interactive and a challenge that the visitor would want to take on. A specific suggestion can be: a treasure map that visitors receive and have to follow in order to discover the treasures of the region.

Furthermore, the park doesn't organize events and such which can create employment, raise money and attract more visitors. The Lesvos Geopark is a great example of this, as described in section 6.2.4. A specific suggestion on creating events could be: taking local holidays, great history events (world, Romania or Hateg-region) and building a festival around it. You can involve music, workshops, food-shops and such.

#### **6.2.5.5. The social dimension**

Social: meetings with local communities and integrate them in Geopark activities. They have to maintain clear roles with regard to the development of the Geopark, for example they have to provide tourists guides.

Historical: funds for maintenance of heritage buildings. NGO's and other organizations to develop projects in area. To be more visible and in order for people to gain knowledge about monuments, more materials should be developed, for example: information boards in romanian and English and other international languages, online campaigns, logo (t-shirts, souvenirs).

Cultural: workshops for different traditions from which the tourists may learn. The online promotion, campaign and funds investments for projects (themed festivals, contests, camps for children)

### **6.3. SWOT-analysis**

A SWOT analysis has been created, based on the results of our research questions (parts 6.1 and 6.2). It summarizes the hard facts in keywords and gives an overview. Each point mentioned in the SWOT is explained in detail in one of the previous parts and supplied with specific references.

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>- valuable fossils and biological features</li> <li>- important cultural and historical monuments</li> <li>- Active and dedicated management team</li> <li>- Location within the transport network</li> <li>- Natural Park Status and Geopark Status</li> <li>- Member of EGN and GGN</li> <li>- Cooperation with university</li> <li>- Educational Center in Berthelot Village</li> <li>- School network</li> <li>- Trained Geopark Rangers</li> <li>- Public events</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>- Unemployment in Hateg Country</li> <li>- Lack of economic resources</li> <li>- Missing international prominence</li> <li>- Lack of funds</li> <li>- Deficits in stimulating geotourism</li> <li>- Small number of employees</li> <li>- Lack of scientific information and maps on the website</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>- Twinning and exchanges</li> <li>- Growing interest in eco-/geotourism</li> <li>- Appeal of dinosaurs</li> <li>- Setting of historical events</li> <li>- Local communities willing to get involved</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>- Fossil Hunters</li> <li>- Too many/ too few tourists</li> <li>- Lack of funding</li> <li>- Losing Geopark status</li> </ul>

Figure 1.

## 7. Discussion

The methodology used in this study involved approaching the research questions from 6 different perspectives. Thanks to the use of this methodology, a multifaceted picture of Hațeg Country Dinosaurs Geopark has arisen. Hațeg Geopark was shown to be a unique territory, managed in an active manner under the responsibility of the University of Bucharest. It was also shown that a wide range of activities was undertaken by the management of Hațeg Geopark. Although these activities contributed in a positive way to the sustainable development of the Park, a comparison with other geoparks revealed that other geoparks are often further ahead, especially in the area of attracting (eco- and geo)tourists. This is an important finding, as tourists spend money, which translates in income for local communities.

Our findings suggest that (lack of) funding may be an important explanatory factor. The 1000 km<sup>2</sup> Geopark is not supported financially by the Ministry of the Environment, and the funding it receives from the University of Bucharest is modest: it just about covers some core costs and the salaries of a small number of employees. Furthermore, regulations make it difficult for the Park to have direct incomes. Under these circumstances, fulfilling all the requirements and tasks connected to the Park's Geopark status is very difficult. The yellow card issued some years ago by EGN is a case in point. Another factor that may explain a lesser focus on tourism may be found in the fact that, being a scientific institution, the University of Bucharest is perhaps more focused on (and knowledgeable about) education and conserving the geological and paleontological heritage of the Park than it is on stimulating tourism.

The Development Plan for Hațeg Country Dinosaurs Geopark, mentioned earlier in this report, shows that the plans for the Geopark are certainly ambitious. The four areas of development stated in the plan (being a strong member of EGN and GGN, fulfilling contractual obligations as a Natural Park, develop regional ecotourism and geotourism and developing a university research space for education, research and training), are very appropriate for a Geopark. Implementing them, however, is sure to be a challenge. A small team with a small budget can only do so much.

For the sake of all stakeholders (especially local communities and (potential) eco- and geotourists), it is hoped that the group of people involved with managing Hațeg Country Dinosaurs Geopark will succeed in taking the Park to the next level. Hațeg Country Dinosaurs Geopark itself,



with its fascinating geosites, unique dinosaur remains, butterflies and cultural heritage, definitely has enough to offer to make this possible.

## 8. Conclusions

Hațeg Country Dinosaurs Geopark, member of EGN and GGN, is a territory with a unique combination of valuable features. The Park's geosites bear witness to the rich geological history of the area; its paleontological heritage ('dwarf dinosaurs of Transylvania') has international significance; its living nature is truly special (botanical reserves, rare butterflies) and its cultural and historical elements span the entire human history (prehistoric, Roman, Dacian, Middle Ages). A range of measures has been put in place to conserve these valuable features.

Hațeg Geopark is managed by a small group of people under the responsibility of the University of Bucharest. This group of people and everything they have put in place in the Park so far can also be regarded as valuable features. Given that the Geopark had to be developed by a small team, on a small budget, the current state of development of the Park is respectable. When tourists visit the Park, they find trails, information, a museum, local products and much more. The current state of educational programs and activities is already quite impressive.

In the past few years, a range of activities has been undertaken by the University of Bucharest and the management team of Hațeg Geopark. Many of these activities have been carried out in collaboration with local communities. Examples of such activities are the development of a development plan for the Park, succeeding in getting the Geopark status of Hațeg embedded in the law, establishing the Berthelot Education Center, taking various measures to stimulate geotourism and organizing exhibitions.

The precise effects of these activities on the performance of Hațeg Geopark are hard to establish, but it is safe to say that the effects have been positive. Looking at the three dimensions of sustainable development, the activities contributed to conserving the Park's valuable features, continually involved local communities and (probably) contributed to the increasing visitor numbers of the Park.

Comparing Hațeg Geopark with other Geoparks, it can be said that all of them possess a rich and varied heritage, especially geologically. This is not surprising, as possessing such heritage is a key requirement for becoming a Geopark. In terms of attracting eco-/geotourists, though, Hațeg does

not match other Geoparks (yet). Other Geoparks seem (much) more active in attracting tourists. A lack of funds is likely to be both a cause and a result of the fact that Hațeg attracts relatively few tourists. As the local economy would benefit from the extra income that tourists would bring, this situation needs to be addressed.

Based on this case research study, it can be said that, of the three dimensions of sustainable development (environmental, economic, social), Hațeg Country Dinosaurs Geopark primarily needs to focus on the economic dimension, at least in the near future. It is recommended that Hațeg scale up its activities by exploring possibilities to get extra funding and focus on further raising awareness of the Park and attracting tourists. When promoting the Park, it is recommended more use is made of the strong images of the dinosaurs and rare butterflies (once) endemic to Hațeg. More intense collaboration with other Geoparks is recommended to speed up the (economic) development of Hațeg Geopark.

## **Annex**

### **Conducting visitor surveys**

As mentioned in the introduction, geoparks such as Hațeg aim to protect and promote the area's heritage, while at the same time promoting sustainable development of the territory. Conducting surveys among (potential) visitors or other stakeholders can be a very useful tool in reaching these aims. It is a way of gathering information about the behavior, preferences or opinions of relevant target groups, with a view to improving the Park's performance and increasing its success. Setting up a visitor survey study is similar to setting up studies in general. Important aspects to be determined are the purpose of the study, its objectives, research questions, research approach and methodology.

Assuming that the Geopark only has a limited budget, it is advised that students or scientists are approached to help set up and conduct the studies. This keeps the costs down and involves the scientific community in the further development of Hațeg. It is also possible to involve representatives from local communities in the research, either as research subjects or (after some basic training) as research assistants, interviewing visitors or asking them to fill out self-completion questionnaires.

There are various types of research studies. Two broad categories are quantitative and qualitative research. Qualitative research is normally conducted ad hoc, quantitative research can be ad hoc or more continuous. In the latter case, a particular research study is repeated on a regular basis, so that the results of the study can be tracked or monitored over time.

The self-evaluation report (Part B) of Fangshan Geopark suggests that geoparks are expected to adopt five types of monitoring, although Fangshan only mentions four of them (Fangshan Global Geopark of China, 2014b). Below, the corresponding questions in the self-evaluation report are discussed and advice is given on which types of research can be useful in Hațeg.

## **Questions in self-evaluation report:**

### **Do you conduct visitor surveys in the Geopark?**

Fangshan conducts at least three visitor surveys per year, in different seasons. Visitors are invited to complete questionnaires with feedback and information. Among other things, they are asked for their age, occupation, spending power and place of origin (Fangshan Global Geopark of China, 2014b).

The fact that Fangshan conducts at least three visitor surveys per year is impressive, but not unusual for such a large operation. From the information provided, it is unclear whether Fangshan uses the method of personal interviews, or self-completion questionnaires. Personal interviews cost more, but the response rate is higher than for self-completion questionnaires. For Hațeg, there are various options. A stack of paper questionnaires can be placed in central locations in the geopark, such as the information center. Another possibility is to place a short questionnaire on the back of information leaflets, or put the questionnaire on a computer in the information center, to be completed by visitors, with or without guidance from Hațeg employees. The questionnaire should be made available in several languages, as the Park also attracts visitors from other countries. The longer the questionnaire, the more information is gathered, but the lower the response rate. Ideally, the questionnaire should take no more than 5 minutes to complete. The best form is a structured questionnaire with mostly closed questions, covering, for example, where people come from, their age category, whether they have children with them, how often they visit the Park, how much money they expect to spend (interesting question, but people might not be willing or able to answer it), their reasons for visiting the Park and how they rate (various aspects of) the Park. It is advisable that people who give a low rating are asked, in an open follow-up question, to briefly explain their rating, so that the Park learns exactly which aspects can be further improved. Completed questionnaires can be analyzed once or twice a year by students, who can also be asked to write a short report on the results. If the research is continuously or regularly carried out over a period of time, with the same questions, satisfaction ratings and other information can be monitored over time.

### **Do you gather qualitative as well as quantitative data?**

In Fangshan Geopark, visitor suggestion books are made available at visitor centers and a visitor complaint telephone hotline has been installed (Fangshan Global Geopark of China, 2014b).

Both these initiatives provide qualitative data, although the results can be transformed into a more quantitative form by categorizing customer suggestions and complaints after they have come in. The data provided by the suggestion books and the hotline can be very useful and the costs can be kept quite low. As such, they are appropriate for Hațeg Geopark as well. If the hotline is too expensive, people can be invited to put their complaints in the suggestion books (if it doesn't need to be solved right away), or tell an employee. Whatever method is used, it is important that a record of all complaints is kept, so improvements can be made.

Whether Fangshan Geopark conducts specific qualitative research studies, such as focus groups, is not clear. With focus groups (or, alternatively, depth interviews), it is possible to dive deeper into the motivations and opinions of visitors (or other stakeholder groups). With this type of research, you could get a 'feel' for what Geoparks in general and Hațeg in particular means to (potential) visitors or other stakeholders. Although this type of research can be very useful, it should be carried out by qualified persons, which can be expensive. Perhaps trained students can be found to conduct this type of research.

### **Do you evaluate users responses to new developments in the Geopark?**

In Fangshan, this is mainly done by analyzing the views that visitors have put on suggestion forms. These suggestions are taken into consideration by Fangshan management for improving the park. Apart from that, 'Geopark meetings' are held from time to time. In these meetings, scholars and people from 'all sectors' (not specified) are invited to give their views and suggestions on visitor service (Fangshan Global Geopark of China, 2014b).

The 'Geopark meetings' sound like an interesting research instrument. These meetings can be seen as a type of qualitative research. Discussions in these meetings are probably less structured than in focus groups; people are simply asked for their views and suggestions on visitor service.

Hațeg Geopark could consider adopting this method. The question is, though, whether scholars and people from 'all sectors' are the most appropriate group to invite to the meetings. Another question is whether the meetings should only be about visitor service.

To evaluate responses of visitors to new developments in the Geopark, it is also possible to conduct ad hoc qualitative or quantitative research studies. But the expected benefits of the gathered information must always be weighed against cost and effort of conducting the studies. It is also possible to conduct observation studies, carried out by students. For example, if new information boards have been placed in the Park, a count can be made during a couple of days of how many visitors stop to read the information on the boards. The length of their stop could also be noted.

**What percentage of visitors regarded the events or activities you evaluated as being 'good or excellent'?**

In Fangshan, visitors' feedback is collected with the help of survey questionnaires. It is not made clear whether these questionnaires form a part of the three yearly visitor surveys mentioned earlier or they are part of yet another survey(Fangshan Global Geopark of China, 2014b).

In Hațeg, evaluation questions can best be incorporated in any monitoring study the Park already conducts or is planning to conduct.

It should be noted that all types of research and monitoring mentioned above focus on people who visit the Park. It can also be very useful to conduct research among *potential* visitors, especially if a Geopark aims to get more tourists to visit the Park. Important questions in this respect are: how well known is Hațeg Country Dinosaurs Geopark, how can potential visitors best be identified, reached and informed and what types of trips would they be interested in (one-day visits, longer visits, what kind of facilities and accommodation do they expect etc). Special research studies can be set up to help find answers to these questions, but the costs will probably be prohibitively high for Hațeg. Possibly this type of research can be organized in collaboration with other Geoparks or by EGN and/or GGN.

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