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THE FUTURE OF SUSTAINABLE RURAL TOURISM DEVELOPMENT – THE IMPACTS OF CLIMATE CHANGE

PRZYSZŁOŚĆ ZRÓWNOWAŻONEGO ROZWOJU TURYSTYKI OBSZARÓW WIEJSKICH – WPŁYW ZMIAN KLIMATYCZNYCH

Key words: climate change, global warming, sustainable tourism, rural tourism, tourism development

Słowa kluczowe: zmiany klimatyczne, globalne ocieplenie, turystyka zrównoważona, turystyka wiejska, rozwój turystyki

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Abstract. Climate change a phenomenon mainly caused by the high level of greenhouse gas (GHG) emission into the atmosphere of the Earth - makes human ecosystems vulnerable and is predicted to affect our everyday life in the near future. The increased intensity of storms, cyclones, drought and flooding; the greater magnitude and frequency of heat and cold waves and the continuous rise of the sea-level are likely to generate more geopolitical conflicts, especially in the most vulnerable regions of the planet. The three main categories of climate change impacts are classified as environmental, economic and social effects. The economic and social consequences of climate change are expected to significantly reduce the resilience of rural tourism regions and their capability to successfully respond to other possible critical events. Due to the impacts of natural disasters and extreme climatic events, global climate change affects European rural regions, too. The development of sustainable rural tourism requires the in-depth understanding of the ongoing processes and the development of tools that will serve the interest of tourism and local people alike.

Introduction

Global warming affects many industries, and tourism is no exception of that. The emission of greenhouse gases started in the 18th century, with the beginning of the industrial revolution in England, when the pollution caused by surplus carbon dioxide had gradually started to affect the natural balance of gases in the atmosphere.

Climate change had been in the focus of scientific research since the 1950s and the results clearly show that we are in the middle of a global warming period, caused both by natural reasons and human activity. Should we only consider natural causes behind the warming, there would be no explanation to the rapid warming of the past few decades; however, should we only blame human activities, we couldn't explain the very similar phenomena that took place at the first half of the 20th century [Mika 2002].

Despite of the willingness and available measures, the developed countries still lag behind when it comes to adapting to the changes. Sufficient adaptation would require the dissemination of all the available information among all stakeholders, adequate measures of land-use planning both in the private and public sector, long-term governmental planning and providing preventative loans to people living in poverty, who are the most affected by the negative effects of climate change.

To be able to answer the challenges of climate change, we have to thoroughly understand the concept of climate change management and disaster risk management. Tourism as an industry affects several different fields of the economy; taking into account the impacts of climate change, we need a paradigm-shift in the sector which will focus on sustainability. This new paradigm of the sustainable tourism industry is closely connected to the capacity building of European rural regions.

Research method

Taking into account our knowledge on the subject, it is alarming that although climate change is a common topic of public discourse, there is no general agreement on when it is the most likely to happen. Many studies claim that climate change will happen with a dramatic speed [Czelnai 2008]. Due to the lack of practical experience, we have to rely on science to predict the speed and consequences of climate change. Within the frameworks of my research, which focuses on the local effects of global tourism, rural tourism entrepreneurs and experts have shared their opinion and experience on global warming. My research consisted of in-depth interviews and I have also conducted a survey on the practical application of the most common definitions of the respective literature of the topic.

One of the focal points of the interviews carried out at the end of 2016 was to gain a deeper understanding of the aspects of climate change in a diverse tourism region of Hungary. Heves county – located in the Norther Hungarian region – has several geologic assets (mountainous areas, lakes, plains, thermal waters, etc.). Whilst choosing the experts for the interviews, I focused on stakeholders who have an influence on the local tourism processes. As for the format of the interviews, I have conducted semi-structured interviews and in-depth interviews. In some cases, at the end of the semi-structured interviews, the discussion continued as in-depth interviews. In the case of complex or more difficult questions, personal preferences were taken into account. The data gained during the interviews are analysed in an objective context, further completed by subjective narratives and other information brought to light by the situation. The interviews were conducted in an environment suitable for in-depth exploration, and the added information provided by metacommunication and personal reflection was also processed and reflected in the results.

The acceleration of global processes

Global warming is one of the most determining elements of today's climate change. As a side effect of globalisation, the most important problems will not appear locally, but at global level. These problems are often described as crises, e.g.:

- economic crises caused by natural disasters;
- unbalanced overpopulation concentrated in certain regions;
- increased risk of epidemics, appearance of new diseases;
- food shortage causing both quantitative and qualitative malnutrition;
- shortening of water supplies, resulting in unbalanced accessibility;
- limited raw material supplies caused by the increased energy consumption, slow spreading of renewable energy resource use;
- environmental pollution and insufficient waste management caused by the negligence of industries that do not take into account the social costs of production;
- destruction of natural assets for personal profit;
- increased ecologic footprint;
- unbalanced population pyramid: while some regions will have to face with population ageing, younger generations will overdominate in other areas, with middle-aged generations missing from both sides.

Impacts affecting sustainable tourism

In tourism, the negative effects of climate change are already evident in many fields like the beach, nature and winter sport related segments, and especially in the case of islands, mountain regions and coastal destinations. Mass tourism is by far the most popular sector of the industry by numbers, but at the same time, this sector also has the highest contribution to greenhouse gas emission, mainly due to the transport of tourists. Global warming and climate change have significant impact on tourist destinations and tourism generating countries. Adaptation is cru-

cial for all stakeholders and even for the whole human race [Csete 2015]. In Europe, there are historical, urban and rural tourism regions, and they have different strategies for coping and adaptation; these strategies can seriously affect the tourists' comfort and even influence their travel decisions [Zsarnoczky 2016a]. In the European Union, the tourism regions are usually named after historical or contemporary administrative and geographical regions. These tourism regions often belong to larger economic and administrative units, which are responsible for developing the region into a marketable product. In the EU, these areas quite often are also special regions like wine regions, medical tourism regions [Zsarnoczky 2015] or cross-border regions.

According to current tourism tendencies, sustainable development takes place in parallel with today's trends of urbanization. In the majority of the developed countries, the decision makers, municipalities and urban planners will have to cope with huge challenges in the near future, when the development of sustainable tourism becomes a priority. The changes are predicted to greatly affect local people, living environments, existing utility and transport services, community spaces and parks, workplaces, shopping facilities, public institutions and the whole settlement area in the different regions across Europe. The redefined environment will be more suitable for the local population as well [Zsarnoczky 2016b]. Such areas with a higher level of safety will not only be suitable for the locals, but the tourism industry will also benefit from the changes. When it comes to tourism, safety is always a top priority [Zsarnoczky 2016c]; as a matter of fact, it is the most important factor of decision making about destinations.

In the sustainable tourism industry, there are many stakeholders thinking and working together. As tourism is a highly diverse economic sector, the perspectives of many local, national and international stakeholders should be directly involved in the regional tourism development processes [Zsarnoczky 2017]. National governments, ministries, local governments, tourism industry representatives, tourism labour representatives, local businesses and communities – whose livelihood is affected by tourism – all have their own ideas to stand for. On the other hand, other local industries and the representatives of local businesses and NGOs might have different ideas, based on their relevant expertise in the field. Climate change has a negative effect on a region's sustainable development in many ways [Hamilton et al. 2005]. For example, the changes in the conditions of the water resources, energy, agriculture and biodiversity of a region can strongly influence its opportunities to be exploited as a tourism destination. The tourism related sectors such as local agriculture, handicrafts or construction businesses will alter their demand patterns because of the changes in their environment. It is likely that climate change can slow down the progress towards sustainable development. The tourism sector is composed of several different businesses, from small companies like local market operators, to large enterprises like transport companies, hotel chains and tour operators. Those large international tourism companies provide services to the global markets across entire regions, while the tourism industry provides tourists with various products and services – e.g.: accommodation, catering, attractions to visit and souvenirs to purchase – at regional or local level.

Several studies aim to predict the future of European tourism. The Stern Review forecasts a change in the direction of tourist season flow; instead of the Mediterranean areas, tourists will choose destinations at the Baltic and Northern sea, and will prefer the mountains over beaches. In the Alps and high mountainous areas, the snow level will move higher and because of shorter winters, winter sport opportunities will decrease. Due to the forthcoming challenges, some high altitude regions will have to change their tourism profile [Tözter et al. 2016].

According to the 2011 study of the World Bank, the Central European region will become warmer by the middle of the century, and its characteristics will become similar to the Spanish and Southern Italian areas. The number of cold winter days is likely to drop dramatically [McCarthy, Sanderson 2011].

Heatwaves and partial water shortages are foreseen in the Mediterranean countries of Europe [Arnell 2004]. The distribution of drinking and rainwater is already problematic, both from qualitative and quantitative aspects [Rakonczai 2008]. Although the annual average quantity of precipitation is predicted to increase in the Mediterranean region and in the Carpathian basin,

due to the uneven distribution patterns, arid seasons and heavy rainfalls are foreseen [Al Gore 2006], with the Adriatic sea level rising. Regarding the large rivers in Europe, the pattern of annual flooding is likely to continue.

Global warming has a strong effect on the tourism of developed countries and climate change is likely to further increase their vulnerability [Tol et al. 2004]. Because of the many unpredictable elements, it is difficult to forecast the expected costs and returns for tourism stakeholders [Bräuer et al. 2009]. The drought and desertification in countries surrounding Europe are also among the reasons behind today's mass migration [Piquet 2008]. Ecologic changes had caused migration waves before [Rácz 2013]. The migration of animals leads to the fragmentation of natural habitats, ecosystems and landscapes, and results in the separation of co-habiting species, or even extinction in some cases. The ecological footprint of humans exceeds the amount of available biological resources at a level where further extension threatens with the collapse of the whole system.

To effectively answer the challenges of climate change, new and sustainable forms of tourism need to be developed, which can offer services that are less dependent on the seasons. Currently, the direction of tourism flow leads from the North to the South, and the main seasons are the end of the school year and summer holidays.

Weekend city trips by airplanes are quite popular in Europe, and thanks to good infrastructural planning, continental tourism is a growing industry. Domestic tourism types that are independent from the weather, e.g.: health tourism, wellness, cultural and rural tourism – are great opportunities to enhance local income and decrease environmental stress. In some cases, economically viable permanent holiday options can become more popular than annual trips; a good example for that are the English pensioners who buy apartments in Portugal and Spain, where the climate is more pleasant than in their home country. According to my previous research results, European destinations are far more popular among European silver tourists than overseas areas: senior people no longer like to leave the continent [Zsarnóczky 2016b].

Based on the predictions of climate scientists, more humid and milder weather is foreseen in the Norther European tourism areas; however, the level of energy consumption is likely to remain the same: the amount saved on winter heating will be spent on summer air conditioning.

An excellent example for environmental awareness, age specification and sustainable tourism development is the Matra Resort[1] project, located in Parádsasvár in the Northern Hungarian mountains. In the mountain village situated in an environmental protection zone, a health tourism site was established, focusing on senior tourism and wellness services. The resort, which is built on the bases of natural assets, clear climate, thermal waters and medical and rehabilitation traditions of the site, is open all year round.

The Matra Resort project has developed a climate strategy for sustainable tourism development, similar to the adaptation strategies of large European enterprises or the mitigation plans of European regions. It is crucial to understand that it is not only natural environments that are vulnerable to the effects of climate change, but businesses and employees are affected too; and that conscious planning is necessary to answer the challenges effectively. An important possible adaptation strategy for local governments is to provide disaster risk management options for the local community and businesses. At the moment, some tourism business and service providers at specific destinations have less adaptive and coping capacities. International tour operators, who do not own a particular infrastructure, are in a good position to adapt to the changes because they can respond to their clients' demands and provide information to influence their travel decisions. In accordance with their financial resources, knowledge and time, tourists have a strong adaptive capacity and are likely to avoid tourism regions and destinations negatively impacted by climate change.

[1] Matra Resort – The sustainable elderly tourism resort [http://matraresort.com].

Research results

The definition of tourism incudes all free mobility activities of people out of their living and working environment and all services established with the aim of satisfying the demands of tourists [Lengyel 1994]. The environmental pressure caused by tourism consists of emission, transmission, immission and other environmental impacts. In tourism, the negative or positive effects of environmental impacts are considered as key characteristics. During the development of global-scale sustainable tourism, economic interests need to be taken into consideration: while not causing any irreversible harm on the environment, the industry still needs to be able to remain profitable, and the interest and demands of local people also need to be taken into account [Puckó et al. 1998]. The business activities of the tourism industry should not undermine other businesses, who rely on the same finite resources [Wall 1982]. My research examines the level of awareness and use of definitions related to global warming and climate change among tourism experts and entrepreneurs.

The resources and landscape elements of sustainable rural tourism are made up of the biosphere and its component ecosystems. The main attraction of rural tourism is the physical environment that needs to be protected from the negative impacts of tourism. My research was carried out in Hungary, in the Northern Hungarian region. Hungary is situated in the Carpathian basin, at the crosspoint of 3 climate zones, with a dry continental climate of arid summers and humid Mediterranean winters. Climate change in the region may lead to the territorial shifting of the 3 climatic zones, and as a result, any of the aforementioned climates can exclude the

Table 1. Knowledge of climate change concept definitions among tourism experts and tourism professionals
Tabela 1. Znajomość definicji koncepcji zmian klimatu wśród ekspertów i specjalistów ds. turystyki i

Definition/*Definicje*	Tourism Experts/ *Eksperci z branży turystycznej*	Knowledge about the concept/ *Znajomość koncepcji [%]*	Hotel, facility professionals/ *Hotel, specjaliści z branży*	Knowledge about the concept/ *Informacje o koncepcji [%]*	Overall knowledge/ *Ogólna wiedza [%]*
Climate change management/ *Zarządzanie zmianami klimatu*	5	50	10	100	75
Mitigation/*Łagodzenie*	3	30	5	50	40
Adaptation plan/*Plan adaptacji*	4	40	2	20	30
Land use planning/*Planowanie użytkowania gruntów*	4	40	3	30	35
Vulnerability/*Wrażliwość*	4	40	4	40	40
Climate resilient region/*Region sprzyjający klimacie*	2	20	8	80	50
Hazard classification/ *Klasyfikacja zagrożeń*	3	30	3	30	30
Disaster risk management/ *Zarządzanie ryzykiem katastrof*	3	30	2	20	25
Multi-criteria evaluation/ *Ocena wielu kryteriów*	2	20	1	10	15
Swiss intensity-probability matrix/ *Szwajcarska matryca prawdopodobieństwa intensywności*	0	0	1	10	5

Source: own study
Źródło: opracowanie własne

other two; this means that warming, aridation, warmer summers and milder, shorter winters are all possible future options in the area [Helyes 2001].

My previous research results had revealed that sustainability is an integral part of everyday life among rural local citizens. Rural tourists also like this eco-lifestyle and they often connect a feeling of nostalgia with this kind of rural life [Zsarnóczky 2016c]. In my recent research, I have set up a list of definitions related to global warming and climate change [Wamsler 2014] and measured the awareness related of the objectives of the VAHAVA project. I have conducted interviews with experts and carried out a questionnaire survey among rural accommodation providers and tourism professionals to find out their opinion on the most important objectives of climate protection. The table 1 shows the knowledge of 10 decision making experts and 10 accommodation providers and tourism professionals about climate protection definitions.

The table clearly indicates a significant difference between the two examined groups. Tourism experts gave balanced answers, indicating that they are well-informed professionals who have a clear concept and knowledge about climate change. The only lacking segment in their knowledge was the information on the Swiss intensity-probability matrix. All respondents were familiar with the definition of climate change management and they all claimed to take it into account during their work. The other definition that was known by almost all professionals was the concept of climate resilient region. It is interesting to note that half of the respondents were thinking in terms of the region they worked in, while the other half was thinking in terms of the region they lived in; because of this, the answers to this question cannot be considered reliable. In the other group, one person thought that they were familiar with all 10 definitions, presumably because of their former studies. In conclusion, we can say that tourism experts have a deeper knowledge about climate change and they are more aware of the complex relations of the definitions, while tourism professionals (accommodation and service providers) have a more practical knowledge, derived from their everyday work routine.

The population of the East-central European region and the Carpathian basin are generally used to the climatic patterns of spring river floods, extremities of heat and cold views and drought. Based on historical experience, the habitants of this area are in a relatively favoured position related to the most threatened regions of the world. To get a better understating of the data of the previous table, I have carried out a research, within the frameworks of which I have asked all 20 participants to mention at least 10 definitions they consider as most important local climate change objectives. As almost all respondents gave different answers, I had to narrow down the 200 answers into 8 priority groups.

Table 2. The top 8 most important climate change objectives in Northern Hungary
Tabela 2. 8 najważniejszych celów w zakresie zmian klimatu na północnych Węgrzech

Top priorities/ *Najważniejsze priorytety*	Concept/goal/*Koncepcja/cel*	Answers/ *Odpowiedzi [%]*
1.	Good air quality/*Dobra jakość powietrze*	19
2.	Geologic protection/*Ochrona geologiczna*	18
3.	Water quality/*Jakość wody*	15
4.	Respect of animals/species/*Poszanowanie gatunków zwierząt*	13
5.	Nature protection/*Ochrona przyrody*	12
6.	Protection of natural resources/*Ochrona zasobów naturalnych*	9
7.	Modern technologies/*Nowoczesne technologie*	8
8.	Safety/*Bezpieczeństwo*	6

Source: own study
Źródło: opracowanie własne

The results shown in table 2 suggest that for the local people, living in harmony with their environment is the most important objective related to climate change. When asked about the relation between health and tourism (in the context of rural tourism), one of the respondents answered that for healthy tourism, the most important condition is the health of the environment. It is interesting that safety was listed at the 8th place in relation with climate change. In my opinion, with this answer the respondents not only referred to climate protection but also meant the importance of safety in relation with the whole context of tourism. The two terms are closely connected as tourism itself cannot be interpreted without the existence of safety [Zsarnoczky 2016d].

Summary

The effects of climate change are present at global, regional and local levels and have a holistic impact on the economy, society and our natural environment. The potential impacts of climate change on the European rural tourism sector are increasing and there is very limited understanding of the adaptive capacity of destination communities to address these changes. Lately, the tourism sector worldwide had proven to be much more resistant to external shocks and crises. However, it is evident that neither mitigation nor adaptation alone can offer a solution against all climate change impacts. State members, stakeholders focusing on adaptation and risk assessment can largely contribute to lessening the costs of climate change by reducing the damage caused by the phenomenon. In rural tourism, it is necessary to adopt a holistic approach that includes all the possible measures of mitigation, prevention and regeneration as integral elements of sustainable tourism development strategy.

According to the results, during sustainable tourism development, special attention needs to be given to the quality of air, minimisation of geological impacts, water quality, biodiversity, decreased visual pollution, rational use of finite resources and the use of modern technologies. To be able to lessen the negative future impacts of climate change, we need to act today and implement economic processes that serve the benefit of the whole society. Tourism requires a good base infrastructure that will lead to the growth of the internal tourism industry within the EU: The rise of prices is foreseen in the tourism industry because of the extreme changes of the weather patterns and the higher expenses of constructional safety, operational costs, overall safety and because of the narrowing seasonality of tourism destinations and regions.

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Streszczenie

Celem opracowania jest określenie przyszłości zrównoważonego rozwoju turystyki obszarów wiejskich w związku z wpływem zmian klimatycznych. Stwierdzono, że ze względu na skutki klęsk żywiołowych i ekstremalnych zjawisk klimatycznych, globalna zmiana klimatu wpływa również na europejskie regiony wiejskie. Rozwój zrównoważonej turystyki wiejskiej wymaga dogłębnego zrozumienia bieżących procesów i opracowywania narzędzi, które będą służyć zarówno turystyce, jak i ludności lokalnej.

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