

Effects of Climate Extreme Events on Sustainable Tourist Romanian Destinations

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Abstract: The present paper underlines the necessity of internationally monitoring the ecological state of our planet; developed societies have to assume, based on their material and intelligence resources, the main part of the obligations of developing countries, which are forced to channel their efforts towards other priorities in order to respond to their most stringent necessities. Their support might help all the states to wisely advance and we refer here to both industrialization process and environment protection. On the one hand, an unpolluted environment is vital for tourism sector within the EU; the community politics for environmental protection is relevant for tourism and make reference to water quality, reduction of air pollution or improvement of urban environment quality.

Key-Words: - climate change, extreme weather events, sustainable tourism, Romania

1 Introduction

Tourism is a global scale industry with increasing impacts on the environment, as well as regional and local development. In many developed and developing world countries tourism provides new opportunities, employment and economic benefits to local communities, and currently many countries see tourism promotion as a good and relatively inexpensive strategy that can be used to attract foreign direct investment through, for example, show-casing natural areas and local indigenous cultures. As a result of growing tourism activities many places in the world are increasingly tied to the industry and related cultural, social, economic and political networks. At the same time tourism is deeply influenced by its changing physical and

social environments and larger processes such as global climate change. The current global economic credit crisis has, in addition, underlined the impact of shifting economic fortunes on the global tourism.

The relationship between tourism and climate has been studied for a long time. Yohe G.W. et al. (2007) approach the perspectives on climate change within the framework of sustainability [1]; Gössling S. and Hall C. M. (2006) analyse the relationship between tourism and global environmental changes [2]; Becken S. and Hay J. (2007) study the same relationship from the viewpoint of risks and opportunities [3], while Mazilu M. (2012) adds the phenomenon of globalization to this relation tourism-environment-climate change in a sustainable perspective of a 'green economy' [4].

Moreover, important international organizations draw attention upon certain case studies regarding this relationship – UNESCO-WHC (2007), Case Studies on Climate Change and World Heritage, UNESCO-WHC, Paris, United Nations 2007, Climate Change and Development Must Be Tackled Together or IPCC (2007), Impacts, Adaptation and Vulnerability, UNEP (2002), How Tourism Can Contribute to Environmental Conservation, OECD (2006), Climate Change and Winter Tourism, Report on Adaptation, World Tourism Organization, etc.

Tourism has become an important policy tool for community and regional development in many developed and developing countries, including Romania. Tourism has also a significant potential to influence and change the use of natural and cultural resources in a number of regions. This has highlighted the role of sustainability, management and governance in tourism development and turned tourism not only into an economic but also social and political activity that influences the wider environment in various ways. At policy level, tourism is increasingly viewed as an essential sector of regional and national reconstruction and development. In this sense the rationale for tourism development has evolved towards the idea of tourism as a tool for regional and sustainable development and recently to a relatively new kind of idea of tourism as an instrument of social and economic empowerment and poverty reduction. In this respect there are many regional and local development programmes that highlight the role of tourism in regional and sustainable development and empowerment. In recent experiences, the decline in global economic output and growth has pointed towards the potential vulnerability of various regions' tourism systems to economic shocks. This has come to challenge the general conviction that tourism-led development is a sustainable and necessarily solid platform from which to develop local, national and regional economies.

2 Problem Formulation

Tourism is one of the world's largest and fastest growing industries. It affects the lives of people and the environment in many ways, both positively and negatively. Sustainable tourism development guidelines and management practices are applicable

to the entire sector everywhere, including both mass and niche destinations. Sustainability principles refer to the environmental, economic, and socio-cultural aspects of tourism development. A suitable balance must be established between these three dimensions to guarantee long-term sustainability.

Climate events, mostly of them considered extreme, have triggered attention lately, as it is certain that society and developing countries, particularly, face an increased vulnerability to weather variations [5, 6, 7], the effects of which have a great impact on tourist activities, as well [8, 9, 10]. Consequently, vulnerability is perceived as consequence of a wide range of factors, which highly depends on the analysed region. There are some common features that can be taken into account and here we refer to an increasing frequency of extreme events associated with an increasing population and infrastructure facilities, which determines greater economic losses and, most important, greater number of human casualties.

The sustainable development is not a trend but a need which is part of local and global levels, for all actors in all sectors. It is a major issue of the 21st century. *Tourism is also part of a global and local issue.* With one billion individuals for international touristic movements only, it is the biggest migration in History, which takes place every year! The economic issue is now placed at the top of the list of global activities, with a turnover (of more than 550 billion dollars) and in matters of employment (200 million, which represents 8% of jobs in the World). It impacts and is impacted for the best (fight against poverty, enhancement of the Heritage, exchanges and peace) as well as, for the worst (bad redistribution of wealth, bad quality of work, degradation of environment, adulteration of cultures, tensions) in all domains, not just the economy, environment and society (culture, health, welfare). This phenomenon is confronted with long term challenges which integrate those of performance and competitiveness. Where does the conflict come from?

First of all, from the contrast of the economic and social reasons with the ecologic exigencies. Often, there is a confrontation between a territorial minority and a dominating centre from an economic point of view (industry versus agriculture), as well as a values point of view (modernization tendencies vs. conservatory, agriculture) or ecologic (the protection of the environment vs. globalization) [11].

A series of cleavages have become visible starting with the 60s-70s especially within the industrialized world. One of the results was the appearance of the Greens. The most consistent have been the critics towards the economic growth at any price (the savage capitalism), accompanied by the wish to reevaluate the local specific. We can add as well a series of ideological factors with a symbolic value, like the need for administrative autonomy from the peripheral areas or conflicts like 'David and Goliath' between the small ecologic organizations and the great corporations [12].

The conflict is vital for the ecologic movement. It means a radical change of the process of elaboration of the policies, especially because of the distrust of the communities into the public institutions and in the technical control structures.

The ecologic movement and the politicians must take into account the local social, cultural and economic exigencies, otherwise risking the loss of the consensus of the population. Thus, the unilateral decisions from the authorities' part are regarded with distrust and can be considered illegitimate. The European Commission recommends, within a period of time, extended to 2050, a type of integrated policy of the environment protection.

However, global warming that most experts consider a fully developing process will restrain and surely affect not only the natural components of the environment at planetary scale, but also human society (Fig. 1). It is worth mentioning that 'an exact estimation of the effects induced by climate change upon human society is practically impossible, due to the great number of variables involved into the process and an increased complexity of interactions on the one hand and, on the other hand, it is about insufficient available knowledge, being given the proportions of climate change process and the short time since the process has triggered the attention of the specialists' [13].

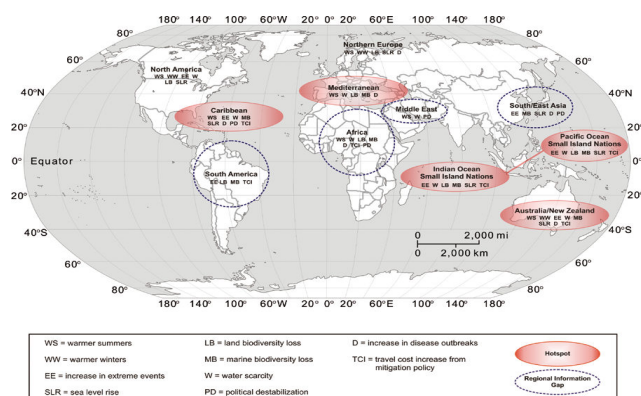


Fig. 1 Geographic distribution of major climate change impacts affecting tourism destinations [14]

3 Problem Solution

Even if there are numerous difficulties, the identification of the most vulnerable regions and human activities is possible as climate models simulate the effects induced by temperature positive deviations in the context of present 'climatic anomalies', as well as the reactions of human society at large temporal and territorial scales. There it is no doubt that global climate changes induce other significant changes, such as water supplies, agricultural production, distribution of diseases, and especially increased incidence of climatic extreme events, all of them *influencing tourism* by creating real difficulties for the economies of the affected countries and diminishing their capacity to support their own population and touristic programs.

Global warming will surely trigger higher precipitation amounts in some parts of the world and lower in others. However, the intensification of the evaporation process induced by temperature increase will lead to the strengthening of the dryness and drought phenomena in many parts of the world as well. In the last decades, severe droughts frequently affected large areas from Australia, Brazil, China, USA and South-East Asia; however, Africa was the most affected continent of all. From Mauritania to Sudan, nine African countries that counted 40,000,000 inhabitants in 1998 (it is estimated that they will count about 105,000,000 inhabitants by 2050) faced prolonged drought that diminished the average annual precipitation amount by 40%.

The drastic reduction of food, raw materials and energy resources would trigger an unavoidable price increase and, implicitly, the decrease of job opportunities in the respective economic branches (tourism, agriculture, industry, etc.). As a consequence of the increase of prices and unemployment rate and decrease of incomes that would rapidly deteriorate living conditions (through subnutrition, limited access to adequate water resources and sanitary facilities, etc., which negatively influences the quality of tourist services and public health), social disturbances would register alarming levels. On the other hand, the governments of the affected countries would confront themselves with drastic drops of the budget incomes generated by taxes together with the increase of the need of social assistance and a minimum amount of food resources and essential drugs.

In Romania, there have been achieved numerous studies about the tendencies of climate evolution by experts activating in various fields. It was clearly emphasized that average temperature at the level of

the entire country increased with 0.5°C for the period 1901-2007, according to NMA. Thus, the most significant thermal increases correspond to low regions located out of the Carpathians. For example, in Oltenia, the increase ranges between 0.6 and 1°C [15], but, there were also registered significant seasonal differences. For the period 1961-2010, there is rendered a 1-2°C warming characteristic to summer in the entire country. There are also positive thermal deviations in case of the other seasons, the greatest differentiations being mentioned in Moldova (according to NMA). Another phenomenon with important social and economic consequences is represented by heat waves, the frequency of which increased in the last decade, especially in the southern half of the country. Thus, in 2000, 2002, 2003, 2007, 2010 (one of the warmest years at global level according to NOAA and NASA), temperatures exceeded 40°C in many European regions and not only, the thermal comfort threshold (80 units) being also exceeded in numerous cases.

As for the rainfall regime, there were registered numerous problems, with a general tendency of decrease of the annual amounts, especially in the central and southern parts of the country. Rainfall deficit tends to become a permanent feature of the summer months, drought phenomenon reaching alarming frequency and intensity. Another particularity is represented by the higher pluviometric contrast – succession of rainy - very rainy years and very dry years, greater maximum amount in 24, 48 and 72 hours (mainly in the north, west and south-east of the country in autumn), increase of the average and maximum intensity of torrential rainfalls (the negative impact upon the environment usually being potentiated by previous prolonged drought periods), increase of the number of days with rainfalls >10 mm in the northern part of the country, etc.

3.1. Impact of climate change on tourism sector in Romania

Tour operators must know very well the climatic conditions in order to sustain the viability of the tourist sector, to generate economic-social benefits for local communities and to improve the tourists' life experience. Thus, it is recommended to instruct both tourists and tour operators with regard to climate conditions and the effects of climate change in order to assure the implementation of certain adaptation measures and maximize new opportunities.

The modification of the regional and local climate conditions will surely influence ecosystems, human settlements and infrastructure. The forecasted temperature and rainfall changes may trigger the modification of the vegetation periods and the displacement of forests and alpine meadows towards higher altitudes. The surfaces affected by drought extended in the last decades, the most exposed areas being located in the south and south-east of the country. Besides floods, prolonged drought periods lead to important economic losses - agriculture, transportation, energy supply, water supply, general health state, etc. For example, the population of more than 100 settlements from 20 counties suffered the consequences of the floods registered on May 24, 2012, induced by heavy rainfalls. On the whole, more than 800 households were affected according to the data supplied by the General Inspectorate for Emergency Situations (GIES). It is clear that *Romania is one of the European countries with high vulnerability to floods*, as it results from a study published in 2007 that analysed the situation of 10 countries from the region. The analysis was achieved by the Institute for the Protection and Security of the Citizen at the request of the European Commission.

Concretely, *the maps rendering the inundability hazard*, the deadline of which is the end of 2012, will be achieved by the 'Romanian Waters' National Administration (RWNA) and will offer exact information about floods – extension of flooded areas, water velocity, water depth during floods corresponding to certain discharges. *Risk maps* – completion deadline 2013 – will be achieved by county councils and will indicate possible damages in case of floods, as well as the population's evacuation areas in case of flood emergency.

The authorities' reaction, expressed through the adoption of national strategies on climate change with a 20-year perspective and 200 billion euro estimated costs, emphasizes the necessity of conjugated efforts for fighting against these phenomena, as well as of short, medium and long-term measures both at regional and global levels. The component *Adaptation* of the *National Strategy on Climate Change* for the period 2012-2020 is the result of Romanian-Dutch collaboration within the framework of the Project G2G08/RM/6/2 '*Improvement of effective capacity and development of policy regarding the adaptation to the effects of climate change in Romania*'. The intergovernmental project was initiated by the Ministry of Environment and Forests (MEF) and the Agency for Sustainability, Innovation and International Cooperation of the Dutch Government (Dutch

Agency); the aim of the project is to offer expertise to the decision factors from Romania regarding the adaptation to the effects of climate change (ASC2012-2020).

The tourist sector from Romania was affected by heat waves almost every summer between 2000 and 2012, by the diminution of snow amounts and persistency in winter, as well as by weather events (floods, strong storms, etc.) that affected infrastructure and tourists' motivation to travel. Although there are evaluations of the general impact of climate change upon certain tourist zones, there have not been made yet any evaluations regarding the damages in tourist sector. However, experts agree that the most affected tourist facilities are located in coast and mountain regions.

Following the same global trend, Romania as well presents both gains and losses in terms of climate change impact on tourism sector. Among *losses*, we mention the drought registered in July 2012 (this month is considered the driest month in the last 60 years), which led to the decrease of the Danube level even below 2 m; consequently, cruise ships can no longer reach the Danube Delta. The tour operators estimated that Romania will lose 3 million euro this summer if authorities do not dredge the river. Through a common effort, Romania and Bulgaria can assure a continuous navigation on the Danube attracting tourists and financial benefits. Unfortunately, last year in September, there were the same problems and more than 70 cruises were cancelled. The two countries should understand that collaboration is better than competition in this case.

Referring to *gains*, we mention the hot weather from July 2012 which made the Romanian coast one of the most desirable places in the country and the growth rate was one of the highest in the last years. Thus, there was a significant occupancy degree – 100% for the week-end August 4-5 and 98% during the rest of the week, according to the numbers offered by hotel owners – Patronage Federation from Tourism. The Federation sustains that the success of the Romanian seaside is even greater than that registered in 2008, when our country had not confronted itself with the economic crises and the population's purchasing power was much greater.

4 Conclusion

Tour operators must be acquainted with climatic conditions in order to support the viability of this sector of activity and be able to generate economic-social benefits for local communities and to improve the tourists' life experience. Thus, it is clear that

both tour operators and tourists should be informed with regard to climate conditions and risks and to the effects of climate change in order to ensure the implementation of new adaptation measures and maximize the capitalization of new opportunities. Compared to 900 million tourists registered in 2007, WTO forecasted an increase to 1.6 billion tourists by 2020, the share of tourism to the global GDP reaching 12%, namely 685 billion dollars per year; moreover, 60% of the international air traffic is generated by tourism activities which mean a share of 5% of the global emissions of greenhouse gases. Thus, these statistics that are so encouraging for global economy are quite alarming for the already fragile balance of the environment. Such an alarm signal, transformed in a world initiative for responsible tourism, is also the theme of 2012: 'Responsible Tourism face to face with climate change. Towards a new relocation of tourism'.

In this respect, The Global Partnership for Sustainable Tourism was launched as a global initiative in 2011 to inject sustainability principles into the mainstream of tourism policies, development, and operations. There is a clear mission assumed by the Global Partnership for Sustainable Tourism, namely 'to foster partnerships for advancing sustainable tourism principles at destinations through adoption of clear policies, innovative and transformative projects and the sharing of knowledge and experience, with an objective to create effective partnerships for sustainable tourism' [16]. Tourism policy development requires a strategy based on cooperation between local, national, regional governments, consumers and residents for the implementation of programmes with common goals. 'At the local level, integrated management is needed to protect essential resources and assets, make sure that tourism remains a viable activity in the long-term, and increase and better distribute its benefits. At the national and regional levels, policymakers should work together to protect what is attractive about a destination while at the same time promoting it' [16].

It is expected that climate changes will influence the competitiveness of tourist zones in terms of turnover. As we refer to a market that highly depends on climatic resources, the consequences climate change generates are very complex. Thus, climatic changes and their impact upon the tourist phenomenon represent one of the major challenges of this century – a complex field where we should improve our knowledge and understanding in order to take immediate and concrete measures to efficiently

approach the issues in terms of costs and challenges without neglecting the precaution principle.

Tourism destinations will be greatly affected by climate change. However, tourism is not only a victim; it also contributes to the problem: 5% of global greenhouse gas emissions come from the travel and tourism industry. The Global Partnership addresses climate change in several ways: raising awareness, measuring carbon footprints, building capacity, promoting adaptation, and helping to reduce the emissions from tourism. It advocates the inclusion of climate change adaptation measures in tourism and land use planning – notably by backing special pilot projects.

The desire to control climate (*pertinent strategy at the level of WTO*) determines the artificialization of tourist infrastructure (acclimatization installations, snowmaking equipments that appeared in Romania, as well, plantation of exotic trees, etc.). Climate gains in importance especially in those areas where climatic risk phenomena and other natural hazards (hurricanes, floods) do not display a clear periodicity and cannot be accurately forecasted; consequently, they negatively affect tourism. Thus, sustainable protection and insurance of tourist infrastructure against these ‘extreme events’ induced by climate change are compulsory in order to avoid the situation when ‘tourism transforms from a chance of the economy into a risk for the entire community’ [17]. Many tourist attractions and destinations are located in some of the poorest places in the world. Sustainable tourism can serve as a powerful poverty-reduction tool, especially in rural areas. By offering alternative or supplementary sources of income, tourism can improve the livelihoods of people while helping to conserve the environment and preserve historic sites.

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