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## CRISIS SITUATIONS IN TOURIST DESTINATIONS AND THEIR IMPACT ON THE ENVIRONMENT – LITERATURE REVIEW

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**Abstract:** The rapid industrialization of modern society has led to mass production and consumption, as well as to crisis situations that have caused environmental pollution, resource depletion and increased waste. Excessive dependence of destinations on the tourism industry makes them very vulnerable to global incidents and their negative effects, which can also create risks for tourism businesses at the political, economic and socio-technical level. In recent years, tourism has suffered a number of incidents, which were caused by human factors (eg the terrorist attack of "September 11" 2001 or the global financial crisis in 2008) and also by the natural ones (tsunami in the Indian Ocean in 2004 and earthquake in Japan 2011), which left significant consequences in tourist destinations. The growing unpredictability of crisis situations and their spread around the globe presents a problem for the tourism industry, which is highly dependent on international flows of people, money and resources. As one type of crises, natural disasters can have a serious impact on national, regional and local economies, as they disrupt the normal way of functioning, by creating human, material and environmental losses. It can be one or a series of events, caused by natural or unnatural factors, like human ones, which lead to numerous human victims, environmental pollution and loss of property. Volcanic activity has a significant impact on human lives, especially those living in the immediate vicinity of volcanoes, exposing them directly to hazards, as a falling tephra / ballistics, volcanic mud flow, landslides and gas emissions. Then, a shipwreck that can result in a number of harmful consequences, such as air, water and soil pollution and an explosion. In urban areas, especially near busy roads, motor vehicle exhaust systems, high traffic density and many industrial activities pollute the environment. In all mentioned cases, crisis management is here of great importance for tourist destinations, and above all, it requires sustainable development planning and awareness of tourism activities that have a relatively low impact on nature. In recent years, the emergence of new technologies and increased environmental awareness caused significant changes in the tourism industry that have shaped the paradigm of sustainable development, which aims to minimize the negative impact of tourism, while achieving long-term sustainability and destination welfare. In terms of tourism, the issue leads to the ecological sustainability of the destination and its negative impact manifested through environmental degradation. Sustainability in the context of natural disasters implies the ability of affected destinations to "suffer - and overcome" damage, reduced productivity and quality of life, which means the process of recovery by efficiently use of internal and external resources. Therefore, a balance between the three pillars of sustainability is crucial - environmental sustainability aimed at maintaining environmental quality, which is necessary for normal economic activities and quality of life, then social sustainability that seeks to ensure human rights and equality, preservation of cultural identity, respect for cultural differences, race and religions and the economic sustainability for maintaining natural, social and human capital.

**Keywords:** Crisis situations, Tourist destinations, Environment, Literature review

### 1. INTRODUCTION

The tourism industry is extremely influenced by society, economy, politics and nature, especially under crisis events. Since tourism is extremely sensitive and is easily influenced by external environmental factors, the research of crisis events in tourism is attracting more and more attention. Irregular phenomena that can affect the tourism system and its stakeholders in different ways in each period of time are defined as crises (Boukas, 2014). In their manifestation and progress, crisis are usually unpredictable, which is why they require a certain way of managing. According to Boukas (2014), the modern crisis management model includes: the unpredictability of each crisis, the complexity, the uniqueness, and the cultural context in which the crisis occurs. However, frequent negative actions can also completely stop the tourism industry for a country (Biggs et al., 2015). Events such as terrorist attacks, civil wars, mass demonstrations or political instability can "damage" destinations, and thus tourism. On the other hand, natural disasters are related to the geography of an area and include geological, hydrological or hydrogeological phenomena, such as earthquakes, floods, landslides, volcanic eruptions and tsunamis. The decisive factor in the occurrence of landslides is the type of deposited material and slope (Bachri et al., 2015). Globally, the tourism industry continues to underestimate the relevance of climate variability and adaptation to climate change in business, despite growing evidence that weather conditions and long-term climate trends are of great importance for tourism

operations. At the same time, climate change has led to “greening,” and the capitalist process of achieving growth without spending resources and increasing carbon output. In this context, and in the field of tourism, institutions seek to identify existing drivers and obstacles to the promotion of this green innovation in the tourism industry, aimed at improving the environment. Meanwhile, tourism companies have difficulties while incorporating sustainability into their businesses, due to the lack of specific tools, norms and methods (Ivars-Baidal et al., 2017). The development of green tourism and the use of renewable or clean energy are perceived as resources that are particularly attractive to Europeans, which is the reason why international tourism markets place environmental criteria at the top of tourist attractions.

## 2. MATERIALS AND METHODS

The paper uses a systematic approach to the review of literature in the field of the impact of crises on the environment and crisis management in tourist destinations. It includes studies published in scientific journals and conference papers, indexed in the Web of Science and Scopus databases, in the period from 2014 to 2019. Key search terms included "tourism crisis", "crisis management" and "crisis and environment". The analysis was made based on a total of 17 relevant studies (Table 2). Three of them, with more recent dates have been published at conferences. From the table below, it can be noticed that over the years, the interest of researchers in this topic increases, which indicates that crisis management is of great importance and significance for tourist destinations.

*Table 1: Name of the journal of analyzed articles*

Journal	2014	2015	2016	2017	2018	2019	Total
Atmospheric Environment		1					1
Current Issues in Tourism				1			1
International Journal of Disaster Resilience in the Built Environment						1	1
International Journal of Sustainable Energy Planning and Management					1		1
Journal of Cleaner Production			1				1
Journal of Volcanology and Geothermal Research						1	1
Natural Hazards					1		1
Natural Hazards Review			1				1
Natural Hazards and Earth System Sciences		1					1
Ocean Engineering					1		1
Resources, Conservation and Recycling						1	1
Sustainability						1	1
Tourism Planning & Development	1						1
Waste Management					1		1
<b>Total</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>4</b>	<b>14</b>

## 3. RESULTS

The analysis of selected studies shows that, given the type of incident or the crisis situation, the authors mainly investigate the economic, financial and volcanic crisis. Analyzed papers mostly used a review of the literature to identify crises and types of disasters, as well as their impact on tourism, while defining the nature of crises and managing them. Furthermore, a number of papers included interviews with different types of stakeholders and surveys to obtain detailed information on crisis management. Some of the studies proposed a framework and models, with the inclusion of new concepts or theories from other disciplines (Boukas, 2014; Bachri et al., 2015; Kang et al., 2018). During data analysis, the authors used structural modeling (SEM), confirmatory factor analysis (CAF), and other econometric analyzes. It can be concluded that there is no common method used when it comes to crisis research and crisis management in tourism.

Author/year	Type of incident	Methodology	Conclusions, recommendations and further research
Boukas (2014)	Economic crisis (Cipar)	Interviews, literature review	<ul style="list-style-type: none"> <li>- crises and achieving sustainability are part of a nonlinear system in which events are chaotic</li> <li>- future research should apply chaos theory to other destinations, in different contexts, in order to understand their environment at the time of the crisis; conduct research by achieving and managing economic, socio-cultural and environmental sustainability in tourist destinations, with unbalanced environment prone to various natural disasters</li> </ul>
Amanatidis et al. (2015)	Financial crisis (Grčka)	Observations; Environnement SA (measuring gaseous species;) NDIR instrument (measuring carbon dioxide)	<ul style="list-style-type: none"> <li>- the amount of traffic affects the air quality in the destination affected by the crisis</li> <li>- aerosol and gaseous pollutants were significantly reduced in the traffic area compared to 2006.</li> <li>- further research on the destination's pollution by harmful gases, in order to control biomass</li> </ul>
Bachri et al. (2015)	Vulcano (Indonezija)	Interviews; Focus groups	<ul style="list-style-type: none"> <li>- the interaction of people and the volcanic environment on Bromo volcano is complexed</li> <li>- except being exposed to the negative effects of volcanoes, people also enjoy the benefits of a physical, spiritual and socio-cultural nature</li> </ul>
García-Pozo et al. (2016)	Economic crisis (Španjolska)	Literature review	<ul style="list-style-type: none"> <li>- the implementation of eco-innovative practices encourages labor productivity in the Andalusian hotel industry</li> <li>- the economic crisis has reduced productivity growth</li> <li>- further research should analyze from an environmental point of view other parts of business management, which may affect hotels, such as corporate social responsibility, employee involvement in tasks related to eco-innovation and the possibility of obtaining public subsidies for the implementation of measures</li> </ul>
Orhan (2016)	Earthquake (Turska)	Questionnaire	<ul style="list-style-type: none"> <li>- small companies are more vulnerable to disasters and suffer more from the problems caused by them than the larger ones</li> <li>- entrepreneurial skills and decision-making processes affect the fate of the business at the time of the crisis</li> <li>- in the future research companies that have been closed, destroyed or relocated outside the study area should be included</li> </ul>
Ivars-Baidal (2017)	Economic and financial crisis (Španjolska)	Case study; questionnaire	<ul style="list-style-type: none"> <li>- sustainability includes urban planning policy aimed at renewal, functionality and urban quality</li> <li>- further research in other destinations on the Spanish coast, regarding the circumstances and limitations of tourism development in these areas</li> <li>- it is necessary to learn a lesson from each crisis, review the model of tourism development and adopt the necessary measures in the near future, so that the destination can be redirected to the sustainability scenario</li> </ul>
Alberico et al. (2018)	Tsunami (Italija)	Literature review	<ul style="list-style-type: none"> <li>- earthquakes triggered a large number of tsunamis</li> <li>- earthquakes, pyroclastic flows and lahars may occur in the volcanic area during the eruption</li> <li>- low intensity tsunamis can be caused by volcanic eruptions</li> </ul>

Aquino et al. (2018)	Financial crisis (Europa)	Principal component analysis	<ul style="list-style-type: none"> <li>- the global financial crisis had a direct impact on business financing, access to credit and investment, requiring appropriate corporate strategies and action plans</li> <li>- the financial crisis has affected companies economically, socially and environmentally</li> <li>- the environmental dimension refers to various types of pollution, such as the share of electricity production without CO<sub>2</sub> and the share of used hazardous waste</li> </ul>
Kang et al. (2018)	Large amounts of waste (Koreja)	Case study	<ul style="list-style-type: none"> <li>- implementation of strategies for energy and material recovery of waste with the aim of reducing waste, preserving landfills, stabilizing and removing hazardous substances</li> <li>- a new model that includes strategic environmental assessment as efficient waste management</li> </ul>
Yan et al. (2018)	Shipwreck (Kina)	Literature review	<ul style="list-style-type: none"> <li>- shipwreck caused serious problems for the safety, environment and health of workers</li> <li>- due to many harmful substances, it is suggested to use cutting abrasive water jets instead of conventional hot cutting, as a fast high-precision technology with a quality and flexible cutting process; this would not produce pollutants or hazardous substances caused by high temperatures</li> </ul>
Ayuwat et al. (2019)	Vulcano (Indonezija)	Interviews; content analysis, observation, Structural Equation Model	<ul style="list-style-type: none"> <li>- household networking for social capital directly affects the early warning phase of volcanoes</li> <li>- human, natural, physical and financial capital indirectly affect early warning capabilities through the transformation of processes and structures</li> </ul>
Barsotti et al. (2019)	Vulcanic crisis (Bárðarbunga) and eruption (Holuhraun)	Literature review; observations	<ul style="list-style-type: none"> <li>- volcanic hazard assessment was developed during the eruption; in a preliminary assessment, icy effusions and outbursts of tephra were considered the main dangers associated with the eruption</li> <li>- future research should clarify in more detail the importance of the Aviation Color Code, as a system, for better identification and communication during a volcanic crisis; appropriate monitoring and implementation of scientific judgments in construction risk assessment, to improve responses to future eruptions in Iceland</li> </ul>
Danuwikarsa et al. (2019)	Flood (Indonezija)	Observations	<ul style="list-style-type: none"> <li>- based on the state of the environment and the socio-economic condition of the people living in the vicinity of the forest area, it is necessary to change the paradigm of the community and institutions for forest management, as well as stakeholders in forest management</li> <li>- it is necessary to harmonize forest resource management activities with regional development characteristics and activities</li> </ul>
Garakani et al. (2019)	Flood (Iran)	Content analysis; interviews; questionnaire; Delfi method	<ul style="list-style-type: none"> <li>- eco-friendliness: the use of ecological building materials, natural landscapes and the maintenance of natural resources are the basic environmental attributes of the village</li> <li>- due to the diversity of natural disasters and the geographical position of Iran, relocations are inevitable</li> <li>- the need to integrate economic and social planning in the post-disaster period, including reconstruction projects, with an emphasis on sustainability</li> </ul>

Hasibuan et al. (2019)	Landslides (Indonezija)	Spatial analysis; interviews; questionnaire	- landslide mitigation is possible through long-term spatial planning with a zoning system; implementation of a good spatial arrangement can reduce the risk of landslides, thus achieving social, environmental sustainability and geothermal production
Amato et al. (2019)	Earthquake (in general)	GaBi software-System and data base for Life Cycle Engineering	- evaluation of different possibilities of earthquake ruin management, from the environmental and economic aspect; according to the environmental impact assessment, in situ treatment of the ruins proved to be the best choice - future research - validation and improvement of the model, taking into account the most important aspects of long-term effects on the environment
Wang & Zhang (2019)	Earthquake (Kina)	Interviews; observations	- Wenchuan PADAA process - paired assistance programs between local governments as a solution for reconstruction and disaster recovery: a large number of investments in public infrastructure, knowledge acquisition, development of sustainable industrial structures through the improvement of management systems

Table 2: Review's findings

Summarizing the conclusions of the analyzed studies, tourism has a reciprocal relationship with incidental events that are often unpredictable and uncontrolled, due to the high degree of uncertainty. Therefore, it is essential to introduce crisis management in the process of tourism development, in order to protect and restore the image of security. Boukas (2014) proposes crisis management which includes: the pre-crisis phase, the crisis phase and the crisis recovery phase. Its three-phase framework consists of proactive scanning and planning, strategy implementation and evaluation. Ayuwat et al. (2019) similarly identify incident management, through mitigation, preparedness, response and recovery phase. According to the authors, the early warning system is the most important phase, since it is possible to minimize the risk of an eruption. Many other studies also analyze crisis management through the pre-disaster, during-disaster, and post-disaster phases. Intense competition during economic crises can harm tourism companies, so the goal is to reduce costs and mitigate damage. This requires various recovery strategies, such as lower prices and discounting, which would improve sales. With the emergence of a certain crisis, it is necessary to provide assistance to the population and the removal of harmful materials as soon as possible, where waste management is imposed as a practical solution and a crucial step in dealing with incidents. For environmental issues, the life cycle approach (LCA) is a useful tool for impact assessment and waste management (Amato et al., 2019). The financial crisis and recession can also have negative consequences for the environment, such as higher emissions of fine particles. In accordance with the work of Amanatidis et al. (2015), the same can be reduced by a significant reduction in traffic activity and increased biomass combustion. On the other hand, a drop in oil consumption causes a reduction in emissions. During the period of economic crisis, there is a stagnation of tourist demand, as well as a decrease in the number of arrivals and overnight stays (Ivars-Baidal, 2017). In the work of Barsotti et al. (2019), the main cause of the crisis has been shown to be the abundant and frequent release of volcanic gases that have polluted the country, thus threatening human health and the environment. The eruption of Holuhrauna volcano has disrupted air quality due to the large amount of gases released into the atmosphere. During the above, four main phases were identified: pre-eruptive, co-eruptive, post-eruptive with limited areas, and post-eruptive at the level without warning. One of the most significant consequences of an earthquake is the generation of a huge amount of waste. Improper management of ruins is harmful to the environment, creates economic losses and psychologically negatively affects the population. The environmental impact assessment indicated the importance of pre-treatment of ruins and enhanced refining, which would achieve high inert qualities (Amato et al., 2019). Yan et al. (2018) state that the global shipwreck industry produces 400,000 - 1,300,000 tons of waste oils per year. Adverse effects on the environment are direct and long-term and pose a significant threat to wildlife. Their toxicity threatens natural resources, birds, mammals and a wide range of complex seafood. In such conditions, restricting the export of scrap steel and docks, or ship dismantling methods, increases environmental protection and safety. At the same time, in order to reduce the environmental pressure caused by

acetylene, natural gas cutting is applied in a shipwreck. As a more environmentally friendly technology, it uses environmental resources, such as propane or methane, which produce only water and carbon dioxide, and has certain advantages in cleaning, economy, environmental protection and safety. Danuwikarsa et al. (2019) in their paper propose a community environmental management program through raising awareness of environmental, health and waste management, as a first step in preventing and dealing with incidents. Then, capacity building of human resources through formal and informal training, by getting acquainted with a healthy lifestyle and maintaining the environment, mutual cooperation and care for others. Creating adequate staff for the environment will ensure a proper and timely response to disasters.

## 5. CONCLUSION

Nowadays, crisis situations have become more frequent. Various analysis have determined their effects, which have a greater negative impact on the tourist offer and demand of the destination, as well as on its environment. Because the clean environment represents the balance of the ecosystem, it is necessary to take certain crisis prevention and management measures, which include alert levels, improvement of the monitoring network, mitigation measures, hazard assessment and communication strategies. Exposure of tourist destinations and corporations to incidents, such as earthquakes, floods, volcanoes and tsunamis, causes potential losses and degrades the environment, producing social and economic effects. The consequence of the above is a large number of severely injured or dead, destruction of residential buildings, closure of business premises and temporary dislocation of the population. As a disaster prevention, through adequate waste management, recovery and environmental protection, the government can encourage cooperation among all stakeholders. Although the greener way is more advanced and complex, by introducing environmental technology, it is possible to avoid harmful substances and potential hazards, which is extremely important for the environment and human health. The analysis of incident situations and the adoption of some existing practices can help tourist destinations to become more flexible and more prepared for future crises. In this way, they will be able to effectively manage the crisis through accumulated knowledge and formulated action plans for crisis situations. One of the main limitations of this study is the fact that book chapters were not included by this literature review, and that only scientific papers published in journals and conferences indexed in the Web of Science and Scopus were analyzed. Therefore, it would be useful to include other types of publications and other databases in further research, which would provide more information on incident situations, their environmental consequences and adequate management in the tourism context.

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