

Exploring the Impact of Tourism to the Sustainable Development of Mountain Regions: Implications of the Climatic Conditions

Stefanos Tsiaras, Faculty of Agriculture, Forestry and Natural Environment, School of Forestry and Natural Environment, Aristotle University of Thessaloniki, Thessaloniki, Greece

ABSTRACT

Sustainable development is difficult to be achieved in mountain regions because of their sensitivity to climate change. The rapid development of mountain tourism worldwide during the last years makes the goal for sustainable mountain tourism even more challenging. Key factor to the development of mountain tourism in Europe was the function of ski centres. According to the spirit of the Brundtland Report ski centres are not in general sustainable, because they may have economic benefits but they negatively affect the other two pillars of sustainability: environment and society. The present paper focuses on a ski resort in Greece, attempting to assess the impact of mountain tourism on the sustainable development of the area. Ski resorts played a crucial role to the bloom of mountain tourism in Greece. Its evolution is a relatively recent phenomenon which has been affected by the economic crisis that afflicts the country in the past years. Demographic data compared with tourism indicators were used to assess the environmental impact of tourism in the area. Moreover, meteorological data were used in order to examine the correlation of climatic conditions and the number of visitors. The results show that the ski centre in Elatochori despite the economic benefits has a major environmental impact, especially because of the increased carbon emissions caused by the visitors of the area. Additionally, the climatic conditions (precipitation and temperature, especially the absolute maximum air temperature) affect the number of visitors.

KEYWORDS

Climate Change, Climatic Conditions, Environmental Protection, Mountain Tourism, Ski Centre, Sustainable Development

INTRODUCTION

It is broadly accepted that “sustainable development” as a term gained its dynamic after the publication of the Brundtland Report in 1987 (e.g. Redclift, 2005; Sneddon et al., 2006), which offered a universally acknowledged definition. For the term “sustainable mountain tourism”, according to Price & Kim (1999), there is not such a unanimously accepted definition; the authors propose a dynamic term strongly related to sustainable development that concerns mountain areas and their residents.

The basis for the sustainable development of mountain regions was set with the publication of *Agenda 21* (UNCED, 1992). Another milestone was the proclamation of the Year 2002 as the “International Year of the Mountains” (UN, 1998). As sustainable development in mountain regions is difficult to be achieved due to the special characteristics of each area, inter-governmental conventions

and transnational governance co-operation are essential in order to reach the goals of Agenda 21 (Price, 2015). There are many institutions that promote sustainable development in mountain regions worldwide working either at the global, regional, national or local level (Kohler et al., 2012). According to the same report conducted by the University of Bern, Centre for Development and Environment, mountains are important for global sustainable development and support green economy.

Several researchers worldwide mention the development of mountain tourism as an efficient way to assist the residents in mountainous areas to improve their income of (e.g. André, 1998; Godde et al., 2000), because the traditional practices such as agriculture, farming and forestry, were not profitable enough. The development of ski resorts was a key factor in the development of mountain tourism in Europe (Moser & Moser, 1986; Price, 1987).

Sustainable tourism was a key concept for the researchers since the early 1990s (Butler, 1993). Gössling et al. (2005) claim that although there is broad consensus that tourism development should be sustainable, the way of achieving this is an object of debate. The concept of sustainable tourism is too complex and multidisciplinary; Hanna et al. (2015) even suggest examining it using the Foucault's understanding in ethics, concluding that the concept of sustainable tourism can be better interpreted through ethical practices.

Tourism development has both positive impacts, such as job creation and income raise, as well as negative ones, especially on the environment and the society (Zhong et al., 2011). The operation of a ski resort in an area has many benefits, such as economic growth, improvement of services and infrastructure and the feeling of positive psychology among the locals (Lindberg et al., 2001; Snowdon et al., 2000). A population increase is also observed (Daumas, 1986), along with a decrease of the average age of the population (Buckley et al., 2000; Pechlaner & Tschurtschenthaler, 2003), since residents from nearby areas (especially young people) relocate in order to take advantage of the job opportunities offered as a result of the development of a ski resort. On the other hand, there are also consequences such as environmental decline (Needham & Rollins, 2005), landscape change (Pignatti, 1993), social conflicts (Weaver & Lawton, 2001) and cultural decline (Jamal & Getz, 1999). Brida et al. (2014) recognise that tourism in mountain environments is generally unsustainable because the transport systems used are not environmental friendly. Moreover, special aspects of mountain tourism, such as seasonality of visitors and environmental fragility, render mountain areas more vulnerable compared to other tourism destinations (Geneletti & Dawa, 2009).

Mountain Tourism and the Three Pillars of Sustainability

While it is broadly accepted that sustainable development relies on three pillars: economic growth, environmental protection and social progress (Murphy, 2012), the importance of environmental protection in sustainable development has been pointed out only recently (Dogaru, 2013). Most researchers used to focus on short term benefits connected to the pillar of economy, ignoring environment and society (Drexhage & Murphy, 2010).

Several studies outline the contribution of ski centres in the economic growth of an area (e.g. Lasanta et al., 2007). At the same time, researchers have confirmed the consequences of their operation on the other two pillars of sustainability: environmental protection and social equity.

The environmental impact of tourism has been widely studied in countries such as the United States of America, the United Kingdom and Australia (Pickering & Hill, 2007). In many mountain regions, the environmental impact of tourism is critical, because of the lack of infrastructure (Singh & Mishra, 2004).

The negative impact of tourism especially in sensitive ecosystems has been mentioned by many researchers (e.g. Godde et al., 2000). A study in Scotland demonstrated the negative environmental

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/article/exploring-the-impact-of-tourism-to-the-sustainable-development-of-mountain-regions/176435

Related Content

Factors Affecting Customers' Perceptions and Firms' Decisions Concerning Online Fast Food Ordering

Eugenia Papaioannou, Christos K. Georgiadis, Odysseas Moshidis and Athanasios Manitsaris (2015). *International Journal of Agricultural and Environmental Information Systems* (pp. 48-78).

www.irma-international.org/article/factors-affecting-customers-perceptions-and-firms-decisions-concerning-online-fast-food-ordering/120472

Implementing the European Union Renewable Energy Policy Targets in Bulgaria

Tatyana B. Ruseva and Maria A. Petrova (2020). *Cases on Green Energy and Sustainable Development* (pp. 30-59).

www.irma-international.org/chapter/implementing-the-european-union-renewable-energy-policy-targets-in-bulgaria/232451

Discovering Regularity Patterns of Mobility Practices through Mobile Phone Data

Paolo Tagliolato, Fabio Manfredini and Paola Pucci (2014). *International Journal of Agricultural and Environmental Information Systems* (pp. 37-54).

www.irma-international.org/article/discovering-regularity-patterns-of-mobility-practices-through-mobile-phone-data/116542

Investigation of Recycled Acrylonitrile Butadiene Styrene for Additive Manufacturing

Shajahan Bin Maidin, Zulkeflee Abdullah and Ting Kung Hieng (2020). *Implementation and Evaluation of Green Materials in Technology Development: Emerging Research and Opportunities* (pp. 130-154).

www.irma-international.org/chapter/investigation-of-recycled-acrylonitrile-butadiene-styrene-for-additive-manufacturing/243894

A Bayesian Probability Model Can Simulate the Knowledge of Soybean Rust Researchers to Optimize the Application of Fungicides

Gregory Vinícius Conor Figueiredo, Lucas Henrique Fantin, Marcelo Giovanetti Canteri, José Carlos Ferreira da Rochaand David de Souza Jaccoud Filho (2019). *International Journal of Agricultural and Environmental Information Systems* (pp. 37-51).

www.irma-international.org/article/a-bayesian-probability-model-can-simulate-the-knowledge-of-soybean-rust-researchers-to-optimize-the-application-of-fungicides/237183