



The impacts of climate change on the tourism sector: Tangier as a case study, Morocco

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Abstract

It is first to know that tourism is the largest source of economic growth in the world. It is one of the most important industrial sectors for some countries. Tourism activity is susceptible to climate change because of its strong connection to the natural climate. And, many of the main popular tourist destinations depend strongly on the natural environment for their appeal such as: coastal resorts, tropical rainforests, wildlife safaris and alpine ski resorts, for example, all rely on a mixture of natural beauty, good weather and safe conditions to attract holiday-makers. Thus, the interaction between tourism and climate change is very complex. It involves many activities that can have adverse environmental effects.

Tangier is considered as one of the most popular tourist attractions in Morocco, but this tourism activity is negatively affected by climatic change which will indirectly harm the natural environment in general. This problem is due to various causes.

The main objective of this study is to examine and analyze some of the possible impacts of climate change on the tourism activity in this area.

The essential issue of this study is as follows: « What are the negative impacts of climate change on the tourism sector in the area of Tangier? And, how can the tourism sector adapt to the effects of climate change?

In this study, I will firstly define the conceptual framework of the climate change. Secondly, I will present the major impacts of climate change on the tourism sector by the interviews conducted in this area. Moreover, I will give the appropriate adaptation strategies in how can the Tangier tourism sector adapt to the effects of climate change in order to have a good sustainable tourism development.

Finally, I will analyze the conclusions of our study.

Keywords: climate change, impacts, tourism sector, Tangier, Morocco

1. Introduction

Nowadays, the problem of climate change has rapidly spread all over the world. It is disrupting national economics and affecting lives, costing people, communities and countries. Thus, the impacts of climate change are causing changes in the ecosystems and natural resources needed to sustain the tourism economy. Climate change, then, has different effects on the tourism sector including beach erosion, changing weather patterns, rainfall changes, saline intrusion, droughts, flash floods and landslides, less productive fisheries and agricultural systems, rising sea levels, desertification, and other health-related problems, all of which are now rampant in Moroccan country.

Climate change is now at that the forefront of debate with dire warnings that worldwide temperatures may continue to rise throughout the next 50 to 100 years (Dakaica, 2002) [4].

Furthermore, climate change is expected to have a range of direct and indirect repercussions on almost every sector of human activity both from a social and economic viewpoint (Viner and Agnew, 1999) [11].

The tourism industry is a major contributor to global economic development, especially as an employer in developing economies and regions where tourism commonly represents the main source of national income (Bigano *et al.* 2007 [3]; Hall and Higham, 2005) [7]. But, tourism is closely

related to the environment and climate itself, tourism is considered to be a vulnerable and highly climate-sensitive economic sector, similar to agriculture, insurance, energy, and transportation. At the same time, tourism is a contributor to Greenhouse Gas (GHG) emissions, including emissions from transport, accommodation and activities (Beatley, 1998) [2].

Hence, the link between climate change and tourism implies complex interactions and can be described as a two-way relationship. On the one hand, tourism activity contributes to climate change (Nicholls, 2006) [8]. On the other hand, climate change also significantly affects the tourism industry, most importantly due to its effect on the attractiveness of tourism destinations and tourist flows (Lise and Tol, 2002 [9]; Amelung *et al.* 2007) [11]. Tourism depends on natural resources, such as water, coastlines, landscapes, biodiversity, etc. These influence the potential attraction of destinations. However, climate change threatens the loss of some of these relevant natural resources (Gösling and Hall, 2006) [6].

Indeed, climate is an essential resource for tourism, and especially for the beach, nature and winter sport tourism segments. Changing climate and weather patterns at tourist destinations and tourist generating countries can significantly affect the tourists' comfort and their travel decisions (Louis and Patrick, 2013) [10]. Further, changing demand patterns and tourist flows will have impacts on tourism businesses and on

host communities, as well as knock off effects on related sectors, such as agriculture, tourism, handicrafts or construction.

The purpose of this article is to examine a comprehensive relationship between tourism and climate change in order to clarify how climate change affects the development of tourism sector by presenting some examples on this current topic.

2. Concept of climate change

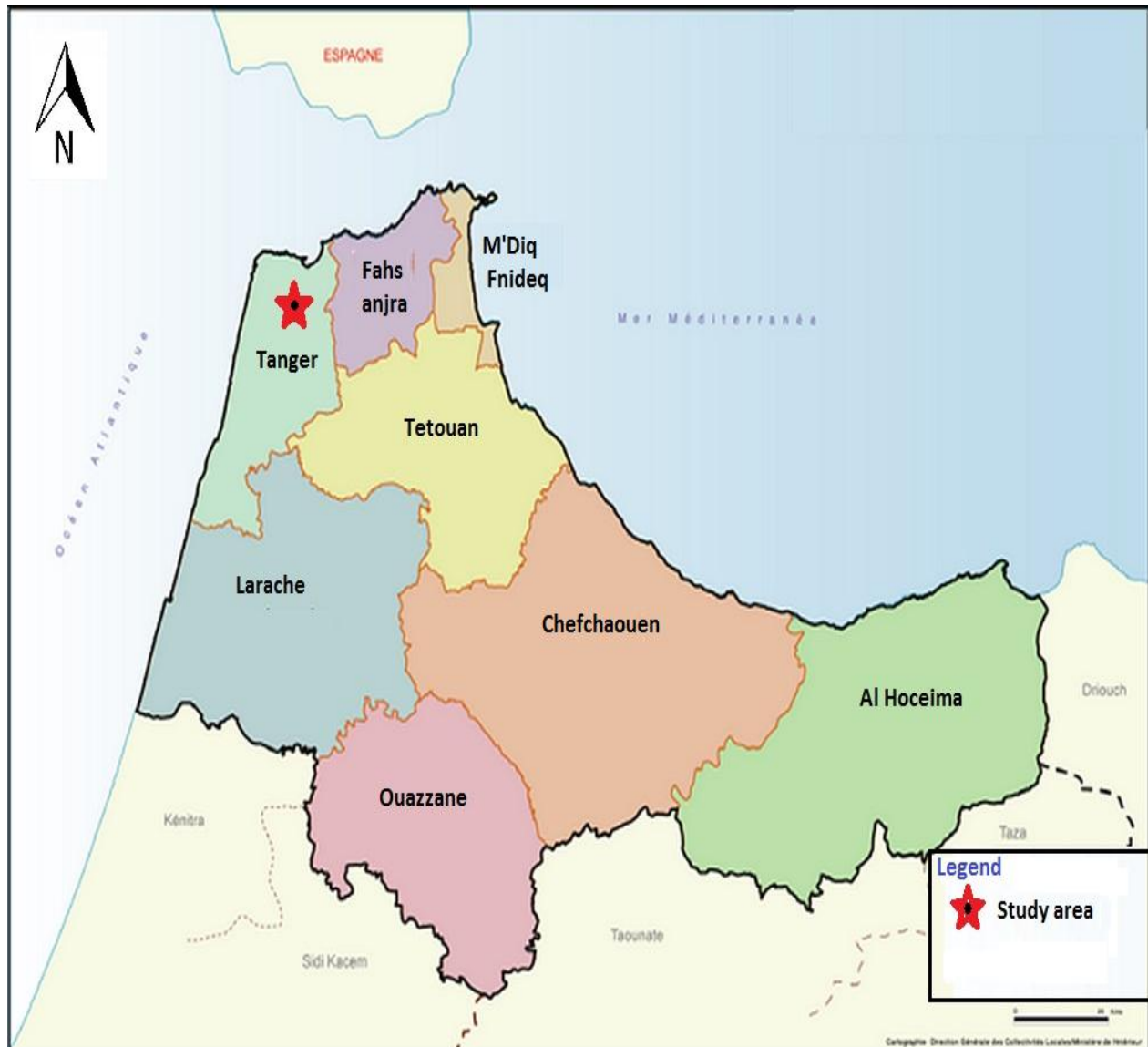
The term “Climate” is generally defined as the average state of the atmosphere for a given time scale (hour, day, month, season, year, decade and so forth) and generally for a specified geographical region. The average-state statistics for a given time scale including all deviations from the mean are obtained from the ensemble of conditions recorded for many occurrences for the specified period of time. And, climate change is defined as the change in climate attributed directly or indirectly to human activity which, in addition to natural climate variability, is observed over comparable time periods.

The definition adopted by the United Nations Framework Convention on Climate Change (UNFCCC) focuses only on the human activity that alters the composition of the global atmosphere and excludes other human activity effects such as changes in the land surface. Sometimes the term ‘climate change’ is used to include all climate variability, which can lead to considerable confusion. Climate has variability on all time and space scales and will always be changing (David D. Houghton, 2002) ^[5].

3. Materials and methods

3.1 Presentation of the case study

Tanger is a Moroccan town which is geographically situated in the northwest of Morocco. It is limited to the north by the Mediterranean Sea and the Strait of Gibraltar (14 km), to the south by the province of Larache, to the east by the province of Tetouan as well as it is bordered on the west by the Atlantic Ocean (Figure 1).



Source: presented by Tarik COUISSI, 2017.

Fig 1: Geographical location of the study area

Tangier is considered as the most important industrial centers after Casablanca. The industrial sectors are diversified into various branches such as: textile, chemical, mechanical, metallurgical and naval. Currently, the city has four industrial parks of which two have the status of free economic zone. The first Free Zone is named Gzenaya whereas the second is named the Tangier-Mediterranean port. What is more, Tangier's economy relies heavily on the tourism sector. Seaside resorts have been increasing with projects funded by foreign investments. Real estate and construction companies have been investing sorely in tourist infrastructures. Moreover, the agricultural sector in this area is tertiary and mainly cereal. Thus, the infrastructure of this city on the strait of Gibraltar consists of a port that manages flows of goods and travelers (more than one million travelers per annum) and integrates a marina with a fishing port. Once again, artisanal trade in the old medina (old city) specializes fundamentally in leather working, handicrafts made from wood and silver, traditional clothing, and shoes of Moroccan origin.

According to the General Census of Population and Housing (GCPH) of 2014, Tangier counts 971 553 inhabitants, including 947 952 in urban areas and 23 601 in rural areas. Besides, Tangier has various natural potentialities and cultural resources. It is also rich in historical monuments. It has many tourist attractions which encompass more natural resources, green forests, sand beaches, rivers, mountains, holy sites. However, it has several handicaps that hinder its development. It comprises more classified tourism accommodation establishments as well as some non-classified establishments which will be able to attract large numbers of tourists especially during the summer season.

More significantly, the climate of Tangier is temperate Mediterranean with oceanic influence. The summer is relatively hot and sunny and the winter is wet and mild.

3.2 Sampling methods

The procedure used in this study is exploratory, from a theoretical and empirical perspective. Deductive and qualitative, it is based exclusively on documentary sources dealing with the impacts of climate change on the tourism sector in the Tangier city. This study, in brief, was carried out in the Tangier city specifically performed in two different beaches. It was combining a qualitative survey of different samples essentially composed of 50 respondents of which 20 questionnaires were distributed to the local population, 20 questionnaires were aimed at tourists and 10 questionnaires were sent to professionals of tourism establishments. Additionally, these questionnaires were dispatched in some places of the Tangier city during a period spread over six days from 10 to 15 august 2016. The goal of this study is to recognize the major impacts of climate change related to the local tourism activity of this area.

4. Results and discussion

4.1 Impacts of climate change on the tourism sector

Through the fieldwork study that I did in the Tangier city, I found that the climate change have different impacts on the tourism activity. This phenomenon may negatively affect the tourism industry. The specific effects are based on the

following elements:

4.1.1 Strong winds and wind gusts

It is obviously that some activities will certainly be reduced owing to the problem of the high winds and wind gusts. For instance, the tourism activity, travel companies, fishing societies and son on. Tourism and travel companies offer many careers opportunities. Consequently, there will be a problem of unemployment since more and more people depend on nautical tourism services, marine and coastal biodiversity. When the weather is bad, many of the local ports remain closed to small boats and watercraft and most of tourism trips which are based on air and sea transportation will be delayed. Since then, the travelers can not move safely. In that case, climate change will be the principal source of joblessness which might in some cases result in desperation.

4.1.2 Biodiversity loss and natural environment

I notice that rapid climate change with its effects on temperature will negatively harm the biodiversity loss since most of the forests were extinct from lots of animals. This problem is due to the forest fires which are considered as a major threat for the forest of the Tangier city. As we annually see that forest fires cause enormous and irreparable damage to forest ecosystems and in some cases threaten the local population. That is to say, forest fires don't just have an impact on the environment, but on economy, society, and human health. In addition to this, the increased presence of tourists will surely contribute to an increased fire risk in Tangier especially during the summer season.

4.1.3 Rising sea levels

Rising sea levels caused by climate change are set to damage many natural resources, historical potentialities as well as some tourism establishments. It also wipes out a lot of premium tourist resorts. In Tangier, for example, I observe that some of the most historical monuments; several restaurants, tourist residences and hotels are mainly located right beside the beach. In addition to this, rising sea levels can cause erosion of land.

4.1.4 Pollution of the industrial companies

Evidently, pollution contributes seriously to the problem of climate change. Tangier has many industrial companies that pollute the air and the sea. Air travel, for instance, is the fastest growing source of greenhouse gas emissions; it increases the risk of continued global warming and causes considerable environmental damage.

4.2 Adaptation strategies of climate change in the tourism sector

There are different types of adaptation strategies that can assist the tangier tourism sector to cope with changes in climate. These strategies include a lot of elements. First of all, education and communication which are the most powerful methods and tools to reduce the risk of climate change. These concepts should be based on educating and motivating people as well as tourists so as to be conscious of the environment and its responsibility. Second, the way of minimizing air

travel can be a major factor in reducing the problem of emissions. Most important of all, we should reward airlines with sound management. In other words, tourists ought to prefer airlines that are committed to serious environmental management by using aircrafts with new fuel-efficient engines and airframe designs.

5. Conclusion

Eventually, the results of this study were clearly noted that the Tangier tourism sector is affected profoundly by the climate change. It has bad impacts on the environment and the social economy. These negative impacts can have serious consequences on people's social lives. As we know that a lot of people rely deeply on incomes from tourism industry. In that case, most people will be unemployed. Essentially, the government must find a suitable solution to minimize the risk of this phenomenon. It should provide environmental information and raising awareness among people in general, including tourists as well as professionals of any societies to contribute positively to environmental protection and sustainable use of natural resources. It should also make some campaigns on the TV, magazines, conferences, etc. and oblige people to pay taxes if they do not respect the law of the environment. Furthermore, people had better be aware of sustainable development of any natural resources especially the forests. If the forests die, we will die too. Therefore, it is very difficult for tourists to adapt to the climate change. Yet, with the formulation of adaptation strategies, the tourism sector can play an important role in dealing with climate change.

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