

Parsons The New School for Design

Climate Change and its Impact on Tourism

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Introduction

“The decade 2001– 2010 was the warmest on record, with average temperatures significantly above the 1961– 1990 mean, and warmer than the previous record decade”. (236,Vinner) The planet is experiencing a rapid change in climate patterns, along with record high temperatures during the summer months, especially within the Northern hemisphere. Global warming is expected to raise the rate of migration, but decrease the number of those who seeks leisure tourism. However, tourism is also one of the largest fabricator of global warming, “It was found that the 1,307 million tons of carbon dioxide emitted by tourism in 2005 represented about 5 per cent of the world’s CO 2 emissions.” (15,Becken) The key contributor to tourism emissions is clearly transportation. Globally, 75 percent of tourism’s emissions are due to transportation. (15,Becken) Even though tourism seems to have a large effect on global warming, there is very little scientific research on the matter. “The Caribbean is the only ‘non-Western’ region that has invested substantially in research and knowledge generation to address the implications of climate change for the tourism sector. Very little is known about the situation for destinations in Africa, South America and even Asia, despite their growing importance as global tourism players.” (30,Becken)

This paper analyzes the causes of Global Warming and Climate Change, and its impact on tourism. Its purpose is to research major struggles that tourist destinations are facing, and examine the devastating consequences that climate change might have on tourism, to raise consciousness and create change. This paper uses several excerpts from books, journals, and official websites, in order to back up relevant sources.

Urban and Metropolitan Areas: the projections of climate change on tourism in major cities.

London

“London is a world tourism destination, which sees 26 million visitors annually, worth £11.2 billion to its economy.”(4,London&Partners) Unfortunately, the effects of global warming are expected to alter the whole look and personality of the city.

London is more vulnerable to heat than its surrounding areas due to the Urban Heat Island effect¹. (10,London) Because of the consequences of “Urban Heat”, London will be much hotter in the years to come, which might make it less attractive it to those who expect England to be rainy, cool, and overcast. A lot of the tourists in London come from other European countries, and people with fair skin might be affected by London’s increase of heat. “There is evidence that an increase in UVB radiation flux associated with climate change, and potentially the incidence of skin cancers, may be largest in southern England, with an increase in melanoma of up to 20 per cent possible by the 2080s.” (15,London) In addition to skin cancer, there may be some other health issues that might affect London and its tourists: “climate change may reduce winter air pollution levels, but may increase summer air pollution. “(15,London) The pollution on the summer air might decrease the amount of visitors that visit London during the summer season.

Transportation might also become an issue, “As most of the London Underground was built before air-conditioning was invented, and the tunnels were designed with just

¹ High temperatures in urban areas due to retention of heat by concrete buildings.

enough room for the trains, cooling the London Underground network is a highly complex engineering problem.” (9,London) Cooling London’s metro system would be rather expensive, and not necessarily environmental friendly.

Those who travel to London for business purposes might also think twice before booking tickets, “The main threats to business activity within London are likely to be flooding and heat. Water shortage may also affect the running of businesses reliant on making industrial water abstractions or discharges.” (16,London) Investors might change their mind about investing in London, which could have a negative impact on the economy.

London is going to be very susceptible to flooding, which might change the whole personality of the city. “The long-lasting health impacts of flooding, including psychological stress, are well-documented and can be very severe.” (15,London)

Tourism in London contributes hugely to the economy of the United Kingdom, “Supporting 304,000 jobs.” (3,London&Partners), sadly, London might lose a lot of its tourist appeal, unless they are able to fight some of the effects of climate change.



This image shows how the city of London is expected to look forwarding a 2 °C and 4 °C temperature raise. (Strauss)

Mumbai

Mumbai is already being affected by global warming, and the city is expected to flood if the sea levels keep rising. “India’s urban centers are already confronted by environmental concerns, such as increasing energy consumption, large scale pollution, a scaled up built environment at the cost of green spaces, unmanaged waste generation, unsustainable use of natural resources like water, and pressure of increased population density.” (2,Alankar) As India is still a developing country, and Mumbai is just recently becoming a financial and industrial center there are many obstacles to overcome. “Mumbai has a high exposure to risks associated with climate change, especially rises in sea levels, due to its high density of population and its commercial and industrial buildings.” (8,Alankar) The tourism industry in Mumbai will most likely be very affected in a negative way. Many of the tourists coming from Europe and North America might not want to deal with the effects that global warming will have in a third world country “Salt-water intrusion is also likely to affect the stability of high-rise buildings”. (Alankar,8) In addition, they might be scared to be exposed to tropical diseases that will be on the raise in India due to global warming. “Disease incidence, especially of malaria, diarrhea and leptospirosis, are also likely to be exacerbated.” (8,Alankar) With such deadly diseases affecting the local community, tourism will most likely decrease, as it could raise medical costs for tourists, Europe and The United States may also issue warnings for fear of citizens bringing diseases back from Mumbai. India is slowly becoming a world power, and they are investing large amounts of money on all types of industries. However, they will need to reduce their pollution and invest more on the

environment, with large part of Mumbai's population already living in slums and poverty, climate change will only bring even more chaos to the city.

New York City

New York City just as other costal cities is susceptible to the consequences of climate change due to sea level raises and the "heat island effect". New York City will have to take important measurements to keep the city from flooding and from reaching incredible high temperatures during summer months. According to scientific studies: "Annual average temperatures have risen about 5 °F. since 1900, with winter warming exceeding 4.4 °F." (9,Lowery) Annual average temperatures in New York State will rise by 5.3 to 10.1 °F. by the 2080s. (9,Lowery) And the average number of days per year above 90° F is expected to at least double (36,OneNY). If this were to happen, New York City could lose much of its tourism to other northern destinations during the summer months, especially to cities in Canada or Northern Europe. However, New York City might not see a great reduction of tourism compare to other cities, as most tourists come for business purposes, or to check out the city's museums and art exhibitions.

"Sea level along New York's coastline has risen about a foot since 1900." (9,Lowery) Projections suggest that: "Average regional precipitation will increase 4 to 15 percent by the 2080s, with most of the projected increase forecast in winter months. (9,Lowery) Due to expected high precipitation and the melting of the Artic cape, the sea level is expected to rise about 6 feet by 2100 along the Hudson River. (9,Lowery) If these numbers are correct, New York City might even disappear. There will be many natural disasters that could destroy large part of the city: "The number of the most intense

hurricanes across the North Atlantic Basin is also expected to increase. Each of these changes will increase the exposure of the city's neighborhoods" (36,OneNY). With high temperatures, sea level rising, and exposure to hurricanes, the city might lose great part of its population, making New York a less exciting metropolis. Even though New York might be at first unlikely to flood, thanks to the large underground system, climate change may cause devastating effects on the city in the long run.

Destinations Recommended Measures

The biggest issue that cities face regarding climate change has to do with infrastructure. Cities need to implement plans to protect important landmarks, and they need to strengthen the foundations of buildings and bridges. "Architectural heritage may be affected by climate change in a number of ways. The most obvious is the direct effect of rising sea level on those structures that are near the coast and that may be flooded or damaged by coastal erosion". Increased rainfall resulting in rising water tables will have an effect on the foundations or the fabric of buildings. (78,UNWTO, UNEP AND WMO) Therefore, cities need to hire specialists to take care of such sites in order for the tourism sector to not be affected in these cities.

Coasts, Beach Resorts and Coral Reefs: the projections of climate change on beach resorts, diving and beach leisure activities.

The Mediterranean Coast

With rising sea levels and the planet reaching record temperatures during the summer months, it is safe to say that the Mediterranean coast might be very affected by global warming, as dry hot summers and lack of precipitation are already natural characteristics of this climate. The Mediterranean coast is also a favorite vacation spot for Northern Europeans; however, places such as southern Spain, southern Italy and Greece will reach such high temperatures that it could be in fact threatening for one's health. "As a result of climate change it is estimated that temperatures in the hot summer months may exceed several thresholds of human comfort as the frequency of extreme hot days increases." (20, Viner) Global warming could hurt the economy of these countries as well, especially Turkey, Cyprus and Greece, which are some of the poorest European countries, and the ones that depend the most upon the tourist sector. "In Greece, tourism is one of the biggest foreign-exchange earners." (20, Viner) But even if these countries are able to keep up their highly visited beaches and resorts, costs may increase so much, that it may no longer be profitable for hotel landlords to run their businesses. "A large portion of overall energy consumption in the accommodation sector is related to space heating-cooling, and therefore, changes in heating-cooling degree-days have considerable implications for energy costs in some regions." (73, UNWTO, UNEP AND WMO) Taking into account that the average temperature in this area during the summer is expected to increase by 4°C by the middle of the next century (20, Viner), it can be

concluded that the cost of cooling hotel rooms may increase significantly, which may substantially increase the price of accommodations.

The Maldives

The Maldives is a tropical nation in the Indian Ocean that attracts thousands of tourists a year, specifically from Australia and the United Kingdom. The Maldives is made of an archipelago of islands in which “60% of those are already facing varying degrees of erosion and encroachment.” (75,UNWTO, UNEP AND WMO) The Maldives is fighting a battle against time, as many of the islands are less than one meter above sea level and their total land area is less than 300km². (16,Viner) Because of sea levels rising, The Maldives could be up for a major disaster and might not even have enough time to prepare.

Tourism is the fastest growing economic sector in The Maldives, and its revenue is supposed to double in the near future. However, “most tourists who visit the Maldives do so for diving experiences.” As the world is predicted to lose up to 58% of coral reefs due to global warming, it will cost the tourist industry an estimated \$140 billion.

(17,Viner)



Coral Bleaching is affecting the tourist industry related to diving activities. (UNWTO, UNEP AND WMO)

Destination Recommended Measures

Countries need to implement coastal protection to prevent erosion and destruction of coral reefs, if they pretend to keep the diving industry alive. In addition, countries should implement programs that attract tourists to inland activities in order to protect the beaches, for example setting a higher focus on cultural activities involving food, museums and spas.

Ski resorts and Snowy Mountains: the projections of climate change on snow and winter related industries.

European Alps

With global warming, the snow season is supposed to shorten and as there may be a dramatic reduction in the amount of precipitation that falls as snow. Among the European Alps, the reduction of the amount in snow may be as much as 30% by the 2020s and over 50% by the 2050s, (18,Viner) affecting the skiing industry, which is a large contributor for the economies of Austria, Italy, Germany and France. According to recent studies “the number of ski areas that were considered ‘naturally snow reliable’ dropped from (91%) to (61%) under a +2° C warming scenario and further declined to (30%) under a +4° C warming scenario.” (68,UNWTO, UNEP AND WMO) The amount of ski resorts in the European Alps will decrease to eventually a handful, and will not only affect skiing but also other winter sports, such as Nordic skiing, ice fishing or snowshoeing. (68,UNWTO, UNEP AND WMO)

Australia

The future of the ski industry of Australia is uncertain, as higher temperatures in Australia could potentially destroy 44% of the ski market, as 38% of Australians confess to consider leaving the Australian mountains for mountains in Canada or New Zealand (111, UNWTO, UNEP AND WMO) primarily due to concerns in lack of snow in Australian mountains. “Under a warming scenario of +3° C and precipitation decline of 20%, none of Australia’s ski areas are projected to have enough natural snow cover to remain financially viable”. (70, UNWTO, UNEP AND WMO)

Ski resorts are important for the economy of many small towns in Australia, providing about 12 thousand full time jobs during ski season. (34) Australia will be able to sustain the ski industry for about 25 more years by investing large amounts of money, but the industry will be completely lost by the middle of the century. (70, UNWTO, UNEP AND WMO)

Destination Recommended Measures

Since global warming has shortened the snow season, countries should incentive other mountain activities such as trekking, hiking and mountain biking with the purpose of keeping this tourist sector alive, especially since many small towns are dependent on this type of tourism. Ski resorts should also strive to maintain a relatively high amount of snow, even if it requires the implementation of snow making machines. Investing on ski tracks that require a smaller amount of snow and installing avalanche prevention

infrastructures, are also necessary in order to attract those ski enthusiasts who are most concerned with safety issues.



Snow making machines are an example of climate adaptation. UNWTO, UNEP AND WMO

Forests and National Parks: the projections of climate change on eco tourism and indigenous culture.

Costa Rica

Climate change may have a painful impact on the economies of most tropical countries, as most of them are poor and depend greatly on ecotourism. Climate change could also displace many indigenous communities in rural areas, destroying local culture, which goes hand in hand with tourism. In addition, climate change may increase financial struggle in these communities which highly depend on the money that tourists spend on their arts and crafts. “Socio-cultural heritage is an ever more popular attraction for tourists, and cultural activities, as well as indigenous and folk traditions are among the

most fragile aspects of a society. Many have already disappeared through processes of globalization, mechanization, urbanization, emigration and other factors. The cultural consequences of physical climate change impacts on landscapes and buildings may reinforce current trends towards the abandonment and break-up of communities, leading to the loss of rituals and cultural memory.” (79, UNWTO, UNEP AND WMO)

An example is Costa Rica, which expects to lose a great part of their biodiversity due to climate change. “Hotter waves and less rain will have a seriously negative impact on biodiversity, which is also a very important tourist attraction. It will be threatened especially in the humid tropical areas and the dry tropical areas even under an optimistic scenario.” (31,ECLAC) Costa Rica expects to see a decline in tourism as the following statement suggests: “Costa Rica’s tourism appeals mostly to leisure tourists (sea-sun-sand, ecotourism, adventure, etc.), while other countries have a wider range of activities that generates a somewhat more homogeneous flow of visitors throughout the year.” (57,ECLAC) Therefore, creating obstacles in the local tourist market.

South and East Africa

South and East Africa could experience similar consequences, such as Costa Rica. “Eight out of ten visitors come to Kenya for the wildlife, visitors are attracted to the equable Indian Ocean beaches, and the 25 national parks and 23 game reserves.” (33,Viner) Tourists come to countries such as Kenya, Tanzania and South Africa to enjoy the pleasant temperatures, the vegetation and the wildlife; therefore, any redistribution in wildlife could threaten population numbers, which would reduce its appeal.

Climate change may also increase the frequency of flooding, drought and land degradation, subsequently reducing the viability of recreation activities and wildlife safaris. (33,Viner)

South Africa estimates that about 10-40% of their plant species are going to disappear by 2050 (43,Colette). The amount of tourists who travel all the way down to the south of Africa, expecting to experience the exotic wildlife native to this location, may decrease dramatically, as the landscape becomes less exciting. Poor infrastructure may also be affected by natural disasters related to climate change, such as: heavy storms, forest fires and draughts. For example, El Niño rains, leave park roads impassable for long periods of time, and result in reduced tourist visits and loss of revenue.” (33,Viner)

Destination Recommended Measures

Tropical countries should invest in healthcare to avoid tropical diseases from spreading. They should also increase the amount of protected national parks, maintain roads in good condition, and provide more financial help to remote indigenous communities.

Conclusion

Unless countries take immediate action against climate change, there is going to be a dramatic reduction of tourism. According to Francesco Frangialli: “It is vital for tourism destinations to anticipate the coming changes and to draw their consequences, starting now. Adaptation is a long-term project that must be anticipated and carefully prepared beforehand” Secretary-General. (2,UNWTO) Tourism it is the main economic sector in many third world countries that are already affected by poor economy. In the other hand, richer countries may also observe heavy damage in their cultural heritage sites and infrastructure.

It is very important to take care of the tourist sector, as tourism is a part of globalization, tourism creates awareness and solidarity, it educates people, and it helps fighting other world problems such as poverty, war, and the destruction of indigenous communities, which are already struggling to stay alive.



The city of Venice experiences constant flood that damage the local infrastructure.
(Coletti)

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