

Impacts of climate change on tourism and potential adaptation responses in coastal and Alpine regions

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Climate is a resource

- There is close inter-relationship of vacation choice and climate/weather conditions
- Entertainment, sport, recreation, travel for health purpose – specific climatic and weather features are required
- In Alpine and Mediterranean area - well pronounced seasons - tourism displays marked seasonality and weather sensitivity
- Temperature will continue to increase, droughts will become more severe and frequent, increased frequency of extreme weather events
- Climate is essential for health resorts claiming to offer healthy climate or climatotherapy

Mass tourism represents a significant burden for our environment

Climate change impacts

- Some of the present destinations will lose appeal, and some others will increase their potential to attract masses of tourists
- Some of the presently popular places could become dangerous or associated with a high health threat
- Climate change could possibly also affect the availability of vital resources, for example drinking water, and will have some impact on propagation of diseases like malaria and other vector, food and water-borne diseases, etc

Already now the fashion is forcing tourism industry to develop and adapt constantly

Tourism has future in spite of climate change

Needs and desires to travel can be divided from the point of climate change into:

- Impacts on the home climate, people will like to spend some time in more pleasant climate or they will like to avoid oppressive weather conditions (for example heat waves)
- Travel with the purpose to enhance health in places with well-known healthy climate
- Searching for climate features, which enable selected recreation forms and sports
- It is expected that more tourists will concentrate in selected zones increasing environmental stress in that region

Limiting factors: fresh water availability and safety

Mountains

- For many alpine areas winter tourism is the most important source of income, and snow-reliability is one of the key elements of the offers made by tourism in the Alps
 - Some winter sports related infrastructure will extend towards higher altitudes, towards before unexploited regions
 - Snow avalanches frequency?
 - Economic effects of recent snow-deficient winters - greatest on the resorts at low altitudes (adverse impact on transport and accommodation)

Ski clients delay booking



Mountains - climate change impacts

- The period suitable for hiking may extend; less snow confidence; the period suitable for winter sports will be reduced (downhill skiing, skating, snow boarding, cross-country skiing)
- Climate change will shift vegetation belts higher; also, the region of permafrost will be slowly pushed upwards - impact on the landscape, fauna and consequently on the appeal of those tourist destinations
- Milder conditions in winter and shoulder months could attract more people into the uplands for hill walking, creating opportunities and threats for agriculture and nature conservation
- Snow cover in the Alps will diminish, and this will, in turn, jeopardize the tourism industry in spite of adaptation strategies (e.g. artificial snow production)

City tourism

- Some of the most famous cities are attracting millions of tourists, among the most known are Rome and Venice
- Heat island in the big cities is already of the same magnitude as the expected climate change
- Cities in middle latitudes are likely to become more unpleasant for tourists during the hottest months
- In middle latitudes heat waves will become more intensive and more frequent
- Fresh water availability (competing with local population for limited resources; waste)



Wetlands

- Some natural phenomena (caves with underground rivers, salina, lakes and waterfalls) are very sensitive to precipitation regime
- Coastal region is under stress in case of high tide occurring in combination with special weather conditions. Expected sea level rise will increase problems
 - Some of those natural beauties could even disappear, if climate will change significantly
 - Ecosystems including some rare and protected species will be highly endangered in unstable climatic conditions
 - Unique and very sensitive ecosystems to all the changes in environment and consequently also to climate change. Changes in precipitation regime will have significant impact on all below-mentioned features

Heat waves, droughts, rising seas, flash floods, forest fires and diseases could turn profitable tourist destinations into holiday horror stories

Extreme events – watch warning systems

The application of the concept of disaster preparedness to tourism will involve a number of measures

Tourists and the tour operators who arrange visits for international tourists to the area concerned, should be involved in the information and education process

Tour operators and the tourists concerned should be involved in:

- the process of dissemination of warnings,
- the process of response to the warnings and
- any evacuation process

Rising awareness, education and promotion

Benefits of using seasonal forecasts and regional climate projections

- In future - advantage of seasonal forecasts. In the next decade or so, considering rapid development and improvement of seasonal forecasts, reasonable reliability could be expected also for mid latitudes
- Seasonal forecasts will allow tour operators to make a projection of the general climatic conditions and anomalies during the next seasons and to undertake the proper measures to adapt to the expected conditions
- Benefits from more reliable and more detailed climate projections, especially those taking into account regional differences and fluctuations

Conclusion

- Changes in global climate are beyond the control of the tourism industry; consequences for many current tourist destinations
- Tourist destinations will be forced to respond and adapt with infrastructure and programs
- Already adapting - ski resorts (artificial snow, alternative programs)
- Develop and implement efficient watch warning systems. Special attention to be paid at tourists
- Tourism is a continuously adapting industry, responding to changing demographic and economic conditions as well as to new demands and technologies
- Due to the fragmented structure, adaptation is likely to be gradual with new investment in tune with other strategic decisions