

Greek Tourism and Climate Change: Adaptation Policies and New Growth Strategy

(Excerpts translated in English from the report «Ελληνικός Τουρισμός και κλιματική αλλαγή: πολιτικές προσαρμογής και νέα στρατηγική ανάπτυξης», which was published in Greek in October 2014)

Foreword

Climate change is gradually shaping a new environment for Greek tourism. Its physical impact is expected to significantly affect the tourism industry in the medium and long term, aggravating some of its chronic weaknesses, while also highlighting new growth possibilities. Against this background, climate change considerations emerge as a key factor in policy making in the tourism sector. Starting with this sectoral study focused on the tourism industry, the Climate Change Impacts Study Committee (CCISC) of the Bank of Greece steps up its research into a climate change adaptation strategy.

Tourism is one of the most important sectors of the Greek economy in terms of both GDP and employment, and receipts from tourism offset part of the country's trade deficit. This, among other things, was shown by the 2011 CCISC Report "The Environmental, Economic and Social Impacts of Climate Change in Greece", an ambitious effort by Greek scientists that has offered much to the ongoing research on the impacts of climate change and serves as a point of reference in the relevant Greek and international literature.

The present Report is the fruit of collaboration between scientists and the tourism industry and follows up on the conference "Greek Tourism and Climate Change: Adaptation Policies and New Growth Strategy" held in July 2013, jointly organised by the Bank of Greece, the Mariolopoulos-Kanaginis Foundation for the Environmental Sciences and the Research Centre for Atmospheric Physics and Climatology of the Academy of Athens.

The Report discusses how climate change can affect the country's tourism product and investigates the implications of human-induced climate change for sustainable growth and total quality management in tourism. It also attempts an evaluation of the impacts of climate change on tourism in financial terms, including by considering alternative sea level rise scenarios. Finally, it presents the sector's strategy and action plan for addressing the impacts of climate change, with a focus on growth policies and the challenges faced by Greek tourism, especially in the islands.

I would like to thank all the distinguished scientists involved, for once more putting their efforts into this project launched by the Bank of Greece a few years ago and for undertaking (without any remuneration) to prepare this Report, thereby contributing to the formulation of a climate change adaptation strategy.

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Yannis Stournaras

Governor of the Bank of Greece

Chapter 1

The economic and physical impacts of climate change on Greek tourism

Christos S. Zerefos

*Laboratory of Climatology and Atmospheric Environment, Faculty of Geology and
Geoenvironment, National and Kapodistrian University of Athens
Research Centre for Atmospheric Physics and Climatology, Academy of Athens
Navarino Environmental Observatory (NEO)
Mariolopoulos-Kanaginis Foundation for the Environmental Sciences*

Andreas Papatheodorou

*Laboratory for Tourism Research and Studies (ETEM)
University of the Aegean*

Isaac Sabethai

Bank of Greece

Introduction

The present sectoral analysis forms part of Phase 2 of the work undertaken by the Climate Change Impacts Study Committee (CCISC) for the development of a National Strategy of Adaptation to Climate Change (NSACC).¹ The analysis focuses on identifying the economic impacts of anthropogenic climate change on Greek tourism and on recommending policy measures for the sector in the context of a comprehensive strategy for the Greek economy's adaptation to climate change.

Tourism, a key industry of the Greek economy, accounts for a large share of GDP and employment and a positive contribution to the country's current account balance, as also

¹ See Bank of Greece, *Annual Report 2012* (Feb. 2013), Chapter XI, Section 6, pp. 189-194.

indicated in the CCISC study.² At the same time, Greece's climatic factors are a major parameter that makes Greek tourism product particularly vulnerable to climate change. These two facts explain why the CCISC has chosen tourism as the starting point for its exploration of necessary adaptation measures.

High temperatures, weather extremes, the redistribution or shortage of water resources and sea level rise (SLR) are just some of the physical impacts of climate change that are expected to have a considerable effect on the tourism industry. Two leading studies, one by the Deutsche Bank³ and the other by the World Tourism Organisation (WTO)⁴, forecast a redistribution of tourist arrivals in favour of countries with lower average summer temperatures, such as the Baltic, Scandinavian and Benelux countries, while Mediterranean countries stand to lose their attractiveness.

The above-mentioned CCISC study examined the impacts of climate change on Greek tourism, both in physical and economic terms, and provided a model-based estimate of the economic impacts of anthropogenic climate change. However, it did not exhaust the subject, as the use of aggregate annual or nationwide data that lump together regions with very different climatic features was often found to be misleading.

In its conclusion, the 2011 report identified two primary objectives in respect of a strategic planning for Greek tourism: the need to extend the tourism season (reducing the pronounced seasonality of Greek tourism) and the need to geographically diversify Greece's tourism product to a larger part of the country. The achievement of these objectives requires that steps be taken to identify and market Greece's many, still unexploited, natural attractions, to develop and promote alternative eco-friendly forms of tourism, to attract new tourist target groups, and to enforce measures to reduce the industry's environmental footprint. Finally, the CCISC study also estimated that the operating costs to be incurred by accommodation establishments during the course of

² Bank of Greece, *The environmental, economic and social impacts of climate change in Greece*, June 2011.

³ Deutsche Bank Research, "Climate change and tourism: Where will the journey lead?", *Current issues*, 11 April 2008. Available at http://www.dbresearch.com/PROD/DBR_INTERNET_EN-PROD/PROD000000000222943/Climate+change+and+tourism%3A+Where+will+the+journey+lead%3F.pdf

⁴ World Tourism Organization (2008), *Climate Change and Tourism: Responding to Global Challenges*, UNWTO, Madrid.

adaptation to climate change would increase by roughly 5-7% annually. Consequently, there is an urgent need to develop a long-term strategic plan for Greek tourism, in collaboration with State authorities and representatives from the tourism industry, on the basis of the two primary objectives outlined above.

The present study focuses on the anticipated economic and environmental impacts of anthropogenic climate change on tourism in Greece. **Chapter 2** contains the papers presented at the conference on “Greek tourism and climate change: adaptation policies and a new growth strategy”, held by the CCISC on 9 July 2013 at the Bank of Greece, with the participation of academics, representatives from various sectors of the tourism industry and government officials.⁵ This conference also marked the starting point for the present analysis.

In **Chapter 3**, entitled “Tourism climatology”, authors A. Matzarakis, P. Nastos, Ch. Zerefos and J. Kapsomenakis discuss how anthropogenic climate change can affect Greece’s tourism product. Using a climate simulation method called CLM (Climate Version of the Local Model), the authors estimate anthropogenic intervention by simulating the conditions likely to prevail in Greece during the periods 2021-2050 and 2071-2100, relative to baseline period 1961-1990, based on a specific scenario. This simulation is well-suited for a study of tourism using the Climate-Tourism/Transfer-Information-Scheme (CTIS), which, combined with the Physiologically Equivalent Temperature (PET) index, provides valuable and detailed information on “thermal comfort”, as well as on the natural features and aesthetics most likely to attract beach holiday-makers.

More specifically, based on the authors’ findings, the incidence of sultry conditions in the months of July, August and September is likely to increase by some 20% in upcoming decades, while thermally comfortable conditions are expected to occur earlier in year (in April, instead of May) as well as later (in October, instead of September). This is expected to have a significant impact on beach tourism in Greece, typically associated, at present, with summer months. The results of the climatic simulation

⁵ The videos of the presentations can be viewed at: <http://www.blod.gr/lectures/Pages/viewevent.aspx?EventID=261>

indicate that sun-and-sea tourism in Greece will in future take place outside the current high season and will take on characteristics similar to the ones currently prevalent in warmer tourism regions of the planet, such as the resort areas of the Red Sea, India and the Persian Gulf. This, of course, will require an adjustment of Greece's tourism product and services and a reformulation of tourism policy on a new basis.

In **Chapter 4**, entitled "Policies and actions for tourism adaptation to anthropogenic climate change", the authors, G. Zacharatos, A. Papatheodorou, and E. Sartzetakis, analyse the policies and actions for tourism adaptation to anthropogenic climate change. First, they explore the link between anthropogenic climate change, sustainable tourism development and integrated quality management in tourism, as well as the role of the responsible environment-friendly tourist. Reference is then made to issues pertaining to the standardisation of adaptation policies and actions in the areas of tourism transportation, accommodation and food services, as well as the distribution of the tourism product through green tourism certification. Finally, policy recommendations are presented concerning climate change and the competitiveness of Greek tourism.

The view shared by the authors is that special and alternative forms of tourism, together with a redefinition of the peak season for sun-and-sea tourism, can help the Greek tourism industry overcome its current ailments. This can be achieved through product enhancement, improved services and a focus on intensive rather than extensive development (by seeking, for instance, to increase visitor per capita spending rather than to increase the total number of arrivals) and by reducing Greek tourism's pronounced seasonality. These recommendations may not be particularly innovative, but climate change creates new dynamics for Greek tourism and therefore calls for the prompt adoption of measures that will make tourism friendlier to the natural and the built environment both on demand- and supply- sides.

In **Chapter 5**, entitled "Climate change and adaptation policies in the Greek tourism sector: a cost-benefit analysis", the authors M. Skourtos, Ch. Tourkolias, D. Damigos and A. Kontogianni provide an assessment of climate change impacts on tourism in Mediterranean countries, and more particularly Greece, using different sea level rise (SLR) scenarios. The chapter begins with a distinction between direct impacts (e.g. temperature increases) and indirect impacts (e.g. damage to coastal tourism infrastructure), underscoring the fact that the various negative impacts of climate change

will lead not only to a drop in the number of tourist arrivals due to increased thermal discomfort during the summer months, but also to higher operating costs for tourism businesses as a result of greater energy needs, new infrastructure construction, etc. The chapter then focuses on the impact of erosion on Greece's tourism infrastructure, showing that the economic impacts of sea level rise (SLR) will be particularly important: indicatively it was estimated that an SLR of 1 m. would have a total cost of around €630 billion by 2100, due to the loss of residential and tourism land (using a discount rate of 3%, the present value of these losses in 2010 would amount to an exorbitant €44 billion!). In light of the above, the authors recommend the adoption of adaptation measures previously subjected to a cost-benefit analysis [to determine their efficiency]. More specifically, four basic measures were examined, namely beach stabilisation, artificial beach nourishment, the construction of seawalls//breakwaters and coastal protection systems using rockfills, filters with geotextiles and beach drainage. A mix of all of the above measures would be advisable as it would maximise the benefit-cost ratio (based on the Monte Carlo method), given the particularities of the Greek coastline.

Finally, in **Chapter 6**, entitled “Institutional changes – regulations, environmental and tourism policies”, the authors H. Coccossis and I. Spilanis discuss the strategy and action framework needed to address the impacts of climate change, placing an emphasis on growth policy, the operational priorities and the corresponding actions in view of the challenges facing Greek tourism, especially on the islands where water shortage, competitive land uses, desertification and SLR are becoming increasingly pressing issues. The following six operational areas of intervention have been identified so far: (1) the strengthening of entrepreneurship, (2) the development and improvement of general and specific infrastructure, (3) improving the knowledge and skills of human resources, (4) reducing the seasonality of Greek tourism, (5) expanding the opportunities for tourism development to all regions of Greece based on the specificity and potential of each region, and (6) the undertaking of concrete destination-specific actions geared towards maximising the “local experience” offered. Legislative measures, such as recent Law 4179/2013, the land use plan for tourism and the new National Strategic Reference Framework-NSRF for 2014-2020, should prove instrumental in this direction.

The policies and actions for Greece's islands mainly involve the comprehensive management of coastal areas, combined with changes in land planning and in the legal

framework governing construction with a view to reducing the risk of flooding, etc. Actions are also needed to ensure the efficient use of resources, including land, water reserves, energy, and to replace fossil-fuel consuming vehicles at the local level with more eco-friendly means of transportation (e.g. electric vehicles, bicycles, public transportation). Moreover, production and use of local inputs with a smaller environmental footprint needs to be strengthened, as it would also help to diversify the tourism product. Businesses directly or indirectly involved with tourism must also be encouraged to improve their environmental performance. Local governments and public service providers in general can also play a crucial role not only by offering incentives, but also by undertaking information actions, encouraging social responsibility and implementing innovations for a better management of the climate change impacts on tourism.

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In February 2013, the Climate Change Impacts Study Committee (CCISC) drafted an initial schedule for the development of a National Strategy of Adaptation to Climate Change.⁶ Below are few remarks concerning the next steps of the strategy development stage:

- Although the in-depth analysis of specific adaptation policies in priority sectors, such as tourism, is in the initial phases carried out using “bottom-up” analyses, mitigation policy analyses may also be required, insofar as certain adaptation policies may directly involve emissions reduction. In any event, given the high uncertainty surrounding the impacts of climate change and matters such as cost, proper timing and efficiency of adaptation policies/measures, the recommended policies must, in the spirit of “adaptive adaptation”, be flexible and adjustable to new developments and findings.
- The sectoral adaptation policies need to be mainstreamed into broader public policies for these sectors, especially at times of limited available funding, economic recession or at best weak growth. It would therefore be useful to explore whether the banking and insurance sectors would be willing to support sectoral adaptation (and mitigation)

⁶ See footnote 1 above.

policies, and to make an inventory and analysis of all initiatives regarding climate change and entrepreneurship.

- Consultation with decision-makers, central and local government officials, professional associations and stakeholders in general should be held, with a view to incorporating feedback as input for future research proposals. Consultation is now recognised as an invaluable tool for (a) ensuring that research is oriented to users' practical needs; and (b) gauging and monitoring the social acceptance of research findings and (c) supplementing research data as well as keeping up-to-date on new options.