Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

EU 2007 DE

Time to Adapt – Climate Change and the European Water Dimension
Discussion Paper: Tourism

Introduction

Tourism has become one of the European Union's most important and fastest growing sectors. Through increasing emissions, in particular from aviation travel, tourism itself has a considerable impact on the climate system. At the same time, with the tourism industry heavily dependent on weather and climatic conditions, shifts in temperature and precipitation patterns have impacts on tourism and will require adaptation responses.

Impacts of climate-driven changes in water resources

An increase in the frequency and intensity of heat waves, droughts and water shortages might negatively affect the attractiveness of southern European holiday destinations in summer. Possibly, water-borne and water-related diseases such as malaria might surface on the southern coasts as a consequence of the warming climate, which would further exacerbate the situation. By contrast, northern European and Alpine regions might become more attractive for tourism during summer. In winter, on the other hand, these regions could lose appeal due to reduced or less-reliable snow cover and the resulting threat to winter sports. Studies analysing the situation in the Austrian federal state of Salzburg, for example, project a significant reduction in snow cover duration.

The longer-term impacts could thus lead to an alteration of tourist flows and a shifting of tourism seasons. In summer, the massive movement from northern Europe to the Mediterranean, which today is the largest tourism flow globally (UNWTO 2003), could slow down, with northern Europeans holidaying increasingly within northern Europe, and southern Europeans visiting their own coasts in different seasons or staying in cooler and higher hinterland areas of coastal regions. Southern Europeans may also travel north to escape uncomfortable summer conditions at home. In winter, the north-to-south flow of tourists, which includes residential tourists on the Mediterranean coasts, could become even stronger than it already is today.

In coastal areas, which play a major role for tourism, sea-level rise will pose a major challenge. It will increase the risk for coastal wetlands further, threaten some of the most important recreational areas such as beaches and islands, and endanger famous sights - in the extreme case of Venice, a whole city. Coastal erosion affects around 40% of the European shoreline subject to sea level rise (Seekles, 2004), which poses a high risk to coastal tourism infrastructure.

Furthermore, inland regions more frequently hit by floods or by drought-related forest fires might suffer from a decrease in tourist numbers in the aftermath of such extreme events.

In summary, tourism flows are likely to shift in response to climate change impacts. This will entail secondary effects on other sectors, for instance on water management. Given that per capita water consumption by tourists tends to be much higher than by local residents in holiday destinations, increasing tourist numbers could provoke water-related conflicts. On the other hand, a decrease in tourist numbers might lead to excess capacities in water sanitation and supply networks. Changes in tourist flows generally may have major implications for the affected regional economies, in particular with regard to labour demand and employment (UNWTO, 2003).

Sector overview

Europe is the biggest tourist-receiving region, with a 51.2% share of global international tourist arrivals (UNWTO, 2006). International and domestic tourism contribute massively to the European economy. In terms of employment, contribution to GDP, and as a growing item of consumer demand, tourism has become one of the most important social and economic activities in Europe. It accounts directly for 4% of EU GDP, and indirectly for 11% (European Commission, 2006a). When links to other sectors such as transport are taken into account, tourism accounts for 24.3 million jobs, or 1 in 8 of the European workforce. By 2016, its share of GDP is expected to rise to 12% and its share of employment to 13%.

Due to this growth, tourism itself contributes more and more to climate change and may have further negative environmental impacts, in particular on water quantity and quality. For example, tourism may exacerbate water scarcity in Mediterranean regions, where the tourism industry consumes large quantities of water, and the high summer season coincides with dry period and low water regimes.

European tourism is largely dominated by **small and medium sized enterprises** (SMEs), with over 99% of firms employing fewer than 250 individuals, and is thus characterised by a highly fragmented and locally based structure. Many **rural areas** across Europe are heavily dependent on the visitor economy. As an economic activity, tourism interacts closely with a number of other sectors such as transport, construction, energy, and land-use planning. It is influenced by a wide variety of policy fields, and is closely related to the overall economic development of a given region.

Most potential tourists make short-term decisions about their destinations, and the industry is required to react on a similar time scale. However, many of the infrastructures upon which tourism relies (e.g. water supply and sewage treatment) require long-term investment, planning and management (Viner and Amelung, 2003), and policy responses to climate change impacts require action in the present. Adapting the tourism sector to changes in climate and water resources thus represents a particular challenge.

Adaptation measures

There are various adaptation measures the tourism industry can take in order to mitigate the negative impacts of changes in water resources and to maintain the attractiveness of their regions and facilities.

Summer tourism in water-stressed areas could potentially adapt to increasing temperatures and water scarcity through the diversification of services towards less water-intensive tourism (such as cultural, nature-based or rural tourism in urban and hinterland areas), or through encouraging tourist visits beyond the traditional season. This may lead to more sustainable tourism, and reduce water conflicts between the tourist industry and other local water users.

Adaptation could also include the broader application of water-saving and water-recycling techniques and practices in accommodation, catering facilities, golf courses, and other tourism establishments.

Several adaptation options also exist for **winter tourism** areas. Ski resorts are searching for snow-sure sites for development on glaciers and at higher altitudes. In some cases, artificial snow may be used to extend and supplement natural snow cover. However, artificial snow-making requires large quantities of water and energy and thus cannot be regarded as a sustainable adaptation method if applied on large scales. More promising adaptation strategies could be built on diversifying the 'product', e.g. promoting mountain tourism in other seasons and offering non-snow based adventure and ecotourism activities. Tourist resorts in mountainous regions may benefit from warmer summers with more reliable weather conditions when extending the non-ski market.

Mostly such adaptation activities will need to involve other sectors, such as the water supply and sanitation sector (e.g. demand management),[1] water resources management (e.g. flood protection) or nature conservation (e.g. wetland protection).[2]

Policy options

In general, adaptation by the tourism industry will be a reaction to the specific changes in a given region, and adaptation measures will have to be adopted by the private actors at

[1] See discussion paper on water supply and sanitation.
[2] See discussion paper on water management.

local level. However, policy may play an important role in supporting the tourism sector in its adaptation efforts, for instance by creating incentives for the application of environmental management techniques. The tourism sector will benefit strongly from all policy measures that help to **protect the resources upon which tourism enterprises depend**. The basic resources of a tourist destination are its natural and cultural capital, tourist facilities, and infrastructure. All of these may be affected by climate change impacts, and thus adaptation measures will have to be taken in a number of different policy areas. Policy that promotes wiser use of resources will reduce the negative impacts of the tourism sector and support the many diverse, small-scale tourism enterprises in adapting to changes in climate and water resources.

EU Tourism policy

Recognising the importance of tourism in terms of the economy and employment, the European Community has been increasingly involved in tourism since the early 1980s. Tourism is considered an important sector for the EU Lisbon strategy, and in 2006 the Commission issued its latest communication on tourism (European Commission, 2006). The communication declares the aim of the Commission to put in place a renewed European tourism policy, to improve the competitiveness of the European tourism industry, and to create more and better jobs through the sustainable growth of tourism in Europe and globally. It also emphasises that this policy will be developed in close partnership with Member States' authorities and the stakeholders in the tourism industry.

While climate change impacts and adaptation are not addressed in the communication, the need for sustainable and environmentally friendly tourism is recognised as one of the key challenges, next to demographic changes and external competition. The policy will focus on three main areas:

1. Mainstreaming measures that affect tourism,
2. Promoting tourism sustainability,
3. Enhancing the understanding and the visibility of tourism.

In all three areas, measures are suggested that might be used to facilitate adaptation in tourism. The first area calls for Member States, regions, local authorities and industry to collaborate and **ensure that tourism fully benefits from all funding instruments** available at EU level (structural funds, cohesion fund, innovation and research framework programmes), and is taken into account in the planning of related projects. Funding will also be essential to support adaptation by the tourism industry.

Under the second area, the European Commission is developing and implementing a "European Agenda 21" for tourism, which should contribute to **ensuring the economic, social and environmental sustainability of tourism**. The sustainability concept includes longer-term perspectives and should thus take adaptation to climate change impacts into account.

The third area includes among other things the **improvement of statistical information** in the field of tourism. This would provide better tools for monitoring the reaction of tourists and the tourism industry to environmental and climate-induced changes, and could thus improve the knowledge base on which adaptation decisions may be taken.

EU Water policy[3]

Many tourism activities, such as beach holidays, water sports, snow sports, or eco-tourism, are centred around water and thus depend on the good condition of hydrological and hydrological-dependent resources.

At EU level, the **Water Framework Directive** (WFD) is a central element for effective water resource protection. It requires Member States

- to protect and enhance the status of aquatic ecosystems (and terrestrial ecosystems and wetlands directly dependent on aquatic ecosystems),
- and to promote sustainable water use based on long-term protection of available water resources.

Although the WFD itself does not currently take account of climate change, the broad scope of the Directive, the periodic review cycle it calls for, and the variety of instruments that can be applied (for example in the programmes of measures) make it a powerful tool for adapting water management to climate change impacts.

The upcoming **Flood Risk Management Directive** requires Member States to prepare flood risk maps and to establish flood risk management plans. The plans should take the characteristics of each particular basin or sub-

[3] See also discussion paper on water resources management.

basin into account, and should include prevention, protection, and preparedness measures. These flood risk maps and management plans may be important tools for the tourism sector when developing further activities.

Given the importance of coastal tourism in Europe, the **EU Maritime Strategy** is a key tool for adaptation based on resource protection. Following the Maritime Green Paper, published in 2006, which involves the active canvassing of tourism operators, the Marine Strategy provides a framework through which adaptation can take place. It aims to achieve good environmental status in marine waters, and to protect the resource base upon which economic and social activities depend.

The issue of **preparedness** for extreme events has to be considered further in future, especially in highly vulnerable areas, such as coastal zones with high concentration of tourism facilities. Such preparedness strategies must include early warning systems and will call for sufficient energy and water supplies in the case of unforeseen events. In case of emergencies, adequate rescue strategies that can cope with massive volumes of people have to be developed.

National and regional policy

Many of the practical policy requirements that affect tourism enterprises are taken **at national, regional and local policy** levels. Climate change considerations should be integrated into national tourism policy and other relevant policies that affect the tourism landscape. Regional and local authorities responsible for providing basic infrastructure will have to adjust to the changing needs and demand patterns.

Relevant national policy actions include, for instance, designating and protecting vulnerable ecological areas; assessing and controlling the carrying capacity of specific tourist sites; providing information to tourists on the state of the local environment and best practice guidelines for reducing resource consumption; and implementing strict control measures on land-use. National and regional tourism policies may also support the diversification of tourism activities and the development and marketing of less climate-dependent activities.

For the development of tourism, particularly in vulnerable regions and protection areas, Environmental Impact Assessments and integrated planning are essential tools to ensure that adaptation efforts are in line with environmental objectives and do not create additional pressures on the natural resources.

Finally, demand patterns may also be influenced by national policies, for instance through adjusting holiday periods and school vacations in order to reduce high concentration of tourists in water-stressed periods.

Conclusions and key issues

The tourist industry is susceptible to political, economic and social changes, and climate change adds another element of uncertainty to planning future developments (Perry, 2003). Furthermore, given that tourism destinations offer a wide range of products and services, and that the tourism market is very fragmented, it is difficult to evaluate the effects of climate change on specific activities and to develop appropriate adaptation measures.

Therefore, a first step to facilitate adaptation in the tourism sector should be to improve the knowledge base. There is a **need for additional research, monitoring of trends, and improved statistics** to analyse the behaviour of individual tourists and tourism enterprises in reaction to changes in climate and water resources. This research and monitoring has to be regionally focused and should also consider other factors that influence tourism in order to be applicable as a tool for policy-making.

Furthermore, an enhanced co-ordination between national meteorological services, tourism authorities and private operators might improve the use of climate information by the tourism sector, in particular with regard to short and mid-term seasonal forecasts at the regional and local level (WMO, 2005).

Discussion on possible adaptation measures **with other sectors should be started,** as adaptation cannot be delivered by the tourism sector alone, but has to draw on the resources of related sectors, in particular water supply and sanitation, but also transport, construction, energy supply, land management, nature protection, etc. Therefore, integrated approaches to adaptation are needed which involve all relevant actors and stakeholders. This will create opportunities for the implementation of win-win and no-regret strategies and better resource management. Existing policy instruments and processes, such as those under European policies and national integrated water and coastal zone management strategies, should be made use of. Further, policy instruments such as funding,

stakeholder information and consultation processes should be used to **increase awareness of long-term perspectives and the necessity to adapt** in order to avoid future damage.

As tourism itself contributes to climate change and may have other negative environmental impacts, **integrated adaptation approaches and environmental impact assessments** should be used to ensure that adaptation does not create additional pressures on water and other natural resources, in particular in vulnerable regions.

Key questions

1. **Impacts and vulnerability**: Which changes in water resources driven by climate change will pose the greatest challenges to the tourism sector? Which regions in Europe will be most affected?
2. **Adaptation options**: What options for adaptation are available? How can the tourism sector, as a fast-changing sector, be prepared to take into account long-term changes in water resources resulting from climate change?
3. **Financing adaptation**: What are appropriate financing mechanisms (e.g. visitor-payback schemes) to pay for adaptation measures in the related sectors? How can existing funding mechanisms be used to better enable adaptation?
4. **Policy action**: What could be gained from co-ordinating and implementing adaptation at EU level? How could EU policies support adaptation in the tourism sector?
5. **Integrated approach**: What role should the tourism sector play in an integrated adaptation effort at river basin level? What contributions by other sectors or sectoral policies are necessary to allow for effective adaptation?
6. **Research needs**: Which knowledge gaps exist with regard to impacts, vulnerability and adaptation options?

References

Bürki, R. Dr. (1999) Ecological planetary dangers: effects on tourism. http://www.sommets-tourisme.org/e/sommetsG/premier-sommet/actes/burki.html.

European Commission 2006a: Communication: A renewed EU Tourism Policy: Towards a stronger partnership for European Tourism. Brussels, 17.3.2006, COM(2006) 134 final.

European Commission 2006b: Maritime Green Paper, 'Towards a future Maritime Policy for the Union: A European vision for the oceans and seas' COM(2006)274 final.

Perry, A., (2003) Position Paper One: Climate Change, the Environment and Tourism: The Interactions (European Science Foundation LESC Exploratory Workshop, Milan, June 2003) http://www.cru.uea.ac.uk/tourism/position_perry.pdf.

Ratz, T (2003) The Responses of Lake Balaton to Global Climate Change 1st International Conference on Climate Change and Tourism

Seekles F. (2004) Living with coastal erosion in Europe - Results from the EUROSION study, presentation delivered at the Workshop on Climate Change, the Environment and Tourism in Europe's Coastal Zones, Warsaw, Poland, 2004

UNWTO (2003) Climate Change and Tourism http://www.unwto.org/sustainable/climate/brochure.htm

UNWTO (2006) Tourism Highlights, 2006 Edition http://www.unwto.org/facts/eng/highlights.htm

Viner D. and Amelung B. (2003) Climate change, the Environment and Tourism: The Interactions. Proceedings of the ESF-LESC Workshop, Milan 4-6th June Publ. eCLAT, Climatic Research Unit, Norwich, UK 2003. 63pp

WMO (2005) World Climate News, 27th edition, Special Issue on Climate and Tourism, http://www.wmo.ch/web/catalogue/New%20HTML/frame/engfil/wcn/wcn27.pdf