Editorial/*Editorial*

Climate change, tourism and the environment in the Mediterranean

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Rapidly and unexpectedly, concerns over the politics and economics of climate change seem to have faltered, and maybe even thrown into reverse. Two main factors can be identified. The first and most obvious is that the Copenhagen Conference in December 2009 did not produce the desired outcome. Because of disputes about the international distribution of the burdens which will result from restraint over emissions-generating economic activities, an international agreement necessary for limiting greenhouse gas emissions was not reached. Perhaps more important, though, were the damaging leaks which call into question the rigorousness of climate modelling results. These appear to have contributed to a significant shift towards more sceptical public attitudes to the sources and impacts of climate change. The medium-term repercussions of these extraordinary developments will take time to assess. However, it could it be that climate change, argued by some as the pivotal requirement for a more sustainable development in the Mediterranean region, will not be as strong a scientific driver of research into land management and sustainable economic development in the future as it has been in the past? What effects might such a retrenchment have? The broad-brush predictions of climate change modelling suggest that in the region, reduced rainfall and higher summer temperatures might be expected, with greater occurrence of extreme temperatures and more prolonged droughts (Giorgi and Lionello 2008). More speculative predictions of the fine grain of effect, for example on the attractiveness of the region as a tourist destination, or microclimatic impacts of the productivity of land resources, have far less scientific support. The complexities of the local interdependence between socio-economic and environmental factors are too great for existing modelling techniques to capture, if indeed they ever could be. Despite this, it is clear that beneath the uncertainties about climate, there are some very real fundamental problems. Primarily, there is a significant imbalance between the wealth of the EU member-states and others bordering the Mediterranean; there are increasing demands on a limited supply of fresh water, particularly from tourism developments; and land use changes are occurring, including coastal development and intensification of export cropping activity. There are also very significant relationships between the way in which each individual Mediterranean country manages its resources, and consequences for all of the others.A large part of both the existing and the potential national incomes of the region are derived from tourism. Currently it contributes about 7% of aggregate GDP for all Mediterranean countries combined, but three quarters of the activity is concentrated in coastal areas of the four EU member-states. Its demand for water is substantial: luxury hotels can use up to 2,000 litres daily per resident, whereas guesthouse demand is substantially lower (Gössling 2006), and seasonal supply and demand are poorly matched. Further demands on limited water resources, similarly seasonally mismatched, come from increasingly intensive cropping activities. Extension of irrigated areas brings with it increasing salination problems for an already fragile soil resource. Finally, rapid urban population growth, especially in the southern Mediterranean countries, is concentrating water demand spatially, bringing further pressures which are

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not satisfactorily offset by market incentives to economise use.Alongside this vital resource, energy demand is also rising, faster in southern Mediterranean countries than either GDP or population growth. Currently, most of this demand is met from fossil fuel resources for which future supply sharp increases in prices can be anticipated. Since the current financial crisis was preceded by significant hikes in commodity prices, greater economic volatility in future may be anticipated to worsen current conflicts and migration pressures. This poses a puzzle for researchers and policymakers, most of who are working on specific issues and struggle to relate their activities to a broader perspective. Climate change may command less attention when the consequences of the financial crisis demand painful lifestyle adjustments, and displace environmental concerns. Nevertheless, the imperative is still how to make the best of limited natural resources whilst at the same time addressing the needs of the least well-off, in order to provide a more secure future for everybody. In a modern restatement of the Pareto principle, this will require science to assist in improving the productivity of economic activities; making sure that the science is disseminated widely so that the benefit does not accrue entirely to the already well-off; and designing interdependence into relationships between countries so that solutions to divergent problems are mutually assured.The twin spikes of water and energy scarcity have consequences for agri-environment research. Soil management techniques need further attention to increase water retention capacity – and this is as appropriate for maintenance of hotel gardens as it is for production horticulture. Greater efficiency in energy use for cultivation, including agronomic and engineering innovations, are also implied. However, while landscape scenic quality is an important indirect contributor to tourism appeal, the most significant adaptations need to be explored in areas outside of agriculture and forestry. It is the current scale of concentration of activity and its profile which make existing tourism environmentally unfriendly, and repackaging it into a more dispersed, food-culture-heritage variant would make considerable improvements. Seasonal dispersion could take advantage of the changing demographics of tourism demand, as increasingly elderly populations in the north European client countries are becoming keen on longer over-winter breaks. Reduction in fossil fuel energy use requires design for new and refurbished construction which re-establishes natural ventilation and maximises potential for solar energy collection, both thermal and photovoltaic. Improved transport efficiency, especially in major conurbations where public transport systems are ineffective, not only reduces pollution and enhances the quality of life, but also reduces demand for increasingly costly imported energy.This prescription might sound familiar, since all of these imperatives are also associated with climate stabilisation and mitigation policies. There is no need for complete reorientation of policy, science and foresight research in relation to land management and sustainable development issues in the Mediterranean region, as there is a comprehensive overlap between the issues which arise. However, there is a significant danger that the benefits of more sustainable tourism and land use will be confined to the already relatively rich set of countries, even though the high level of Mediterranean interdependence in environmental, political and economic terms require them to be much more widely dispersed. The future can be assured through better knowledge dissemination, more substantial capital transfers, and smarter and less restrictive regulation. So it turns out that, as well as an overlapping problem set for climate change and sustainable economic development in the Mediterranean, there is also a coincidence between the research efforts needed to resolve them.