Cuadernos de Turismo, nº 39, (2017); pp. 651-654 Universidad de Murcia
ISSN: 1139-7861
eISSN: 1989-4635

CLIMATE CHANGE PERCEPTION AND LOCAL ADAPTATION RESPONSES: RURAL TOURISM AS A CASE STUDY

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From the point of view of the tourism sector, scientific research on the changes that are taking place in the climate and the resulting impacts on the sector is of key importance for the development of policies that enable us to adapt to climate change and mitigate its effects. However although scientific data is essential, a complete picture cannot be gained without finding out more about the attitudes and beliefs of those affected by these changes and their perceptions of the risk. The research presented here explores the perception of the risks associated with climate change as viewed by key stakeholders in rural tourism. Our specific aim was to find out how they perceived the impact of climate change on their landscapes and its possible repercussions on the rural tourism sector. We also wanted to explore the different ways in which these local stakeholders are currently responding or adapting to these perceived risks or plan to do in the future. From a geographical perspective, our survey was conducted within a specific limited area, the Alt Empordà, a *comarca* or sub-region of Catalonia in the north-east of the coastal area that is best-known by its tourist brand name, the Costa Brava. The Alt Empordà is characterized by the relative proximity between the sea and the mountains and within its small area of just 1357.5 km² it has a wide range of rural tourism products/destinations, so making an important contribution to the tourism sector in Catalonia.

Our research is based on a methodology with both quantitative and qualitative elements. For the case we are studying, this is the best way of obtaining varied information about what is a complex phenomenon, which affects the different stakeholders that interact within this space in different ways. We obtained our data from interviews and/or surveys from three different sources or groups of stakeholders: owners of agro-tourism businesses, owners of rural tourism establishments and organic farmers. These groups were chosen firstly because farming in the Alt Empordà is a fundamental aspect of the interpretation

of the landscape and its aesthetic appeal and secondly because the strong agricultural identity of the landscape has played such an important role in the development of rural tourism in the region.

The interviews with the owners of agritourism establishments took place on the farms themselves and included a visit to and tour of the premises. In total we carried out eight semi-structured interviews over the course of 2011 and 2012. 57% of those interviewed were women and 43% were men. The average age was 55.

The interviews with farmers were carried out *in situ* at the farm and also involved a tour. In total we conducted 14 semi-structured interviews between the end of 2011 and the end of 2012. The average interviewee was a man of between 40 and 55 years old, who owned the farm and worked there full-time (with help from other family members), organically farming an area of between 25 and 50 hectares, in which the main products were forage, cereals, fruit and vegetables, sheep and goats and olive oil for their own consumption.

Our final group was owners of rural tourism establishments. We conducted a total of six semi-structured interviews and 54 personal surveys *in situ* in the year 2013. These surveys were organized according to a random sampling process and those who took part in the interviews did not take part in the survey and vice versa (in the rural tourism group 63% of those interviewed were women and 37% were men and the average age was 54). In the survey the theoretical size of the probability sample depended on the values taken in the population variance (maximum variance, p=50% and q=50%), confidence level (±2σ of the average value of the normal distribution curve, which covers 95.5% of possible answers), sampling error (±2%) and universe size (106). The response percentage was 100%. The descriptive analysis of the sample shows that 50% of the owners interviewed were women, 18.5% were men and 31.5% were joint owners. 18.5% were under 40 years old, 38.9% were between 40 and 55 and 42.6% were over 55.

The surveys and interviews were organized around five main issues: 1. The role of rural tourism in the conservation of the landscape and the revitalization of farming; 2. Knowledge, perception and degree of concern about the problem of climate change; 3. Perception of the impact of climate change on farming and landscapes in the area; 4. Perception of the impact of climate change on rural tourism in the area; and 5. The role of the public authorities in providing information about and acting against climate change.

The results indicate that those interviewed/surveyed are aware of the climate change issue, its origins and consequences, and can identify evidence of its effects in their local environment that may have considerable repercussions on the preservation of current landscapes and the productive activities which are sustained by them. Both circumstances make them sensitive to the climate change phenomenon and cause them to show interest and concern. We observed significant differences between the perceptions of stakeholders who are totally or partially involved in the primary sector of the economy (owners of farms and owners of agritourism establishments) and those who are not directly involved (owners of rural tourism establishments), in that the first group were more sensitive to and noticed the changes taking place around them. It seems that those who have a symbiotic relationship with nature are more predisposed to identifying the results of climate change, so demonstrating the links between people's perception of risk and the sociocultural and economic context in which they live.

As regards the identification of impact and the measures taken to adapt to these changes, we observed notable differences depending on the sector in which the interviewees worked. Those questioned were aware of the potential impacts of climate change on farming in the area, in which some forecast a future decline in productive potential. In fact the stakeholders perceived that climate change will have a negative effect on agriculture and livestock farming in Alt Empordà, so putting in jeopardy the practices that have combined to create the landscapes which have sustained the rural tourism industry in the area. The famers considered it difficult to take the measures required to adapt to these changes on their own, offering a highly pessimistic defeatist attitude, which on occasions suggests or hints at the possibility of them giving up farming in the future. Perhaps for this reason they criticized the different administrations for their lack of support and information.

As regards the rural tourism businesses, although the owners are conscious of the impact that climate change may have on the appeal of the area for tourists, they are less concerned in that they feel that all landscapes, of whatever kind, are potentially attractive for tourists and therefore that the effects on rural tourism businesses do not necessarily have to be negative. They were also convinced that they were capable of continuing to ensure that their guests have an enjoyable stay in suitable conditions of comfort and safety. Climate change will oblige us to change the way we look at the landscapes that make up the tourist experience. The process of adaptation to these changed landscapes will be a challenge (one that can be successfully addressed) both for the consumers of these landscapes and for the different agents and stakeholders that shape them. Perhaps for this reason from the perspective of the rural tourism business and bearing in mind the possible lengthening of tourist seasons to the benefit of hotel owners, we observed greater proactivity in terms of adaptation to the impacts of climate change. The stakeholders involved said that they had already implemented some adaptations in their businesses or that they were in the process of doing so. In most cases, these were individual specific responses to specific problems (without incentives from or the involvement of public institutions). The most frequently cited forms of adaptation were those involving technology (practically all the businesses involved), management of the business and behaviour and education. Many of these adaptation options can also be viewed as ways of mitigating climate change, a fact that demonstrates the synergies between adaptation and mitigation in the actions taken at local level and which have also been manifested in other case studies.

The perception of risk can also create subjective barriers to the different ways of adapting to and by extension mitigating climate change. The stakeholders studied in this research stated that they viewed the possible impacts of climate change as a threat in the medium term about which there was still a high degree of uncertainty. The perception of climate change as an uncertain phenomenon that may have effects at some distant time in the future can act as a barrier that slows down adaptation. Similarly an excessive confidence in the role of technology for solving most of the repercussions of climate change could act as a barrier to the implementation of other more sustainable options. This might result in a situation in which the adaptation strategies considered most suitable by the stakeholders are at odds with the arguments put forward by public bodies seeking to implement international commitments on climate change.

In general, the owners of both rural tourism business and farms said that they were unaware of any institutional instruments for managing the risks involved and for adapting to climate change and on occasions complained that such instruments did not exist. In fact those who have so far implemented adaptation measures in their farms or rural tourism businesses have taken the decision unaided on the basis of their personal views of their needs (in other words without the support or intervention of institutions unrelated to the businesses or farms themselves). We heard little about actions that went beyond the purely individual sphere such as well-developed market strategies, strategies for risk externalisation that enable businesses to share risk with other companies, political support measures (tax exemptions, direct grants, low interest loans, etc.) or the specific instruments for risk management within the framework of the CAP (these only apply to farmers and owners of agri-tourism establishments). The generalized mistrust of the political class and of the public administration in general produced at least in part by the increasing distance and disconnection of politicians from the general public and from small businessmen (we should not forget that the sector we are studying is made up above all of small family businesses) has led to a general lack of collaboration and understanding between the stakeholders studied here and public institutions. If this situation is not remedied, it will jeopardise the efficacy and efficiency of any policies for fighting climate change that may be developed or "firmed up" in the future.

Lastly it is important to remember that exploring the question being analysed here is extremely complex in that the multifunctionality of rural landscapes means that all the different actors involved in its configuration and management must be taken into account. In this sense the perception of risk of other stakeholders in rural landscapes could be a future line of research that will help to complement the results presented here and put them into perspective.