
**STAKEHOLDER'S PERCEPTION OF THE INFLUENCE EXERTED
BY THE VARIABILITY OF THE WINTER CLIMATIC
CONDITIONS ON THE TOURIST ACTIVITIES WITHIN THE
PRAHOVA VALLEY – POIANA BRAȘOV MOUNTAIN AREA**

**PERCEPȚIA STAKEHOLDERILOR PRIVIND INFLUENȚA
VARIABILITĂȚII CONDIȚIILOR CLIMATICE DE IARNĂ
ASUPRA ACTIVITĂȚILOR TURISTICE ÎN AREALUL MONTAN
VALEA PRAHOVEI – POIANA BRAȘOV**

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Abstract: The economics of climate change and climate change impact on various economic sectors is nowadays a subject of interest of research institutions, as well as of policy structures in different parts of the world. The tourism sector is one of the economic domains that face in many ways the impact of climate variability. The influence of climate variability on winter sports season and especially on skiing activities is one of the most studied links between climate change and tourism industry, having an important economic impact at regional and national level. In this light, a qualitative approach based on a "local hero" survey is the most suitable method to assess stakeholders' perception on the influence of winter climate variability on tourism activities in the studied area.

Key-words: climate variability, ski resorts, survey.

Cuvinte cheie: variabilitate climatică, stațiuni turistice, chestionar.

1. Introduction

The climate changes felt on large scale during the last years represent one of the major challenges of the 21st century, one that the scientists, as well as the public authorities and the civil society must cope with. The climate changes, represented by the increase of the air and of the sea water temperature, the augmentation of the frequency of the extreme meteorological phenomena, the rise of the sea water level

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etc., have consequences at the economic and the social level. According to the majority of scientists, the most vulnerable sectors to the mutations undergone by the climatic parameters are the agriculture, the forestry sector, the pisciculture, the food industry, the transportations, the power system, the tourism, the insurance sector, as well as the ecosystems, the biodiversity, population health, and the settlements etc.

Tourism represents one of the most dynamic activity sectors, registering important increases during the last centuries and being able to support the economic development of a region or of a country. Many of the economic development policies include the tourism on the work agenda, due to the fact that it is able to create added value and to play an important role in the realization of the gross domestic product (GDP), but it also generates jobs, brings equilibrium to the payments balance, capitalizes in a superior manner the natural and cultural resources. Nevertheless, the tourism is vulnerable to certain shocks, whether they are economic (e.g. economic crises), of terrorist attack type, the SARS crisis, or represented by natural disasters (e.g. earthquakes, floods, fires). The tourism proved to have remarkable regenerative capacity, much over the average of other activity sectors. In certain cases, the action of some perturbation factors was exerted over a limited period of time, but the climatic changes foreseen by the climatologists will be felt during a much longer interval, years or even decades respectively; thus, the adaptation capacity of the tourist sector must not be overestimated.

For many of the tourist destinations, be they located in the mountain or the seaside areas, the climatic conditions represent the main attraction that motivates the tourist movement. The meteorological conditions that are unfavourable for the winter sports or the sun and marine cure directly affect the tourist demand.

The assessment of the climate-tourism relation, at the level of the winter sports tourist destinations, is a difficult task, given the complexity of the climate changes problematic, on the one hand, and the multitude of the factors (e.g. the prices of the tourist products, the income of the population, the spare time, the motivation of the demand etc.) that determine the tourist demand, on the other. Thus, a single-sided approach would be insufficient for the achievement of a complete and complex image on the way in which climate changes influence the tourist demand. Consequently, there were developed various methods that aim at determining the social-economic effects of the climate changes and the vulnerability of tourist destinations to them. These methods include integrated biophysical and economic modelling systems, vulnerability assessment, empiric statistical analyses and analogies (Sygna et al., 2004).

Generally, the analysis of the climate – tourism relation can be assessed weather by using quantitative methods, especially in the regions in which the tourist sector is developed and has a major economic participation, materialised through a significant contribution to the achievement of the GDP, VAB and labour force occupancy, or by qualitative methods (e.g. surveys, interviews). The research of the climatic conditions' influence upon the winter tourist activities was

conducted in numerous countries, such as: Austria, Switzerland, France (e.g. the Alpine region is just a relevant example for the sensibility of the winter sports tourist industry and especially of the skiing activity, to the recent climatic oscillations), Canada, U.S.A, New Zealand, Great Britain etc. (Bürki, 2000, Elsasser, Bürki, 2003).

Generally, the mathematical relation between the climatic and the tourist indicators was described through the construction of some regression models. In such studies, the most frequently used indicators are the representative meteorological variables (e.g.: air temperature, snow cover thickness, number of days with solid precipitation etc.), or they result from the modelling of the snow cover parameters (e.g. the water equivalent of the snow cover). The tourist indicators usually refer to the special activities of cable transportation (e.g. number of transported persons, number of runs made by the cable transportation installations), the activity of the artificial snow installations (König, Abegg, 1997), the part of the tourist sector in the total GDP, the number of overnight stayings, the average duration of the staying (Breiling, 1998; Bigano et al., 2005).

On the other hand, the studies regarding the economic impact of the climate changes on the tourist sector in the Central and Eastern Europe are rather scarce. The wide area of the tourist industry (accommodation, alimentation, transportation, recreation etc.), its connections with other sectors of activity, as well as the limited availability of the statistical data at a more detailed temporal level (monthly tourist indicators) transformed the assessment of the climate variability – tourism relation into a real challenge within this space.

One of the first studies in the field is realised in the framework of the project CLAVIER - *Schimbări climatice și variabilitate: Impact în Europa Centrală și de Est/Climate changes and variability: Impact in the Central and Eastern Europe*³, conducted under the aegis of the Framework Programme 6. Among the central aims of the project there is the assessment of the economic impact of the climate changes on certain economic sectors in Bulgaria, Romania and Hungary; these sectors, the tourism included, are considered vulnerable. In Romania, a case study is dedicated to the winter tourism and it concerns one of the most representative areas from this viewpoint, i.e. the Prahova Valley – Poiana Brașov mountain area, which concentrates most of the winter sports infrastructure in the Romanian Carpathians.

The climate variability significance and the importance of the winter tourism sector in the Prahova Valley – Poiana Brașov mountain area

The data obtained from the long-term *meteorological observations* highlights the influence of the general climate heating on the Romanian climate (Busuioc, 2008), with more visible effects mainly in the extra-Carpathian regions of the country (*Carpathians Environment Outlook*, 2007). During the observation period,

³ (www.clavier-eu.org)

1961 – 2007, most of the Carpathian meteorological stations registered mean annual temperatures higher than the multi-annual mean value, especially in the northern and western mountain regions of the country, as well as a sustained heating tendency during both summer and winter time, in most of the Carpathian mountain areas. The variability of the climatic conditions during the same period indicated a general climate heating tendency during the winter sports season, with an obvious negative impact felt by the tourist operators in the ski resorts. Numerous studies realised in the European Alpine space (Beniston, 1997, Beniston et al., 2003, Breiling, 1998, Konig and Abegg, 1997 etc.) show the fact that most of the climate heating process is due to the large-scale atmospheric circulation mechanisms (e.g. the North-Atlantic Oscillation). Nevertheless, in the Romanian Carpathians, the local and regional factors exert a much more significant influence on the climate than in the case of other European mountain systems, such as the Swiss Alps (Bojariu and Dinu, 2007).

From the viewpoint of the *tourist sector*, the Prahova Valley – Poiana Braşov sector represents a distinct tourist area, with great importance at regional and even national level, concentrating seven tourist resorts of local and national interest, i.e.: Sinaia, Buşteni, Azuga, Predeal, Pârâul Rece, and Poiana Braşov, which are traditionally oriented towards winter sports. At the county and regional scale, the area is well represented by the accommodation tourist offer. Prahova County holds more than 50 percent of the total number of the regional structures, while the resorts Sinaia, Buşteni and Azuga concentrate almost 60 percent of the total number of accommodation units in the county. The Romanian ski domain is also concentrated in Braşov and Prahova Counties, which include the most extended surface, as well as the biggest number of ski tracks. Within these counties, Sinaia and Poiana Braşov hold the most extended ski domain in the mountain area under study⁴ and in the national domain. As a large part of the local ski domain is situated at low and average altitudes (<1,400 meters), all the important ski resorts in the area expect future problems generated by winters with snow deficit, according to the climate variability scenarios, this being a situation more frequently felt during the last years (e.g. the 2006 – 2007 winter).

The vulnerability components of the tourist sector in front of the climate changes (exposure, sensitivity, coping capacity) are closely connected to the way in which the Prahova Valley – Poiana Braşov mountain area preserves its traditional winter sports profile. During the post-communist period, the area faced tourist market changes materialised at the level of each tourist accommodation unit. The orientation of these units towards different tourism forms and their dependency degree to the winter sports vary according to their endowing, to their own marketing policies and to the local and governmental tourist development strategies.

⁴ Each of these resorts has around twelve ski tracks, with a total length of 15,000 kilometers. In Sinaia, the optimum capacity of the ski tracks is 8,190 persons/hour, while in Poiana Braşov, the corresponding value is 5,280 persons/hour.

Similarly to other Romanian mountain resorts, the tourist resorts located in the Prahova Valley – Poiana Braşov area were initially planned for winter sports and they inherited important tourist structures from the communist period, at the same time becoming attractive for new tourism forms after 1990. The modernised hotels built during the communist period and the accommodation units that have been recently opened (after 2000), with 3 – 4 stars comfort degree, showed interest in more profitable activity forms, such as the business tourism, both in the extra-season periods and during the winter season. The fact that numerous hotel units were endowed with conference halls represents a proof in this respect. Thus, the dependency on the winter sports could be diminished, at least for the modern accommodation units.

3. The assessment of the climate – tourism relation in the Prahova Valley – Poiana Braşov mountain area

As mentioned before, *the assessment of the climate – tourism relation* in the study area is a difficult task, both from the quantitative and the qualitative viewpoints. Moreover, there can be mentioned the lack of time horizons synchronisation for the climatic and tourist data, along with the lack of official studies and of publications regarding the tourist market. Taking into account these drawbacks and considering the above mentioned qualitative approaches, which were used in the assessment of the climate variability impact on the tourist sector in other mountain areas (e.g. Bürki, 2000, used the “group-focus method”, based on the experience of a previous study - Dürrenberger & Behringer, 1999), within the CLAVIER project and in the present study there was used the “local hero” method.

The “local hero” technique represents a useful tool for researchers when the statistical data concerning the climatic parameters or the tourist indicators is not sufficient, does not seem to have a direct relation or when the results are “erroneous”. Furthermore, the stakeholders’ opinions and their personal contact with the tourist demand complete the econometric assessment methods relative to the climate changes effects on the tourist activity. Thus, the “local hero” techniques are useful for the assessment of the tourist activity vulnerability to climate changes and, on the other hand, the local tourist agents can give solutions for the adaptation to climate changes or for their prevention. Nevertheless, when there are taken decisions regarding the necessary measures for the adaptation to climate changes, the answers offered by the “local hero” must be carefully evaluated and reported to the official data provided by the authorities.

In order to evaluate the impact of the climate changes on the winter tourist activities at the level of the Romanian “local hero”, between January 20th and February 10th, 2008, a survey was conducted among the most important stakeholders within the study area, i.e. the accommodation units in the mountain resorts Poiana Braşov, Predeal, Azuga, Buşteni and Sinaia. The survey included fourteen questions (twelve closed questions and two opened ones) relative to the following two important aspects: the importance of winter tourism in the annual

activity of each accommodation structure and the importance of the snow cover for the development of winter tourist activities. The closed questions tried to highlight the importance of winter tourism for the operators in the sector and they focused on various aspects, such as arrivals, occupancy degree, average duration of the vacation in both, winter and summer, origin of the tourists (Romanians/foreigners ratio), purpose of the arrivals: business/winter sports. Another type of closed questions referred to the influence of the climate on the tourist demand. Although, at the first glance, the open questions would seem to better reflect the complex reality of the tourist industry in the winter season, the closed questions dominate. The latter questions allowed for the assessment of the part of the winter tourists in the total number of tourists, as well as of the business tourists in the total arrivals during the winter season, in each and every accommodation unit under study. The answers given by the representatives of the accommodation units also reflect their opinion concerning the importance of the snow cover for the opening of the winter sports season. This kind of questions suited the presentation of the data as percentage (e.g.: the part of the winter tourists in the total number of tourists, the part of the business tourists in the total number of arrivals during the winter season) and they also reflected the opinions of those involved in this industry (for e.g., the ideas concerning the appearance of the snow cover as a condition for the beginning of the winter sports season), giving a clear image and facilitating the answers. Nevertheless, the open questions were preferred in the present study, because they disclosed the stakeholders' opinions concerning the influence of the climate changes on the activity of the accommodation units.

The answer options generally followed a Lickert type of scale, comprising four categories of values, i.e.: <25 percent, 25-50 percent, 50-75 percent and >75 percent.

The main results revealed by *the first part of the survey*, containing questions relative to *the importance of the winter season in the annual activity of the accommodation units* in the Prahova Valley – Poiana Braşov mountain area, showed the following:

- For most of the interviewed tourist operators (66 percent), the winter season brings a greater number of tourists than the summer one. This idea is suggested by the *part of the arrivals in winter tourist season*, of about 50 – 75 percent of the total volume of arrivals in the accommodation units;
- Moreover, for most of the accommodation units under study (>80 percent), *the months characterized by the highest occupancy rate* during the year are the typical winter months (December, January and February). Along with these months, more than 50 percent of the questioned persons recognized the importance of certain summer months, such as August and July, during which the occupancy rates in the accommodation units generally reach high values. Consequently, two peak tourist seasons can be identified during the year. Only 30 percent of the questioned tourist operators indicated October and November, besides February, as having important values of the occupancy rate. This last category of interviewees includes units having high accommodation capacity, increased comfort standards

(mainly four stars hotels), being mainly located in the Sinaia and Poiana Braşov resorts. Such units present an obvious orientation towards the business tourism, both in the extra-season (spring and autumn) and during the winter season;

- Analysing *the average duration of the staying* of the tourists arrived during the winter season, almost 35 percent of the interviewed representatives indicated durations of 2 – 3 days, while more than 45 percent of them referred to durations of 3 – 5 days; thus, it is obvious the preference for the week-end tourism, usually associated to the recreation tourism for winter sports;

- Most of the responding persons (54 percent) said that *the part of the tourist arrivals with business purpose in the total number of winter arrivals* is below 25 percent and only 27 percent of the interviewees estimated that the business tourists represent around 50 -75 percent. To conclude, the main motivation of the tourists to arrive in the mountain resorts on the Prahova Valley and Poiana Braşov is represented by the recreation activity and not by the business one.

- Regarding *the origin of the tourists*, the answers indicated a high percent of Romanians, at least 50 percent in the total number of arrivals. At the same time, 85 percent of the responding persons said the Romanians represent more than 75 percent in the total number of arrivals.

The closed questions addressed to the representatives of the accommodation units in the Prahova Valley and Poiana Braşov resorts indicated the fact that the winter season brings an important flux of tourists, the occupancy rates during the months that are typical for the practicing of winter sports being significant. In the case of the accommodation units that do not offer facilities for the organization of business meetings (conferences, workshops, round tables, training sessions), the tourists arrived with recreational purposes hold the most important part in the total number of arrivals. The high category hotels, with endowments for business tourism, are less vulnerable to the seasonality of the demand.

The second part of the survey followed the analysis of the tourism – climate changes relation and underlined the following aspects:

- Approximately 20 percent, respectively 35 percent of the accommodation units considered that *the ski tracks have a very high* (would influence more than 75 percent of the arrivals in the season) and *respectively high influence* (would influence between 50 and 75 percent of the arrivals in the season) on the total number of arrivals in the winter season. These are generally accommodation units located near the ski tracks, large sports complexes built during the 70's and small accommodation units preferred by the tourists who come for recreation (modern villas and pensions);

- Despite the moderate proportion of the responding persons who indicated a significant influence of the ski tracks on the development of their activity (also dependent on other factors mentioned above), more than 95 percent of them considered *the presence of snow as an essential condition for the beginning of the winter sports season*;

- Concerning *the influence of the snow cover thickness on the occupancy rate during the winter season*, 62 percent of the responding persons said that it is

important, while approximately 35 percent considered that the influence exists but it is not so important. The second category of responding persons, respectively those for which the thickness of the snow cover does not represent a determining factor of the tourist demand in the winter season, is represented by the units in which more than 50 percent of the tourists have business travel motivations. Thus, it can be asserted that the snow cover and its (quantitative and qualitative) characteristics influence in various degrees the activity of most of the “actors” in the tourist industry of the mountain area under study;

- An important part of the responding persons (more than 80 percent) admitted that there is *an influence of the climate changes on the tourist activities during the winter season at the level of the resort* to which they belong, while only 15 percent of them considered that there are no climatic changes. Only 5 percent did not answer to this question. Most of the accommodation units indicated the following main consequences of the climatic changes in the mountain area under study: the lack of snow in certain months or years and the decrease of the annual duration of the snow cover, with severe consequences on the activity, materialized in the decline of the arrivals and overnight stayings, of the average staying duration and even in the cancellation of reservations;

- The global heating represents an important factor for most of the responding persons (about 70 percent), being considered an essential element in the long-term strategy of the resort.

The tourist operators on the Prahova Valley and Poiana Braşov admitted the importance of the climate changes on the activity that they conduct and the necessity to consider their long term influence. The presence of the snow cover is one of the essential conditions for the existence of the tourist demand during the winter season, and the accommodation units that do not have an alternative recreational offer or the possibility to organize business meetings become more vulnerable to the climatic changes.

4. Conclusions

The attempt to faithfully describe the relation between the climate changes and the tourism in general, and within the Prahova Valley – Poiana Braşov area in particular, is made very difficult by the complexity of the factors that influence the climatic variability and the “behaviour” of the tourist industry. The qualitative method seems to be the most appropriate to illustrate this relation, with this purpose being questioned the most important stakeholders in the area under study (“the local heroes”). The results included in the present study present a general image on the perception of the representatives of the receiving tourist structures concerning the impact of the climate changes on the winter tourism in the Prahova Valley – Poiana Braşov mountain area. These stakeholders perceive the climatic changes (mostly felt under the form of the lack of snow) as a threat for the winter tourist activities at the level of the unit and of the mountain resort to which they belong. Moreover, there is a good correlation between the results of this research

and those of other studies realized at the level of certain European Alpine resorts (e.g. Switzerland, Austria, France, and Italy). The climate changes, felt under the form of the reduction of snow cover thickness and persistence in the winter season, represent a real problem for the winter sports resorts and especially for those located at low altitudes (<1,500 meters).

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