

EXTENDED ABSTRACT

ATMOSPHERIC POLLUTION AND ITS IMPACT ON TOURIST ACTIVITIES, IN MADRID

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In the Community of Madrid, as in the rest of the Spanish territory, the processes of industrialization and urbanization of large territorial areas have been deteriorating air quality, particularly in urban centers, which makes it essential to strengthen the capacity for action against air pollution. And, is that, air quality is not only a priority of environmental policy, Given its repercussions on human health and the environment, it is also a key aspect for sustainability (and, more especially, on sustainable tourism), since air pollution is a local and cross-border problem, caused by various pollutants and with detrimental effects on the environment and the quality of life of people.

It is obvious that, in order to guarantee the future sustainability of Spanish sun and beach tourism, in general, and inland tourism, in particular, as a strategic activity, it is necessary to face some of the problems that its relationship with the environment has brought since its inception. They are linked, mainly, to the spatial and temporal concentration, to over-occupation and to the massification and cheaper supply, which mainly affect the quality of the resources that support the tourist activity, from the water of the sea and the beaches, to the landscape, to the activities related to the urban world. Problems, directly linked to the economic and business results of the activity. In addition, in the current globalized context, tourism must face new challenges that are increasingly complex, diffuse and generate greater uncertainty, such as climate change. All this, together with the intersectoriality and the characteristics of tourism, makes public intervention inevitable, whose efficiency and relevance will be key to determining the success and future sustainability of the destinations. Thus, it is essential to analyze and expand the instruments of public action that favor the future sustainability of the sector.

In this way, air pollution characterized by the presence in the atmosphere of one or more polluting elements such as gases, fumes or dust, have a direct and indirect impact on human health and on flora and fauna - as well as on the development of their activities - of a territory as wide, varied and diverse as the Community of Madrid, This is presented

as a potential risk factor, mainly for activities as sensitive as those related to tourism. So, when it comes to dealing with such a complex subject, while diverse, such as anthropic risks, in relation to tourism activities, the existence of an equally important problem is revealed, such as the lack of real knowledge of the latent and present risks in each of the municipalities that make up the Community of Madrid, in addition to having a considerable impact on the population's exposure to risks that lack information.

Thus, in order to establish a control regime for emission levels, The Community of Madrid articulates its territory with an Air Quality Control and Surveillance Network (conformed by twenty-three fixed automatic stations - in addition to a set of mobile stations, and, without counting on the municipality of Madrid that has its own network of stations -, organized in seven study areas, and classified by typologies - urban fund, urban industrial, urban traffic, rural and rural areas oriented to the protection of vegetation-), responsible for collecting data on emissions of sulfur dioxide, nitrogen dioxide, nitrogen oxides, suspended particles, carbon monoxide, ozone, benzene and heavy metals, whose purpose is to record the concentration levels of the main air pollutants that allow to implement in the territory, control measures and mitigation of emissions (although it is of great importance to point out that the stations of the Surveillance Network are located in specific spaces that, in a certain way, can influence the results obtained), which favors or may favor the reduction or elimination - today, utopian - of the risks caused by the overexposure to these polluting substances, both for the human being and for the environment.

And, is that, the control of atmospheric air pollution must take into account other factors such as weather, topography, environmental protection measures, the impact on the population or the participation of all municipalities in their analysis, measurement and evaluation of air quality; in fact, the preservation and conservation of atmospheric air is important for the incorporation into Urban Planning Plans, in addition to taking into account that the processes of emission of polluting substances and degradants of the atmosphere can affect more than one territory, as a result of the transport and the dispersion of these moved by the wind, which would entail the joint work of the different Administrations. Therefore, together with efficient control, the management of air pollution must involve a multidisciplinary and multidisciplinary analysis - on the part, not only of public institutions and entities, but of private entities and the general population, to avoid using bad practices that lead to a reduction in the quality of life and in inefficient conditions-. All this without forgetting, as we noted earlier, that air pollution processes are not only a consequence of the direct emission of substances in a given area, but they are transported from one place to another, in a diffuse way, without control and without measurement, with which to homogenize territories and particularize in specific emission sources, it does not disclose the complex reality of the pollution process in a certain space - in this case, municipality-; generating, in any case, numerous environmental risks that affect the physical environment and the population, as well as tourism activities, since these territories that are daily exposed to emissions of suspended particles are affected by the alteration of precipitation levels, for the acidification of its soils, for changes in climatic conditions and, more agreement on radioactive balances, in addition to serving as a substrate for fixing other polluting substances or intensifying the oxidation of sulfur dioxide by converting it into sulfuric acid, etc., what produces toxicity in the plants and changes in the realization

of photosynthesis –whether they are destined for direct consumption or not, as in the case of forest areas-, they also reduce the quality and life expectancy of the population resident in these environments , and negatively affect your health.

And, is that, taking into account the data collected in the maps and figures collected in the article, we observe that, today, there are still municipalities in which the emission limit levels are exceeded. Unquestionably, its geographical location and the provision vs. growth of their economic activities, propitiate this situation, making the territory especially vulnerable to the risk of breathing highly polluting gases such as nitrogen oxides, especially nitrogen dioxide, since it enhances the chemical reactions produced by nitrogen oxides that generate nitric acid (highly corrosive and which increases the risk of burns), enhance the formation of PM10 and PM2.5, in addition to having a great impact on human health since it causes respiratory difficulties, respiratory tract infection, conditions in vital organs such as the liver or spleen, causes problems in the immune, circulatory and pulmonary system. All this has an impact, direct and indirect, on the attractiveness and tourist attraction of the territory.

With all this, after the analysis carried out in the present study, we can affirm that air pollution in the Community of Madrid represents a clear example of anthropic risk - with notable implications for tourism activities -, which is enhanced, transformed and modified by climatic conditions, since in its formation the emission sources together as the receiving environment that is the atmosphere intervene, becoming an element that influences the processes of concentration of pollutants in places near or close to the emission sources in certain climatic conditions (We must bear in mind that the emission amounts generated in the Community of Madrid vary “relatively little” throughout the year during the day, but there are always times when there are warning episodes due to exceeding the maximum levels and, this It is a consequence of the temporary atmospheric stability conditions - of an anticyclonic nature -, and a static air “lacking” movement), Since in times of atmospheric instability where there are wind gusts, pollutants cannot concentrate in a certain place, but are transported over long distances, favoring the reduction of risk levels in the areas close to the emission sources .

However, we must bear in mind that, although in the short term, the risk tends to be less in circumstances of atmospheric instability and wind, that does not mean that the risks are eradicated; in the medium and, above all, in the long term, they produce changes in the atmosphere itself that, in theory, could lead to conditions of change in the climate, because of its natural greenhouse effect or cause acid rain episodes.

In this way, since the general objective is to protect, conserve and repair atmospheric quality as a fundamental essence of improving and enhancing the quality of life in our cities, understood as a complex system, strategies oriented to the interaction of urban systems and other surrounding systems should be proposed, in order to improve the quality of life of the population and, above all, favoring sustainable development processes. With this, the main thing is not only to reduce the emission levels produced by road transport or minimize the set of polluting emissions, but favor the creation and implementation of sustainable and sustainable urban management plans over time.

On the other hand, it should be noted that while residential and commercial uses have tended to increase their emissions, as have other types of transport -mainly the

railroad-, although they did not have substantial relevance compared to other types of emission sources that increased from 4% to 16%, from consumer products -cleaning, painting, gardening,...-, and construction derivatives, among others. What modifies, not only consumption habits but territorial organization and development models, marking new processes of production, distribution and consumption, in a complex, diverse and constantly changing space, such as the city of Madrid. So there is a real and urgent need to implement measures to protect and conserve the atmosphere in the whole of the Community of Madrid, expanding the Measurement Network to the regional group and promoting studies that analyze the adverse conditions and risks to which the population is exposed, like the rest of biological diversity - vegetation and fauna - of the ecosystems of the Community of Madrid.

Thus, we find that in Madrid, in order to protect and care for tourism-related activities, there is a real and urgent need to generate measures for the protection and conservation of the atmosphere, in the Community as a whole, in general, and in the city of Madrid, in particular, expanding the Measurement Network, as well as conducting new studies that analyze the adverse conditions and risks to which they are exposed, the biological diversity, and the population that lives in our territory, as well as the set of the tourist activities that are developed in it.