

POLLUTION OR RELAXATION AND LEISURE IN SIBIU?

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Abstract

Sibiu City has a strong historical, artistic and cultural identity, rooted far back into the past, as its first official mention was made in the 12th century. In addition to its unique architectural and cultural heritage, Sibiu's socio-economic and educational systems have become genuine brands over time, which helped promote the city. In 2007, Sibiu was designated the European Capital of Culture, which brought it international fame, economic revitalization and a high tourist flow, with local and foreign investments booming. The city was reborn both aesthetically and culturally, as a result of major building renovation projects completed in the historical centre and the construction of a series of open public spaces and green areas, as well as of a rich and diverse cultural program, all of which attracting numerous local and foreign tourists. Sibiu became one of Romania's most prosperous cities, with one of the highest foreign investment rates nationally. Sibiu's economic and tourism boom was however accompanied by certain issues in terms of noise and atmospheric pollution, and the city's waste management system.

This review aims to examine pollution and relaxation and leisure activities of Sibiu, in an attempt to assess their respective weights. By means of the snowball method, by tracking references for papers featured on the Google Scholar platform, an initial bank of 11 relevant scientific articles was obtained, out of the 15 papers that were initially available. At the same time, by using certain keywords, a specific search protocol and several search filters on the Web of Science platform, a second bank of 11 relevant studies was created out of 98 open access articles. These papers were closely reviewed and analysed.

Fortunately, our paper's conclusion is that Sibiu was not and is not currently seriously affected by air pollution. Not even long temperature inversion periods have aggravated the state of affairs, as air quality thresholds have not been exceeded. Should no new pollution sources appear, the urban air pollution risk remains low, even though Sibiu is one of Romania's most prosperous cities, with numerous economic development opportunities, initiatives and activities. Studies have shown that, at certain times of day, in certain crossroads and areas in the city, noise pollution levels exceed thresholds, as cobblestone streets favour high values. There are solutions for such instances that aim to improve traffic conditions in Sibiu and to modernize infrastructure. The city's waste management system can be improved by assessing the current environmental loads, by introducing bins for biodegradable waste collection, followed by a composting process, and by possibly building an additional wastewater and sewage sludge treatment station.

Sibiu is undoubtedly a city of top-quality relaxation and leisure activities, as it is not affected by critical or alarming pollution levels. It has benefited from a significant economic boost, a better image, a high degree of social cohesion and local pride, and from an all-time high level in cultural and tourism activity (large-scale and well-established events, cultural institutions and tourist attractions, charming green spaces, all of which constantly bring in visitors). Investments in cultural objectives, hotels and infrastructure have increased, and Sibiu has become an important link in internal and international tourism networks. The city makes the best of

its relationships with the rest of Europe and is assisted in the process by its close ties with Luxembourg and by its linguistic and, why not, affective ties with Germany. The number of tourists has significantly increased once Sibiu was designated the European Capital of Culture and the trend remains strong. Clearly, Sibiu is pro relaxation and leisure, and against pollution.

Keywords: Sibiu, European Capital of Culture, fame, pollution, relaxation, leisure

1 INTRODUCTION

Sibiu City has a strong historical, artistic and cultural identity, rooted far back into the past, as its first official mention was made in the 12th century. In addition to its unique architectural and cultural heritage, Sibiu's socio-economic and educational systems have become genuine brands over time, which helped promote the city. Located in central Romania, Sibiu has a stable population of approximately 155.000 inhabitants and an area of 121 km² (Sibiu City Hall website).

In 2007, Sibiu was designated the European Capital of Culture, which brought it international fame, economic revitalization and a high tourist flow, with local and foreign investments booming. The city was reborn both aesthetically and culturally, as a result of major building renovation projects completed in the historical centre and the construction of a series of open public spaces and green areas, as well as of a rich and diverse cultural program, all of which attracting numerous local and foreign tourists. Sibiu became one of Romania's most prosperous cities, with one of the highest foreign investment rates nationally.

Sibiu's economic and tourism boom was however accompanied by certain issues in terms of noise and atmospheric pollution, and the city's waste management system. Given its location, number of inhabitants and local activities, pollution is an inevitable phenomenon in Sibiu. As long as pollutant concentrations are low, the phenomenon is not dangerous. However, there are meteorological conditions that inhibit the aeration of the atmosphere and reduce the concentration of atmospheric pollutants, and one of these conditions is favoured by the city's location in a contact depression. At the same time, the city's continuous development has resulted in ever-growing pressure on its road structure, one of the negative effects of which is the higher noise and physico-chemical pollution of the atmosphere. Studies have shown that, in certain areas of the city and at certain times of day, noise pollution exceeds the permissible limits.

On the other hand, in Sibiu, the organic fraction of municipal waste is not recovered in any way and is landfilled together with the other waste groups, which, according to EU legislation, is an improper waste management method. Moreover, the sludge resulting from the wastewater treatment plant is only stored in the vicinity of the station and is in no way processed and used. The right solutions must be found for these environmental issues.

Considering the above, the following question may be raised: is Sibiu a city with a dangerous level of pollution, or are relaxation and leisure activities its main strengths, constantly attracting tourists? This review is meant to answer this question in a well-documented manner.

2 MATERIALS AND METHODS

We proceeded by collecting a bank of research studies on Sibiu as a relaxation and leisure place and on various urban pollution- and waste management-related issues. Two searches were conducted on the Google Scholar and Web of Science platforms. The last search was performed on August 5, 2019. Using a type of snowball method, by tracking references for papers featured on Google Scholar, an initial bank of 11 relevant scientific articles was obtained, out of the 15 papers that were initially available.

Based on this initial assessment of the studies found via the snowball methodology, keywords were chosen to search for scientific literature on the Web of Science platform. These included "Sibiu", "pollution", "air", "water", "noise", "waste", "leisure", "relaxation", "tourism", "management" in different combinations. Results (478 studies) were narrowed by applying several search filters (open access, Web of Science categories, and document types) and a specific search protocol (works in English language, no temporal option, information relevant for our review, thematic fit). This second search returned a second bank of 11 relevant studies out of 98 open access articles.

The full texts of these 22 papers composing the final bank of research work (Fig. 1) were retrieved and further reviewed and analysed.

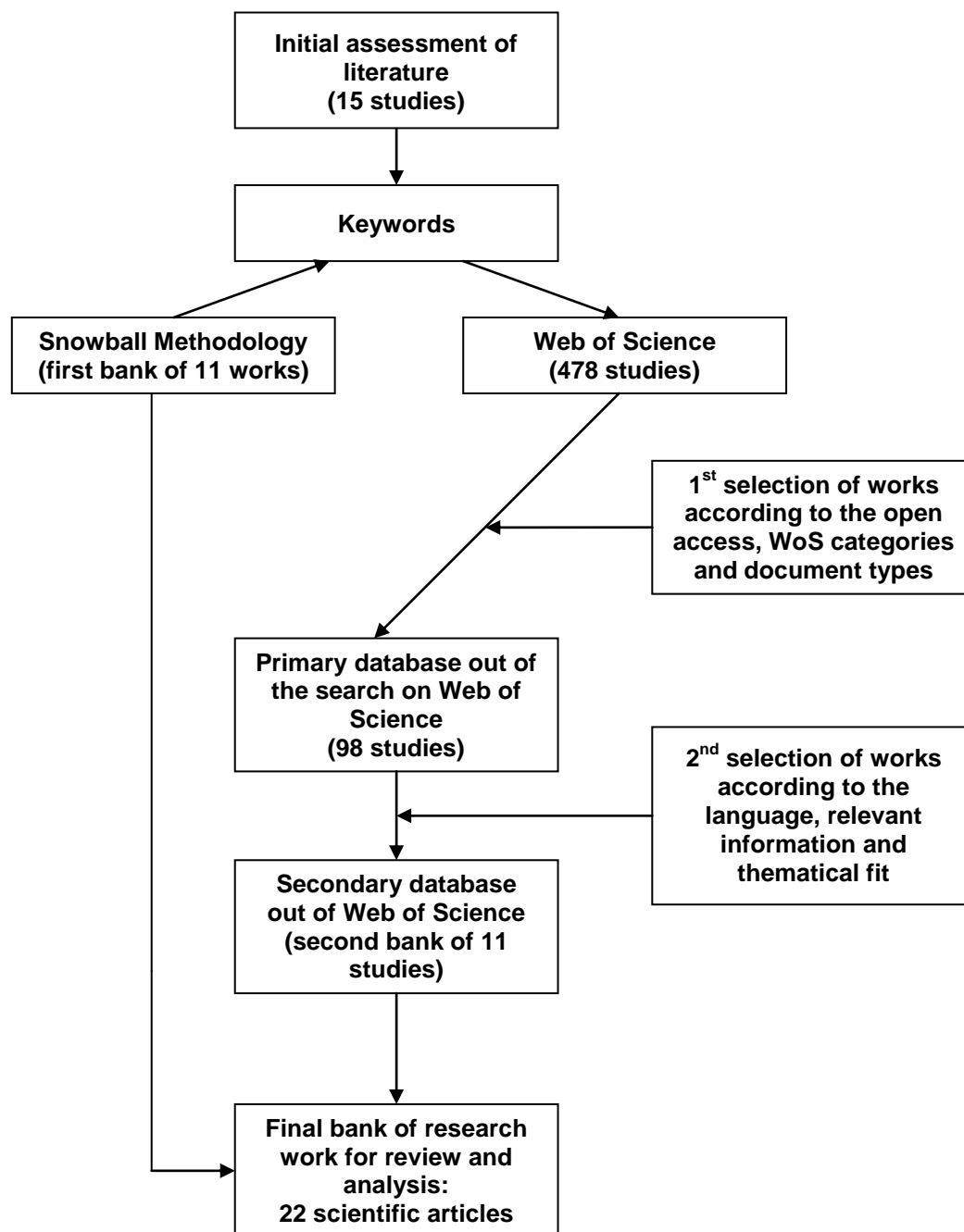


Fig. 1 The systematic review process scheme (modelled on Biesbroek et al., 2013)

3 RESULTS AND DISCUSSIONS

As pollution is a threat to the very existence and well-being of any city, the analysis of pollution in Sibiu was one of this review's priorities.

Therefore, not even long temperature inversion periods (i.e. very low temperatures, but also a stable air stratification) (Köber, 2013) have aggravated the state of affairs, as air quality thresholds have not been exceeded in the case of the following pollutants: sulphur dioxide SO₂, nitrogen dioxide NO₂, carbon monoxide CO and ozone O₃ (Köber, 2013). Should no new pollution sources appear, Sibiu urban air pollution risk shall remain low (Köber, 2013), even though Sibiu is one of Romania's most prosperous cities, with numerous economic development opportunities, initiatives and activities. However, it must be mentioned that concentrations of nitrogen dioxide and carbon monoxide, two stable pollutants, are maximal on days

with “temperature inversions, high atmospheric pressure and slow wind speed” (Köber, 2013).

One of the main causes of atmospheric physico-chemical pollution in Sibiu (currently unalarming) is traffic, which, in this city, also accounts for high levels of noise pollution in certain areas and crossroads at certain times of day (Petrescu, Borza, 2013). Traffic generates significant pressure on the city’s road structure (Deac, Bibu, 2017; Deac, Petrescu, Gligor, 2017), which at times causes difficulties for road users and congestion, especially in the centre and around the city’s entrances and exits (Deac, Bibu, 2017; Deac, Petrescu, Gligor, 2017; Ință, 2017), as well as noise pollution. There are solutions to these issues, such as gradually reducing the number of highly polluting means of transportation, traffic fluidization, greening lands in the vicinity of traffic arteries, installing noise protection screens and creating vegetation curtains between roads and inhabited areas (Borza, Ință, Șerbu, Marza, 2018); however, improving the infrastructure – an urgent necessity – is more difficult and requires significant investment (Deac, Petrescu, Gligor, 2017).

At the same time, cobblestone pavement, very common in Sibiu city centre (like in many European historical city centres) and generally pedestrian friendly (as it determines vehicles to reduce speeding) (Petrescu, Ciudin, Isarie, Cioca, Nederita, 2015), can generate noise pollution when vehicles use them. Noise is amplified by buildings and street morphology (Petrescu, Ciudin, Isarie, Cioca, Nederita, 2015). Cobblestone pavements can be replaced by other types of materials that generate less noise (Petrescu, Ciudin, Isarie, Cioca, Nederita, 2015), should local regulators decide to implement such a measure.

Other environmental components assessed in Sibiu consist of solid waste management and wastewater treatment (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017). In Sibiu, the organic fraction of solid waste is not used in any way and is landfilled together with the other waste fractions, which, according to EU legislation, is an improper waste management method (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017). Moreover, the sludge resulting from the wastewater treatment plant is not recovered and used; instead, it is stored and dried naturally on a land located in the vicinity of the plant, on the left bank of Cibin river (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017). A recent study proposes to recover the solid organic fraction and to manage sludge by using “a digester as a co-digestion unit to treat the two types of waste” (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017). This method would generate the biogas needed to thermally dry the waste, which can then be co-incinerated in cement kilns (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017).

The city’s waste management system, focusing on organic fraction and sewage sludge, can be improved by assessing the current environmental loads, by introducing bins for biodegradable waste collection, followed by a digestion process, and possibly by building an additional wastewater and sewage sludge treatment station (Trombin, Ragazzi, Isarie, Ciudin, Torretta, 2017).

Fortunately, our review’s conclusions are that Sibiu was not and is not currently affected by critical or alarming pollution levels, and that there are solutions for reducing air impurification and noise pollution in some areas, as well as for improving solid waste management and wastewater treatment. Regarding the cost of these solutions, there are numerous UE funding opportunities. Moreover, Sibiu has a high potential for circular economy implementation (Strat, Teodor, Săseanu, 2018). Circular economy uses the waste as a valuable resource and reduces the environmental impact of a product’s lifecycle (Strat, Teodor, Săseanu, 2018). Circular economy shouldn’t be confused with the recycling process; it entails, in addition to recycling, a heightened economic power of the community, performant infrastructure, high levels of performance in education and culture, and an economic receptiveness (Strat, Teodor, Săseanu, 2018), indicators that Sibiu City is by no means short on.

In terms of leisure activities and relaxation, Sibiu holds all the necessary strong suits to be at the very top, both in Romania, and internationally. Sibiu has the image of a pristine medieval city (Richards, Rotariu, 2015). With a strong and spirited cultural and historical character, which dates back to ancient times, with a unique architectural heritage, over the past centuries, Sibiu has built a social, economic, cultural and educational brand identity (Petrea & Petrea, Olău, Filimon, 2010). Its distinct cultural tradition endured after 1945. The city’s historical centre survived communism and, during this period, Sibiu provided its inhabitants with alternative cultural events that complemented what the regime offered, such as the annual jazz festival, established in 1970 (Richards, Rotariu, 2011b; Richards, Rotariu, 2015).

Together with Luxembourg, Sibiu was the European Capital of Culture in 2007, as it possesses a particularly rich cultural heritage (Dulău, Coroș, 2009a). If Transylvania holds 37% of Romania’s cultural heritage, Sibiu alone accounts for 3.1% (Dulău, Coroș, 2009a). A rich cultural life is the element that determines the plenitude of a destination; it is what sets it apart from a place that is interesting only touristically. Such a destination can be visited any time of year, as it holds what is referred to as “social appeal”, which attracts well-educated and refined visitors, who invest significantly in top quality leisure and cultural relaxation

(Dulău, Coroş, 2009b).

The 2007 event had a strong positive impact on the city – local and foreign tourist numbers grew, as did investments in infrastructure, hotels and cultural objectives; following this major event, local revenues generated by tourism and associated sectors increased (Richards, Rotariu, 2013). An economic boom followed, which was coupled with an enhanced city image, as Sibiu gained international fame and a high degree of social cohesion and local pride (Richards, Rotariu, 2013). Cultural activity reached all-time highs (Richards, Rotariu, 2015), which was reflected in a qualitative shift in tourist flows towards cultural visitors with higher spending power and higher quality demands regarding leisure and relaxation (Richards, Rotariu, 2011a; Richards, Rotariu, 2013). The overall private cultural consumption was estimated at 200 million Euros (Vasiliu, Dragoman, 2009). All these positive effects of the European Cultural Capital Programme have proven to be long-lasting in Sibiu (Richards, Rotariu, 2013), and can still be felt today.

Over time, Sibiu has turned into an important link of internal and international tourism and leisure networks, and has made great use of its relationships with the rest of Europe, with the help of its close cultural connection to Luxembourg and of its linguistic and, why not, affective ties with Germany (Richards, Rotariu, 2013).

The main objectives of the 2007 event were to change the city's image, attract as many tourists as possible, enhance local pride and stimulate the population's appetite for culture by promoting high quality cultural events (Vasiliu, Dragoman, 2009; Richards, Rotariu, 2010; Richards, Rotariu, 2011a; Richards, Rotariu, 2011b; Nicula, Spânu, 2014). All these objectives were met, and Sibiu became a cosmopolitan city, with a large number of tourists who revisit it regularly in their search for cultural leisure and relaxation. Locals feel their city is special and are aware of the fact it has a lot to offer (Richards, Rotariu, 2010; Richards, Rotariu, 2011a; Richards, Rotariu, 2011b).

The 2007 event highlighted the local multiculturalism and showcased the European historical and cultural heritage of the city, in the year when Romania became a full-fledged member of the UE (Vasiliu, Dragoman, 2009). In January 2007, The Guardian included Sibiu in the top 50 fabulous destinations of the year and praised the city's café culture and its Gothic and Art Nouveau architecture (Vasiliu, Dragoman, 2009). In 2007, the number of tourists who visited Sibiu reached 800.000, from 220.000 in 2005 (Vasiliu, Dragoman, 2009), which is even more proof that leisure and relaxation are inner elements of the city.

The cultural mega-event also had a strong economic impact and boosted the local and regional development (Cosma, Negrusa, Popovici, 2009; Vasiliu, Dragoman, 2009; Draghici et al., 2015). Sibiu's economy recovered after a prolonged economic downturn (Vasiliu, Dragoman, 2009), and the city became one of the main beneficiaries of national and foreign investment in industry, commerce and tourism (Vasiliu, Dragoman, 2009). The tourism industry and its related sectors (hotels, tourism and transportation companies, restaurants and bars, shops etc.) were greatly invigorated (Vasiliu, Dragoman, 2009). Private investments in hotels alone were evaluated to some 67 million Euros (Vasiliu, Dragoman, 2009). A 2009 survey showed that 68.2% of the surveyed companies had an increase in profitability and 7.1% saw a very important increase (Vasiliu, Dragoman, 2009). More than 50% of the surveyed companies hired new personnel in 2007 (Vasiliu, Dragoman, 2009).

The Sibiu 2007 experience contributed to the artistic and cultural leisure and relaxation of people in Sibiu and its visitors, but also to their cultural education (Vasiliu, Dragoman, 2009). A particularly important aspect is that the event improved and developed certain social issues such as social trust, local cohesion and pride, community involvement, commitment, and ethnic and religious tolerance (Vasiliu, Dragoman, 2009; Richards, Rotariu, 2010; Richards, Rotariu, 2015).

Before becoming the 2007 European Capital of Culture, the city renovated public buildings, monuments, parks and gardens, built a new public library and set up open public spaces and green spaces (Vasiliu, Dragoman, 2009; Petrea & Petrea, Olău, Filimon, 2010). Also, the city administration rehabilitated the existing cultural infrastructure, such as the concert hall and the children's theatre (Vasiliu, Dragoman, 2009), and preferred using a multifunctional facility to host a wide range of cultural events instead of building a new great hall (Vasiliu, Dragoman, 2009). At the same time, certain investments were directed towards general transport (a new airport terminal and railway station renovation works) and tourist and urban infrastructure (road, potable water and sewage infrastructure) needed for the event (Vasiliu, Dragoman, 2009). Overall, the investments in infrastructure for the 2007 event were estimated at more than 50 million Euros (Vasiliu, Dragoman, 2009). Therefore, this landmark event significantly increased public and private investment in cultural consumption and infrastructure (Vasiliu, Dragoman, 2009; Draghici et al., 2015).

Seizing the 2007 opportunity, Sibiu city started making its cultural identity and historical heritage known to

the entire world, developed and promoted its image and got a higher visibility (Cosma, Negrusa, Popovici, 2009; Vasiliu, Dragoman, 2009). Sibiu gained the image of a culture-rich city, with various cultural relaxation and leisure activities. One of its main festivals, the International Theatre Festival, keeps attracting large crowds of culture enthusiasts, as do its numerous museums (Brukenthal National Museum, „Astra” Museum of Traditional Folk Civilization (Fig. 2 b), “Franz Binder” Universal Ethnography Museum, “Emil Sigerus” Museum of Transylvanian Saxon Ethnography and Folk Art etc.) and cultural objectives and activities, such as the Grand Square (Fig. 2 a), Small Square and Council Tower, Albert Huet Square, Bridge of lies, Philharmonic, abundant places of worship, CibinFEST Festival etc. (Vasiliu, Dragoman, 2009; Pleşoianu, Grecu, 2018).

In 2008, Forbes ranked Sibiu as one of Europe’s “most idyllic places to live” and one of the top places to visit (Vasiliu, Dragoman, 2009).

Following the 2007 event, Sibiu quickly became perhaps Romania’s most famous city, after the capital Bucharest (Cosma, Negrusa, Popovici, 2009); the city built up a strong identity in Europe (Richards, Rotariu, 2011b) and its fame lingers on to this day.

In 2007, Sibiu underwent a rebranding process that reinvented the city aesthetically and culturally (Petrea & Petrea, Olău, Filimon, 2010). Sibiu became a new brand: a European cultural city, with a high cultural consumption (Richards, Rotariu, 2010), high quality cultural relaxation and leisure (Cosma, Negrusa, Popovici, 2009) and a higher quality of life (Richards, Rotariu, 2015).

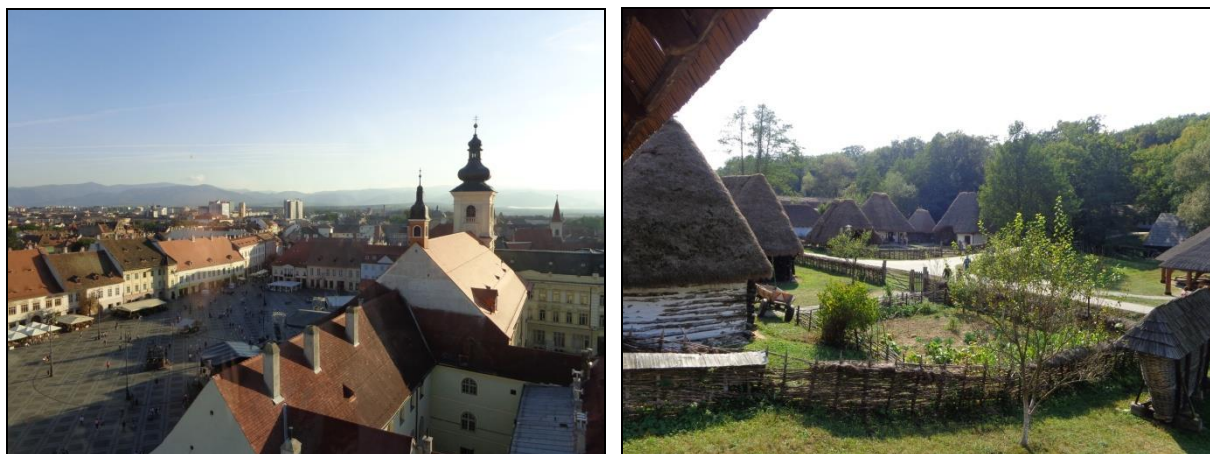


Fig. 2 a) (left) Downtown Sibiu – Grand Square view from the Council Tower and b) (right) ASTRA Museum of Traditional Folk Civilization

Sibiu can be deemed an important European hub of cultural leisure and relaxation destinations, having a special and distinctive contribution to the cultural past, present and future of Europe (Richards, Rotariu, 2011b).

CONCLUSIONS

Auspiciously, our review’s conclusion is that Sibiu was not and is not presently seriously affected by air pollution. Not even long temperature inversion periods have aggravated the state of affairs, as air quality thresholds have not been exceeded. Should no new pollution sources appear, the urban air pollution risk shall remain low, even though Sibiu is one of Romania’s most prosperous cities, with numerous economic development opportunities, initiatives and activities. Studies have shown that, at certain times of day, in certain crossroads and areas in the city, noise pollution levels exceed permitted thresholds, as cobblestone streets favour high noise values. There are solutions for such instances that aim to improve traffic conditions in Sibiu and to modernize infrastructure. The city’s waste management system can be improved by assessing the current environmental loads, by introducing bins for biodegradable waste collection, followed by a composting process, and by possibly building an additional wastewater and sewage sludge treatment station.

Sibiu is undoubtedly a city of top-quality relaxation and leisure activities, as it is not affected by critical or alarming pollution levels. It has benefited from a significant economic boost, a better image, a high degree of social cohesion and local pride, and from all-time high levels in cultural and tourism activity (large-scale and well-established events, cultural institutions and tourist attractions, charming green spaces, all of which

constantly bring in visitors). Investments in cultural objectives, hotels and infrastructure have grown, and Sibiu has become an important link in internal and international tourism networks. The city makes the best of its relationships with the rest of Europe and is assisted in the process by its close ties with Luxembourg and by its linguistic and, why not, affective ties with Germany. The number of tourists has significantly increased once Sibiu was designated the European Capital of Culture and the trend remains strong. Sibiu has become a new brand: European cultural city, with a high cultural consumption, diverse relaxation and leisure activities, and a higher quality of life. Sibiu can be considered an important European hub of sophisticated recreation and vacation spots, with a relevant and peculiar contribution to the cultural past, present and future of Europe. Clearly, Sibiu is pro relaxation and leisure, and against pollution.

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