

Title: Tourism axes and sustainable development. The potential of Târnaveilor Axis in Mureș county

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Abstract: Tourism represents an instrument of globalization and economic development with considerable benefits for a territory. The current trends in tourism determine the increase of competitiveness and the necessity to adapt the development strategies in accordance with the requirements and with the local specifics. The link between tourism and geographical axes is in line with current trends, i.e. the need to move from the spot approach to an axial or integrative approach that decongests hot spots and directs flows towards areas considered peripheral in terms of positioning or the potential. The Târnaveilor Axis, a double geographical axis, represents an area with significant tourism potential, whose importance in the tourism sector can be demonstrated through tourism-specific indicators. The purpose of this paper is to demonstrate the touristic potential of the Târnaveilor Axis through their integrated analysis and to highlight the "Târnaveilor Axis" as an example of a sustainable tourist destination, with particular emphasis on its role in Mureș County. To this end, the paper seeks to address a series of broader questions concerning regional and local tourism potential, as well as more specific questions regarding the relationship between geographic axes and tourism.

1. Introduction

The modern society or the society of the 21st century is characterized by the lack of free time that restricts the human possibility to move, but also by the easy access to information that broadens the horizon and inspires, motivates or manipulates the desire to move and relax. These trends make the tourism industry occupy an increasingly important place in national development strategies, and its role in economic development to grow exponentially.

Tourism or the state of this industry is considered directly proportional to the level of civilization of a country, being a social and economic industry that develops rapidly and constantly (Oshkordina & Chikurova, 2020, p. 331).

Tourism brings considerable benefits, both economically and socially, contributing to the development of a country's image by promoting traditions, culture, natural and anthropic resources. Tourism promotes development from all points of view, specific and associated infrastructure, education and increases the standard of living by supporting and stimulating local entrepreneurs and the local community (Alam et al., 2022, p. 19).

Today, tourism is a socio-economic phenomenon, multidimensional and versatile, a point of common interest for the public and private sector, for researchers and

entrepreneurs. Tourism is a sector with a significant role in the economic, social, ecological and political fields (Rastegaeva & Kazakov, 2016, p. 107).

Tourism has proven beneficial to local communities by contributing to increased employment and household incomes, the development of tourism-related and general infrastructure, and the conservation of natural and cultural resources (Wang et al., 2020).

The trends in the tourism industry change according to the existing demands at the market level, but this does not mean that the existing needs at the societal level, namely sustainable development, must be lost sight of. Sustainable development must be the benchmark in tourism policy, planning and development (Adu-Ampong & Kimbu, 2019, p. 119).

The implementation of sustainable tourism requirements in practice remains difficult, considering the managerial challenges and the moral and ethical education required to achieve this goal (Kuščer & Mihalič, 2019).

Sustainable tourism development strategies consider the participation and empowerment of local communities in the conservation of tourism heritage as a point of balance and awareness (Mohamadi et al., 2020).

The current trends and the need for sustainable development also determine the transition from the spatial concentration of investments and supply to a more concise and airy management style, which does not lead to exceeding the carrying capacity of the environment or to the underuse and isolation of some resources. This type of linear development is based on the characteristics of geographic axes and their properties.

Geographic axes represent spatial development patterns, referring to linearity and continuity (Albrechts & Tasan-Kok, 2009, p. 298).

Geographic axes are geosystems that allow the use of existing potential at the regional level to improve the existing system, to shape it through flows, taking into account the social and natural component, resulting in beneficial elements for territorial planning (Pop, 2016).

The link between tourism and geographical axes materializes due to the tendency to move from the approach based on the spatial concentration or the "spot approach", especially island or city, to a more comprehensive approach, i.e. towards a development axis or axial development approach (Pazhuhan & Shiri, 2019, pp. 119–121).

Axial tourism represents a form of geographical axes, based on tourism development organized along those force lines. This type of approach promotes a more balanced development of the tourism sector, which is strongly affected by inconsistencies in terms of potential and resources.

Tourist axes are strong lines of the territory, representing tourist propaganda routes, served by main poles that support tourism and secondary axes and poles (Simon, 2011; Cocerhan, 2012).

Geographical axes and the axial approach emphasize continuity, complementarity, and territorial balance. Tourist axes, through an axial development strategy, can contribute to creating a positive tourism image and a unified tourism brand, even in the case of an apparently dispersed tourism offer (Someșan, 2024).

Tourist axes represent a concept that can be easily adapted to various contexts. They can focus on a particular type of tourism potential. Cultural axes are presented as a framework for the development of cultural products (Tătar, 2022), while archaeological

tourism is supported by the delineation of tourist axes focused on historical remains (Gudea et al., 2024).

Also, tourist axes are similar in definition and role to concepts such as tourist routes or tourist corridors.

Tourism corridors refer to linear territorial structures that connect tourism attractions, destinations and localities through transportation and tourism flows. The concept has gone through several phases, evolving to encompass cultural routes, heritage corridors and other trans-regional tourism spaces (Ye et al., 2024).

Tourist routes connect a series of tourist attractions to support tourism by encouraging the integration of multiple objectives (Lourens, 2007, p. 475).

Promoting tourism through routes is also used at the national level, the "Attractive Romania" project proposes 12 cultural routes, and "Castles in Transylvania" integrates and promotes a series of noble residences (romania-atractiva.ro, 2024; coalitie.castelintransilvania.ro, 2018).

Tourist routes are not isolated, they intersect with economic, social, cultural and environmental factors (Vada et al., 2022, p.9).

Tourist axes, corridors or routes, as spatial models that integrate the tourist offer, are considered useful in sustainable development. They offer significant perspectives on promoting the integration of interregional tourist resources, supporting the optimization of the spatial allocation of resources and the sustainable development of tourism at the territorial level (Tang et al., 2025).

Study area

Mureş County has a tourism potential suitable for a wide economic development, the diversified natural setting and ethnic heterogeneity, together with the multi-millenary history and material and immaterial heritage, offer this region a generous substrate for the development of the tourism sector, an engine of economy, as multiple studies show.

At the national level, Mureş County ranks 9th in terms of the number of tourist arrivals, with more than 500,000 tourists over a 12-month period, from February 2023 to February 2024 (insse.ro, 2024).

At the regional level, of Microregion 1, which includes 12 counties, Mureş is in 4th place according to the data provided by the National Institute of Statistics, the occupied place being the proof of the tourist potential of the county. Figure 1 represents the number of tourist arrivals in tourist reception structures in the counties of Microregion 1 during the analyzed period.

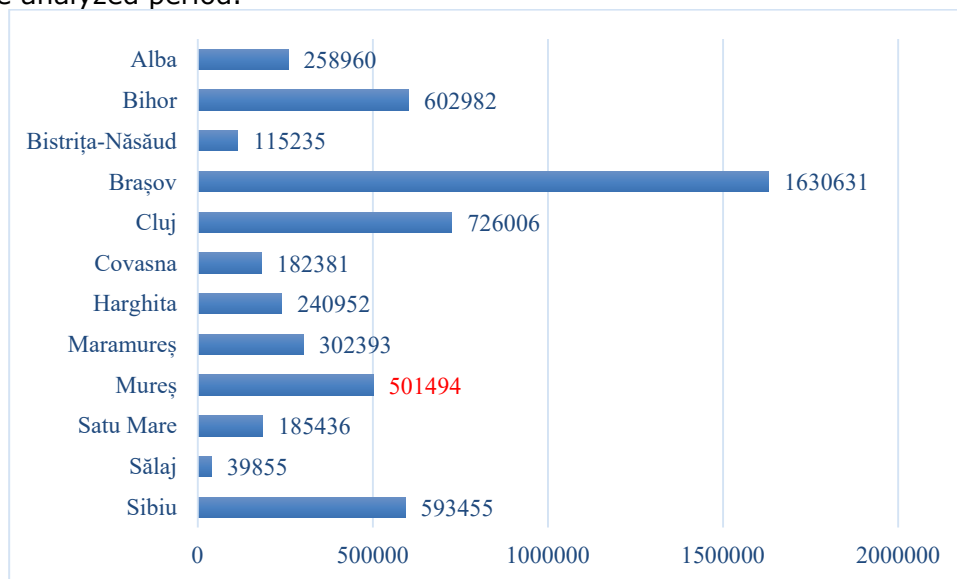


Figure 1. Tourist arrivals at the level of Microregion 1 during 12 months form February 2023 to February 2024 (Source: insse.ro, 2024)

At the level of Mureș county, several types of tourism are identified, presented in order of importance: transit tourism favored by the presence of important railway lines and road arteries that direct the flows, cultural tourism or visiting tourism, rural tourism and agritourism, religious tourism, curative tourism in the hills and plateaus between Mureș and Târnava Mare, recreational tourism, hiking, leisure tourism, hunting tourism, fishing tourism, extreme tourism and business tourism (Pleșoiu et al., 2017, pp. 296-299).

The Târnavelor hydrographic basin (see fig. 2) is located in the central part of Romania, being a lower-ranking component of the Mureș hydrographic basin. The two energy lines of the basin or the two hydrographic axes, Târnava Mică (191 km) and Târnava Mare (221 km), spring from the Gurghiuului and Harghita mountains and join at Blaj where they form Târnava which after 28 km flows into Mureș. The hydrographic basin of the two units covers the surface of 5 counties: Mureș, Alba, Sibiu, Brașov, Harghita (Conțiu, 2010, p. 8–9).

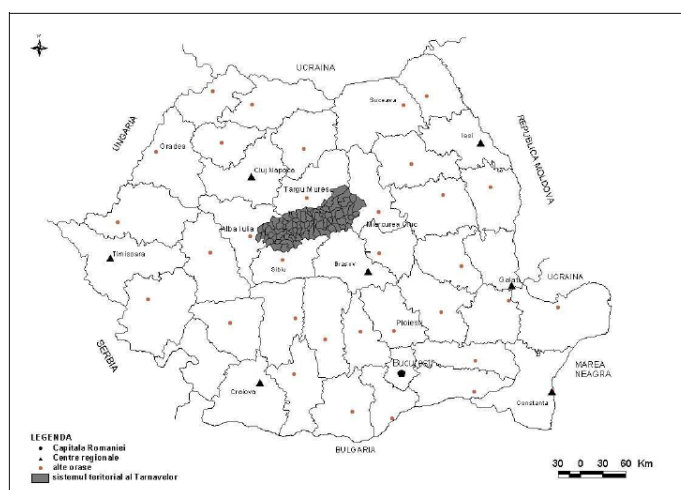


Figure 2. The position of the Târnavelor river basin (Source: Conțiu, 2010, p. 9)

At the level of the study area, there are 25 localities, 4 of which are urban, including 2 county municipalities and 21 rural (insse.ro, 2024).

The surface of the study area is 1788.09 km², which amounts to approximately 26.63% of the total of the county.

Accessibility in the study area is good, a feature due to the very good coverage of the area by roads. It can be observed that the roads within the areas of influence of the study axes run perpendicular to the axes, with European road E60 providing the connection between the two axes and between them and the main county-level axis, that of the Mureș River. This relatively perpendicular arrangement of these secondary road axes in relation to the main ones is due to the corridors formed by the hydrographic units of the Târnavelor tributaries. Accessibility and connectivity are also ensured by railways, railway line 300 in the Târnava Mică area and railway line 307 in the Târnava Mare area.

Figure 3 shows the location of the study area at the county level, i.e. in the southern part of the county and the road network in this area.

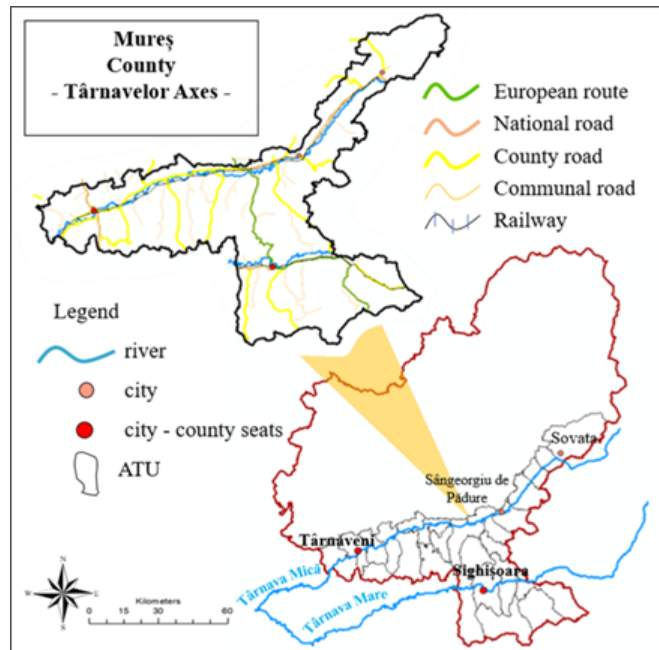


Figure 3. Study area, roads, railways and zonal poles / cores

The axes of Târnavă rivers (see fig. 4) represent an area with a transitory character, characterized by a strong functional and structural asymmetry, playing at the county level a secondary role compared to the axis of Mureș, the polarizing and main axis. The main role of the axes is to link the areas from upstream to downstream, directing material and immaterial flows in the main east-west direction or the secondary north-south direction. The city of Sighișoara it stands out as a pole on the axis of Târnavă Mare, the main axis at the basin level, but with a peripheral character due to its positioning at the county level. Târnavă Mică is the secondary axis at the basin level, but with a median and mediator character, with the urban cores or poles of as Sovata, Sângeorgiu de Pădure and Târnăveni (Conțiu, 2010, p. 6).

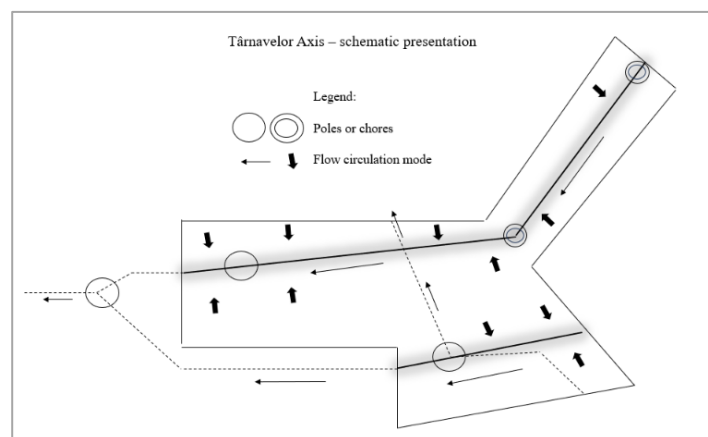


Figure 4. Flows - schematic presentation (Source: adapted from Conțiu, 2010, p. 7)

The Târnavelor Axis is a bifurcated polarization axis, with no monopoly in terms of polarization by a center, there being several such cores with smaller sizes. The Târnavelor Corridor is a homogeneous, polarized and anisotropic region in both physiological and structurally point of view, with several successive centers present and with a predominant longitudinal orientation of the flows (Conțiu, 2010, p. 7).

The Târnavelor Axis, determined hydrographically by Târnavă Mică and Târnavă Mare, represents a region that dominates the southern space of Mureș County, having a large extension, a multilateral role within the county and a remarkable tourist potential.

The research is guided by a set of research questions addressing the role of the study area in county-level tourism, its tourism potential, and the potential benefits of promoting it as an axis-based destination, namely the "Târnavelor Axis".

The purpose of this paper is to present the advantages of the axial development of a tourist offerer area, such as that of Târnavelor at the level of Mureș County, thus proposing a way or a complementary solution for the sustainable development of tourism and the formation of a tourist brand in compliance with current requirements and trends.

For the purpose of achieving the proposed aim, the research starts from the following hypothesis: "The Târnavelor Axis has significant tourism potential and territorial characteristics that can support its development as an integrated and sustainable tourism destination in Mureș County".

2. Materials and Methods

The present research establishes a link between tourism axes, in this case the "Târnavelor Axis", and sustainable development. In order to achieve the stated objective, the research questions addressed by the researchers are:

- How significant is tourism activity in the study area relative to the rest of Mureș County?
- Are the tourism resources in the area relevant and diverse?
- Are the villages and communes in the area well connected?
- Can the axis help distribute tourism activity from highly concentrated tourism poles, towards less-developed localities?
- Can the integrated development of the Târnavelor tourism axis contribute to a more balanced spatial distribution of tourism activity and, consequently, to more sustainable tourism development in Mureș County?

To provide objective answers to these research questions, a series of tourism-specific indicators were analyzed: accommodation capacity per 1,000 inhabitants, accommodation capacity per km², tourist arrivals per 1,000 inhabitants, average length of stay, and the density and diversity of tourism resources.

The analysis of the aforementioned indicators was conducted comparatively, both among the administrative-territorial units (ATUs) within the study county and among the units crossed by the Târnavă rivers at the regional level. The only exception is the last indicator, concerning the density and diversity of tourism resources, which was analyzed exclusively at the level of Mureș County.

The statistical data used were taken from national (National Institute of Statistics) and regional (County Directorates of Statistics) data. These are interpreted through specific methods, through comparison and presented in articles as such or processed.

The research methods used are: bibliographic documentation, the exhaustive inventory method, the analysis and synthesis method, the GIS method and the chromatic method.

The method of studying the specialized bibliography is necessary for any research because it provides credibility to the study, continuity and complementarity in the field of research.

The exhaustive inventory, a basic method in scientific research of natural and cultural diversity, is the main method that helps to identify the elements of attractiveness at the level of the study area, being analyzed the material and immaterial objectives, but also the transport infrastructure or the level of accessibility touristic.

The method of analysis and synthesis allows knowing the typology and characteristics of the study area and choosing the defining elements for the research (Armaș, 2006, pp. 92–94).

GIS systems, originally used for inventorying land use and natural resources, have come to be present in the vast majority of studies based on natural and human resource management. The GIS method offers the possibility of data storage, analysis and communication, having a considerable advantage when it comes to transferability and transformation according to the user's need (Merry et al., 2023).

The GIS method was used to analyze and present the study area and its characteristics, providing a very good perspective on the studied elements.

The chorismic method or chorismic modeling is a tool for representing, forecasting and studying reality. This type of analysis is a way of consulting actors in the territory and a tool for debating territorial development solutions (Enault & Chatel, 2017).

In the research conducted, the chorismic method was used to present flows and poles, elements of axial dynamics that provide useful information in order to manage the tourist potential in the direction of the sustainable development of this sector.

3. Results

The Târnaveilor Axis crosses 4 counties (Alba, Harghita, Mureș, Sibiu) and represents, in this case, the result of the administrative-territorial units it crosses.

To streamline the presentation and avoid unnecessary repetition, although the analysis includes only a selection of ATUs from the four counties, the results will be presented by county. However, in Alba County, only the following localities are analysed: Cetatea de Baltă, Jidvei, Șona, Sâncel, Blaj, Crăciunelu de Jos, Mihalț, and Valea Lungă. In Sibiu County, the ATUs crossed by the studied axis are: Micăsasa, Copșa Mică, Târnava, Mediaș, Dârlos, Alma, Dumbrăveni, and Hoghilag. In Harghita County, the axis passes through the following ATUs: Secuieni, Cristuru Secuiesc, Porumbeni, Mugeni, Feliceni, Odorheiu Secuiesc, Brădești, Zetea, Vărșag, and Praid. Within the study county, Mureș, the largest number of localities is crossed by the studied axis, particularly by the Târnava Mică branch: Daneș, Sighișoara, Albești, Vânători, Adămuș, Târnăveni, Gănești, Mica, Bahnea, Suplac, Coroianmartin, Bălăușeri, Fântânele, Sângeorgiu de Pădure, Ghindari, Chibed, Sărățeni, and Sovata.

Figure 5 presents the development of the Târnaveilor Axis, and table 1 the result of the analysis of tourism indicators.

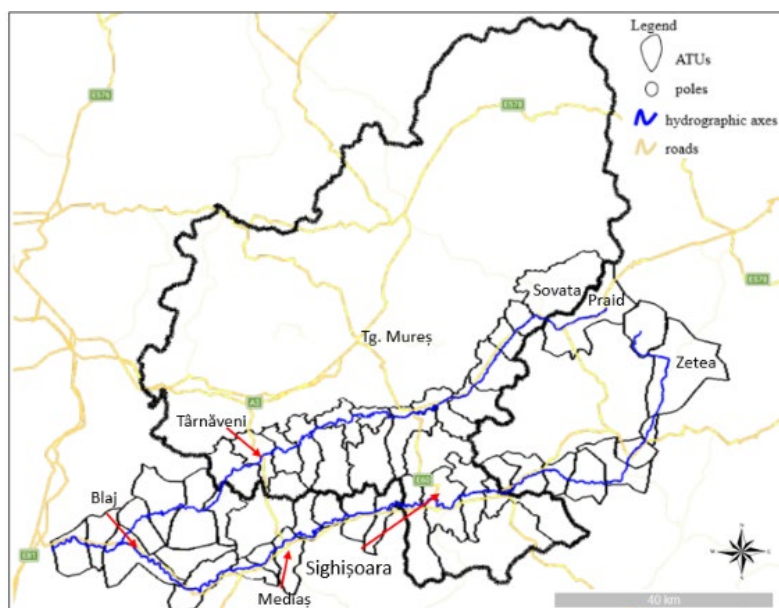


Figure 5. Târnaveilor Axis - territorial deployment

Table 1. Result of the analysis of tourism indicators – year 2024

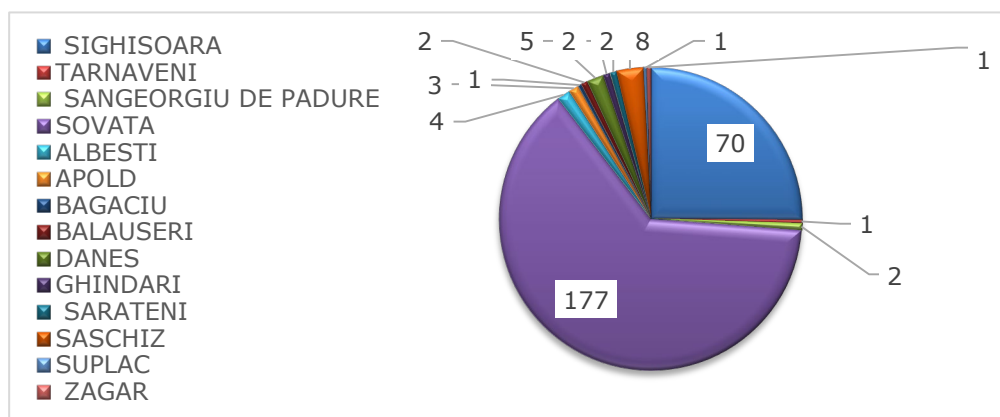
Area - average	1. Accommodation capacity/1000 inh.	2. Accommodation capacity/km ²	3. Tourist arrivals/1000 inh.	4. Average length of stay
Area of study	56,85	5,67	1998,65	2,16
Alba	6,85	0,50	156,66	2,07
Sibiu	5,20	0,99	267,62	1,8
Harghita	37,64	3,55	743,25	2,32
County average	22,29	1,92	859,75	1,81

Data source: insse.ro, 2024

The indicators were calculated according to recognized formulas, as an average, according to data from the National Institute of Statistics. The study area has the best average values for each analyzed indicator, with a fairly large difference being observed between its values and the rest of the Târnaveilor Axis. The difference is also significant when it comes to the comparison with the county average, the study area being visibly superior.

At the level of the study area, most accommodation units are located in Sovata, which holds almost two thirds of the total and constitutes the main tourist pole at the level of the study area in terms of tourist capacity. The largest accommodation capacity, with over 60% of places, is still in Sovata, followed by Sighișoara, which is a secondary pole. Moreover, at the level of the studied axis are found 55.8% of the total of 4918 accommodation places in hotels that are available at the county level (Sovata 67,5%). Also, almost half of the places in the hostels at the county level, i.e. 141 or 47.95% are found at the axis level. Places in motels represent 42% of the total at the county level, and those in tourist villas hold the monopoly, i.e. 90.58% of places. The same can be said for tourist lodges with 83.15% or about the bungalows with 371 places.

Figure 6 presents the accommodation capacity for the UATs in the study area.

**Figure 6.** The number of tourist reception structures at the level of the study area in 2023

(Source: insse.ro, 2024)

Regarding the density and diversity of tourism resources, the analysis focuses exclusively on the study area. The analysis is based on the exhaustive inventory method and takes into account official sources and websites of relevant ministries, being analyzed both the anthropic potential through historical monuments and the natural through protected areas at the level of the study area.

At the level of Mureş County, 1020 LMI codes were quantified, 413 codes are found at the level of the study area, i.e. 40.49% of the total at the county level. The average density of historical monuments at the county level is 0.15 LMI codes/km², while at the level of the study area it is almost double, of 0.23 LMI codes/km². In terms of the number of these codes, the city of Sighisoara is noteworthy with 236 historical monuments, which represents a density of 2.45 LMI codes/km². Apart from Sighisoara, only 7 other localities have more than 10 objectives: Apold (17), Bahnea (14), Bălăușeni (14), Daneş (11), Sângeorgiu de Pădure (12), Sărăţeni (12) and Târnăveni (18), there is also a locality with 0 codes, i.e. Coroisântmărtin (cultura.ro, 2015). Figure 7 represents the number of LMI codes for each locality at the level of the study area.

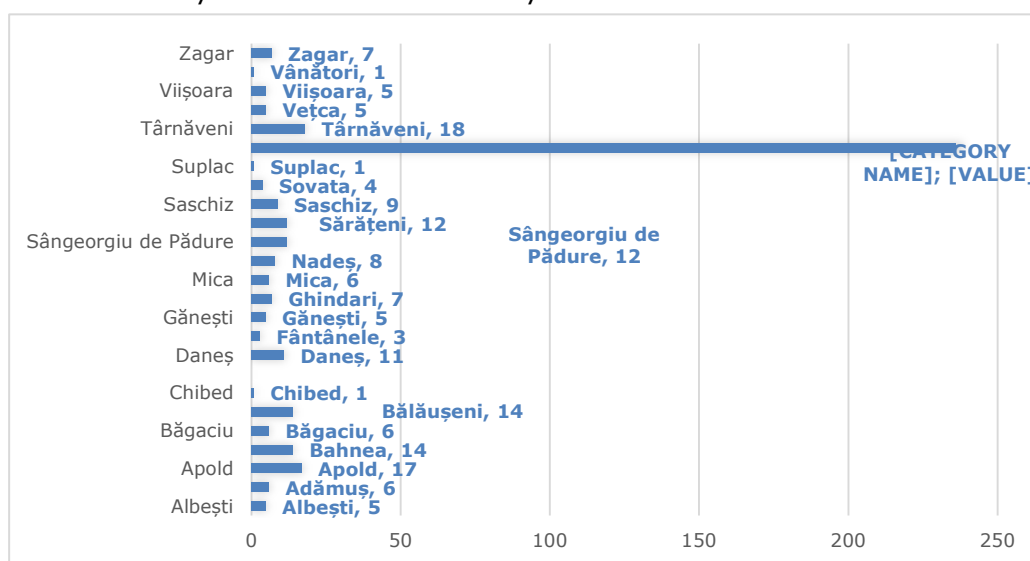


Figure 7. The number of LMI codes for each locality in the study area (Source: <http://www.cultura.ro/sites/default/files/inline-files/LMI-MS.pdf>)

To quantify the natural attractions, the data provided in the National Territorial Development Plan – Section III: Protected Areas were used (cimec.ro, 2022) and also the data provided by the Mureş Forestry Directorate. Thus, at the level of Mureş County, there are 15 protected areas of national interest, 4 of which are at the level of the study area, resulting in a percentage of 26.6% of the total. Regarding the protected natural areas of community interest located in the Natura 2000 network, there are 19 at the county level, of which 4 at the study area level, i.e. 21.05% of the total.

4. Discussion

At the level of the study area is noted the existence of a double geographical axis developed along the two Târnave rivers and which can be treated together in the form of a single touristic axis. The linear tourist destination "Târnavelor Axis" is a promotional tool that increases the tourist potential by summarizing the existing objectives along these axes determined primarily by hydrography and united due to spatial proximity and determines the creation of an attractive local brand.

At the level of Mureş county, the studied axis can be presented in its entirety, i.e. with the two flows, Sovata-Adămuş and Vânători-Daneş, which represents a way of connection with Alba or Sibiu counties, i.e. as an interregional management model or as an intraregional model.

Regarding the tourist axis, figure 8 shows the development cores and vulnerable or secondary areas, as a complementary offer and a solution to decongest or ventilate the main cores.

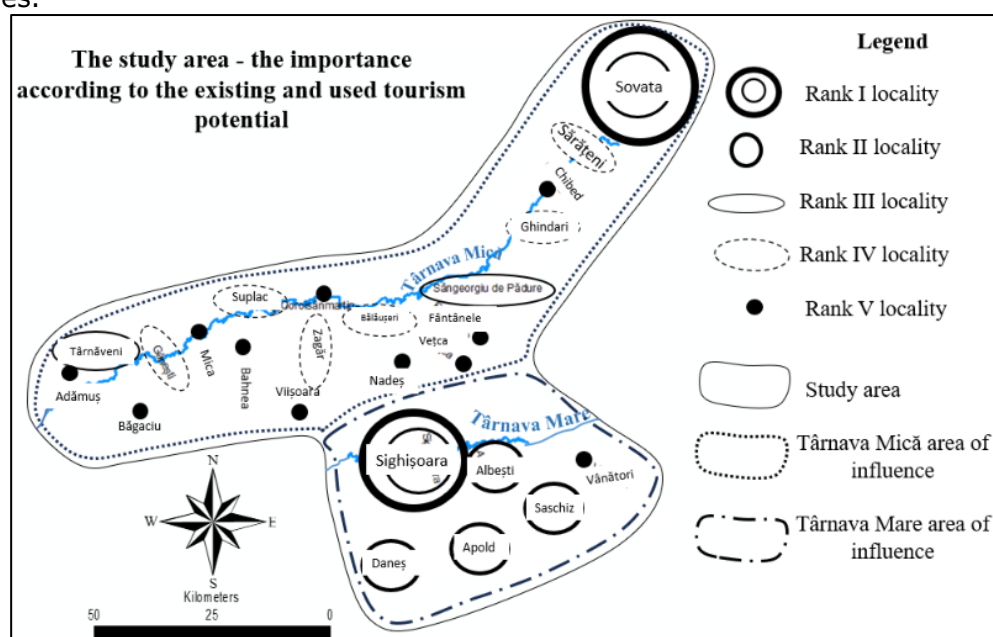


Figure 8. Choremic representation of tourism interferences and influences at the level of the study area

At the level of the study area, two poles are identified, Sovata and Sighișoara, which dominate at the regional level, within the "Târnavelor Axis". The poles outside Mureș County, along the Târnavelor Axis, are Blaj in Alba County, Mediaș in Sibiu County, and Praid and Zetea in Harghita County. However, Sovata has significantly better values, while Sighișoara also ranks above the poles of the other counties. Furthermore, the average for the study area is significantly higher than the county average. Under these conditions, the study area has a potential that supports tourism indicator values above those recorded at county and regional levels, thus making it more relevant.

The tourism resources are diverse, and in the southern part of the study area, they are compatible, which can create an expanded area of influence and support flows. Moreover, the resources of the two axes are complementary, which diversifies the tourism offer.

The two main axes have superior access routes, to which secondary routes are approximately perpendicular. This system, together with the proximity to the axes, creates a buffer zone between the two Târnavelor rivers, from which a number of smaller communes with lower potential can benefit. Furthermore, the two axes are connected to each other by main roads and, additionally, to the Mureș Axis, which provides good accessibility.

5. Conclusions

The Târnava Mare and Târnava Mică axes were considered together in the analysis at the level of Mureș County based on the specific territorial configuration of the study area. Although the two axes were analyzed separately in the first stage, their joint consideration is justified by the fact that the two rivers converge naturally, providing a geographical basis for their analysis as a connected territorial system. In addition, within Mureș County, the Târnava Mare Axis has a relatively short extent and is located in close proximity to the Târnava Mică Axis. This approach also takes into account the continuation of the Târnava Mare Axis beyond the county boundary and its tourism potential, which may contribute to strengthening tourism flows and the overall tourism

dynamics of Mureș County. Therefore, the two axes are considered together at the county level for the purpose of assessing their tourism characteristics and potential, without implying a priori that they constitute an integrated tourism destination.

The answer to the five questions raised at the beginning of the research can be "Yes". The analysis of the indicators showed that the study area is relevant and has good values, this being a consequence of the potential. The existing roads connect the two axes to each other, but also facilitate communication with the rest of the county and inter-county. The road system allows the flow to be directed to more isolated areas and thus offers the possibility of more balanced development. This type of development can be based on the tourist axes and more precisely the "Axa Târnaveilor", as a brand for the entire area.

In conclusion, the study area represents a tourist destination with outstanding potential that can be developed through tourist axes as an axial tourist destination or as a tourist brand. The tourism brand "Târnaveilor Axes" promotes a tourist image determined by the continuity of the offer and its multilateralism, thus increasing complementarity, accountability and territorial balance. In addition, these attributes offered by axial management or tourist axes are in accordance with a series of relevant requirements of sustainable development, thus offering a complementary solution for achieving the objectives specific to this type of development, elements that can be reduced most simply to balances or territorial rebalance.

References

1. Adu-Ampong, E.A; Kimbu, A.N. (2019) The past, present and future of sustainability in tourism policy and planning in sub-Saharan Africa. *Tourism Planning and Development*, Vol. 16, No. 2, pp. 119–123. DOI: <https://doi.org/10.1080/21568316.2019.1580836>
2. Alam, J.; Alam Q.N.; & Kalam; A. (2022) Prospects and Challenges for Sustainable Tourism: Evidence from South Asian Countries. *International Journal of multidisciplinary and technology*, volume 3, pp. 19–42. DOI: <https://doi.org/10.48550/arXiv.2211.03411>
3. Albrechts, L.; Tasan-Kok; T. (2009) Corridor and Axis Development. *International Encyclopedia of Human Geography*, pp. 298–304. DOI:10.1016/B978-008044910-4.00833-6
4. Armaș, I. (2016) *Teorie și metodologie geografică* (in Romanian). Editura Fundației România de Măine, Universitatea Spiru Haret, București, pp. 5–17.
5. Enault, L.C.; Chatel, C. (2017) Une grille chorématique des dynamiques spatiales pour expliquer l'évolution des territoires. *Mappe Monde*, 119, pp. 1–15. DOI:10.4000/mappemonde.2189
6. cimec.ro (2022) National Institute of Heritage, Ministry of Culture. Available online: <https://cimec.ro/wp-content/uploads/2022/02/Lege-5-2000-privind-aprobarea-Planului-de-amenajare-a-teritoriului-national-Sectiunea-III.pdf> (accessed on 12.05.2024).
7. coalitie.castelintransilvania.ro (2018) castle coalition. Available online: http://coalitie.castelintransilvania.ro/plandeactiune/#_Toc484001910 (accessed on 19.05.2024).
8. Cocerhan, C. (2012) Bazinul râului Suceava pe teritoriul României: valorificarea potențialului turistic [The Suceava River Basin in Romania: capitalizing on the tourism potential] (Doctoral thesis, University of Bucharest).
9. Conțiu, A. (2010) Axele de gravitație regională ale Târnavelor [Regional gravity axes of Târnave] (Doctoral thesis, Babeș-Bolyai University, Cluj-Napoca).

10. cultura.ro (2015) List of Historical Monuments 2015, Ministry of culture. Available online: <http://www.cultura.ro/sites/default/files/inline-files/LMI-MS.pdf> (accessed on 19.05.2024).
11. Gudea, I.I.; Someșan, T.; Huciu, D.; & Pop, C.C. (2024) Sustainable archaeotourism and economic development. Case study: Mureș Valley Axis, Romania. *Environmental Engineering and Management Journal*, 23(1), 27–37. <http://doi.org/10.30638/eemj.2024.003>
12. innse.ro (2024) Field. Available online: <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table> (accessed on 2.05.2024).
13. Kuščer K.; Mihalič, T. (2019) Residents' attitudes towards overtourism from the perspective of tourism impacts and cooperation—The case of Ljubljana. *Sustainability*, 11(6), 1823. <https://doi.org/10.3390/su11061823>
14. Lourens, M. (2007) Route tourism: A roadmap for successful destinations and local economic development. *Development Southern Africa*, 24(3), 475–489. <https://doi.org/10.1080/03768350701445574>
15. Merry, K.; Bettinger, P.; Crosby, M.; & Boston, K. (2023) Geographic information systems. *Geographic Information System Skills for Foresters and Natural Resource Managers*, 1–23. DOI: <https://doi.org/10.1016/B978-0-323-90519-0.00007-8>.
16. Mohamadi, S.; Abbasi, A.; Kordshouli, H.A.R.; & Askarifar, K. (2020) Conceptualizing sustainable-responsible tourism indicators: an interpretive structural modeling approach. *Environment Development and Sustainability*, 24(2), DOI:10.1007/s10668-021-01442-9.
17. Oshkordina, A.A.; Chikurova, T.Y. (2020) Problems and Prospects of Tourism Development in the Conditions of a Pandemic. *Advances in Social Science, Education and Humanities Research*, volume 486, pp. 331–335. DOI: 10.2991/assehr.k.201105.059
18. Pazhuhan, M.; Shiri N. (2019) Regional tourism axes identification using GIS and TOPSIS model (Case study: Hormozgan Province, Iran). *Journal of Tourism Analysis*, volume 27, pp. 119–141. DOI:10.53596/jta.v27i2.357
19. Pleșoianu, D.M.; Moise, A.; & Popescu A. (2017) aspects regarding tourism potential of Mureș county. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, vol. 17, pp. 295–300.
20. Pop, C.C. (2016) *Axele geografice – Structuri geografice inteligente* (in Romanian). Casa Cărții de Știință. ISBN 6061710585, 9786061710584.
21. Rastegaeva, T.E.; Kazakov, I.S. (2016) Tourism – an social and economic phenomenon of modern-day. *Science and Innovation Center Publishing House*, pp. 107–118. DOI: <https://doi.org/10.12731/2070-7568-2016-1-107-118>
22. romania-atractiva.ro (2024) Discover the 12 cultural routes of Romania Atractive. Available online: <https://romania-atractiva.ro/> (accessed on 23.05.2024).
23. Simon, S.A (2011) Turismul rural în Maramureș [Rural tourism in Maramureș] (Doctoral thesis, Babeș-Bolyai University, Cluj Napoca).
24. Someșan, T. (2024) Geographic Axes and Tourism Implications: Case Study: Niraj Axis in Mureș County. *PANGEEA*, 24(1), 139–150. DOI: 10.29302/Pangeea 24.19
25. Tang, H.; Li, W.; & Yan, X. (2025) Spatiotemporal Evolution Characteristics and Influencing Factors of Cross-Regional Tourism Corridors: A Tourism Geography Perspective. *Sustainability*, 17(3). <https://doi.org/10.3390/su17031126>
26. Tătar, A. M. (2022) Evaluation of the Cultural-Touristic Quality of the Network of Geographical Axes in the Romania Case Study: Bistrița-Năsăud County. DOI:10.21203/rs.3.rs-2360981/v1
27. Vada, S.; Dupre, V.; & Zhang, Y. (2022). Route tourism: a narrative literature review. *Current Issues in Tourism*, 26(6). DOI:10.1080/13683500.2022.2151420

28. Wang J.; Huang X.; Gong Z.; Cao K. (2020) Dynamic assessment of tourism carrying capacity and its impacts on tourism economic growth in urban tourism destinations in China. *Journal of Destination Marketing and Management*, 15, 100383. DOI: <https://doi.org/10.1016/j.jdmm.2019.100383>.
29. Ye, S.; Li, Z.; & Xi, J. (2024) A Model for Estimating the Tourism Carrying Capacity of a Tourism Corridor: A Case Study of the Qinghai–Tibet Plateau. *Sustainability*, 16(13). <https://doi.org/10.3390/su16135466>



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