



A STUDY ON THE MAINTENANCE OF SPATIAL ORDER IN THE DEVELOPMENT PERSPECTIVES OF THE CITY OF NOWY TARG

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Summary

The study aims to analyse the functioning of the city of Nowy Targ in the context of maintaining the principles of spatial order. The concept of spatial order is used not only by city planners, but also by other representatives of sciences related to spatial management. Spatial order is an interdisciplinary concept as it appears in many fields of sciences, not only technical ones. Inextricably linked to the idea of sustainable development, spatial order combines issues from urban planning, architecture, economy, and environmental protection. It can be considered in relation to several categories, such as: conscious space design, development of appropriate spatial patterns, protection of characteristic spatial systems, shaping space in accordance with tradition and culture, and counteracting spatial disharmony trends. This study begins by discussing various definitions of spatial order found in the literature. A study on the maintenance of the principles of spatial order in Nowy Targ covered a range of factors from the socio-economic, functional, cultural, environmental to compositional and aesthetic. While developing such a topic it is important to verify the stages of implementation of the assumptions of source documentation, like the 'Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030'. The following research tools were used in the study: Desk Research (a review of publicly available data, including a study of legal regulations and a review of the literature on the subject) and CAWI (Computer Assisted Web Interviews – an online survey addressed to a wider audience).

The results of the analyses showed Nowy Targ's significant potential for the implementation of spatial order principles and high social awareness of the need to respect them by its inhabitants.

Keywords

spatial order • city development • sustainable development

1. Introduction

Spatial order is often discussed and referred to in many publications. Let us pose the question: what is it actually? To outline the subject, a short study of definitions of spatial order specified by selected researchers over the years was prepared. 'The spatial order created by and for human has been a subject of considerations of philosophers since the earliest times, but only with the development of civilization and the emergence

of the state, as well as the concept of power, law and economy, the concept of spatial order became an increasingly urgent matter.' [Woźniak 2015]. According to Hopfer, 'spatial order is a way of organising a defined area in accordance with applicable laws and applying the guidelines of science, technology and aesthetics to create structural systems that ensure conditions that are favourable to human life both now and in the future' [Hopfer 1993].

The concept of spatial order is used not only by city planners but also by other representatives of sciences related to spatial management.

Spatial order is an interdisciplinary concept as it appears in many fields of sciences, not only technical ones. Inextricably linked to the idea of sustainable development, spatial order combines issues from urban planning, architecture, economy, and environmental protection. Parysek presents order as a category that changes dynamically in time [Parysek 2018]. It is equally a result of human and natural activity. Order is important not only to residents who want to raise their quality and standard of living but most of all to local authorities, which are responsible for making it possible. Order is a subjective concept, which generates conflicts between different social groups. Spatial order is the overriding goal of a properly conducted spatial management, which through its actions aims at the correct shaping of a specific spatial structure. 'Spatial order is a public good and as such it optimises the quality of life, economic efficiency, reduces dysfunctions, limits spatial conflicts and, above all, prevents the natural and cultural environment from degradation.' [Falkowski 2017]. Jan Falkowski presents spatial order as an integrated system, which observes at least five principles, which are:

- conscious space design,
- development of appropriate spatial patterns,
- protection of characteristic spatial systems,
- shaping space in accordance with tradition and culture,
- counteracting the tendencies of spatial disharmony.

Włodarczyk, however, defines order as 'a state we expect, it is something synonymous with organisation: in this context, we mean something nice and orderly' [Włodarczyk 2000]. According to Kołodziejski, spatial order involves concepts related to aesthetic, functional, logical, intelligible and clear spatial structures in harmony with nature. Order is 'an expression of harmony, organisation, proportion and balance in the human environment' [Kołodziejski 1991]. Chojnicki presents the concept of spatial order as 'a system that meets the criteria of social rationality and the correct operation of the economic system. First of all, one should distinguish between the model of spatial order, i.e. its pattern defined by the criteria of social rationality, and specific spatial order, i.e. the state of the spatial organization of a given economic system, meeting certain criteria of social rationality, i.e. spatial order' [Chojnicki 1992]. On the other hand, Podolak presents his definition of spatial order as 'the desired state of spatial development determined in time and place, resulting from historically changing systems of human values and changing conditions of the natural and anthropogenic environment' [Podolak 1993]. The last cited definition of spatial order belongs to

Zawadzki, who emphasized the fact that people and objects are the substance of spatial order. According to Zawadzki, order means a 'spatial arrangement (location) of people and objects in such a way that their existence and functionality proceed in accordance with their nature and the functions they are to fulfil' [Zawadzki 2001].

In this work, spatial order will be treated in accordance with the Act of 27 March 2003 on spatial planning and development, in line with the INSPIRE Directive, as: 'an arrangement of space that creates a harmonious whole and takes into account in ordered relations functional, socio-economic, environmental, cultural, and compositional and aesthetic conditions and requirements.'

2. Research area

Nowy Targ is a city located in the central part of the Nowy Targ Basin, at the confluence of the Biały Dunajec and Czarny Dunajec, in the Małopolskie Voivodeship, and is the seat of the Nowy Targ county and the Nowy Targ municipality (Fig. 1).



Photo: H. Kasprzyk

Fig. 1. Panorama of Nowy Targ

Commonly referred to as 'the city' by the highlanders, it is the main commercial and communication centre in Podhale. Over the years, this city was the main centre of trade, thanks to which crafts flourished. At the beginning of the 20th century, the city was an important regional centre that was connected to Kraków and Vienna by rail. Today, it is also on the Kraków-Zakopane railway line. The road system of Nowy Targ is an important communication junction of Podhale, due to the two important national roads running through its area, enriching its low external transport accessibility. One is the national road No. 47 (DK47), commonly known as the 'Zakopianka', which has two traffic lanes only on short sections, connecting Kraków with Zakopane, and the other is the national road No. 49 (DK49), which connects Nowy Targ with Slovakia.

Both communication routes are classified as GP, i.e. main roads with accelerated traffic. The range of possible commuting within 1 hour is of great importance. In the case of the road system, the strategy points to a significant improvement in accessibility at the subregional and regional level, and the changes related to the modernization of the road infrastructure improve the attractiveness of the site in terms of future settlement, investment and tourism.

3. Research materials

The research material included the following official documents:

- Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030,
- Synthesis of the City Development Strategy – summary of works,
- The Local Spatial Development Plan for the city of Nowy Targ – Nowy Targ 22 Centrum,
- Social and Economic Development Strategy of the Nowy Targ County 2015–2022.

In Nowy Targ there are 28 local development plans in force, covering specifically designated areas of the city, and one comprehensive study of the conditions and directions for spatial development.

Due to the purpose of the paper, the analyses were limited only to the four documents listed above, the most important of which was the ‘Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030’. This material was chosen for the study because it is an overarching planning document that presents the mission, vision and strategy based on which the future development in the long-term perspective is designed. It includes strategic and operational goals along with directions of measures, which will result in meeting the expectations of residents and improving the quality of life. Strategy is a creative mechanism that attempts to find the most significant phenomena, as well as to establish a credible target point, task, and as a result of the entire strategy – measures. The main point of the phenomenon understood in this way is to stimulate local development. As we read in this document: ‘the method of developing a strategy should be defined as participatory and expert, because the concept of the document was developed as an expert study with the partnership participation of Nowy Targ residents, councillors, employees of the local office, non-governmental organizations, entrepreneurs and representatives of institutions operating in the city’.

4. Research methods

One of the elementary research methods applied in this study is an extensive subject literature review. In Polish terminology, it can also be found under the names of ‘subject literature research’ (*badania literaturowe*), ‘studies of the subject literature’ (*studia literaturowe*), as well as the method of ‘analysis and criticism of the subject literature’ (*analiza i krytyka piśmiennictwa*). This methodology can be described as Desk Research. The literature review is an important aspect of any scientific problem

explanation. Without reading the subject literature, it is impossible to understand the essence of the discussed topic. This method facilitates learning about the subject and the method of research, as well as key issues related to a given scientific field. In addition, it is possible to become familiar with the main theories, their development as well as their application and critique [Zdonek et al. 2016].

This research, conducted due to the significant connections between spatial order and issues related to architecture, natural environment, economy and, above all, with satisfying the needs of local communities, aims to show the importance of appropriate and thoughtful spatial planning due to the number of connections between various areas of social life.

Additionally, this study uses the CAWI (Computer Assisted Web Interviews) research technique – an online survey addressed to a wider group of recipients: Nowy Targ residents, tourists, commuters and people working in the city. This part of the research was aimed at learning their opinions on the shape of the spatial order in the city and on the implementation of the assumptions of the 'strategy'. The survey involved 30 participants, of whom 16 were women (53.3%) and 14 men (46.7%).

Conducting a field inspection and preparing photographic documentation was another important element of the research, which confronted the principles of the Strategy with their effects in the field and the degree of their visibility by the local society.

5. Results and discussion

The survey involved respondents aged 18-30 (76.7%), 31-50 (20%) and over 50 (3.3%). It was a social group with predominantly higher (66.7%) and secondary (30%) education. Exactly 1 person (3.3%) chose the option of vocational education. The survey consisted of 13 indigenous inhabitants of the city (43.3%) and 17 people otherwise related to the city (56.7%). The survey's aim was to find out the respondents' opinions on the subject of spatial order and the factors they associate with this concept. The most frequently chosen answer was that this order is associated with the arrangement of elements in a given area (80%) and with balance, or harmony between many spheres of human life (63.3%). Then, the respondents pointed to the location of objects according to their nature and functions (43.3%) and preventing environmental degradation (36.7%). The association of spatial order with limiting spatial conflicts (20%) and a state expected by humans (16.7%) were the answers that received the lowest number of votes.

The respondents were also asked which type of conditions is important in assessing the spatial order of the city of Nowy Targ. This question allowed more than one answer. Functional (56.7%) and environmental (56.7%) conditions received the highest number of votes and were indicated by 17 people. The next were compositional-aesthetic (53.3%) and socio-economic (46.7%) conditions. Cultural conditions received the smallest number of votes (33.3%).

The first factors to be investigated were the functional conditions, whose scope presented in the Strategy mainly focused on improving the quality of urban fabric and increasing the quality and capacity of the transport structure. The assumptions

included relieving car transport within the city by adding to the transport offers the possibility of using the local airport and the predispositions of the railway network.

When asked how the city of Nowy Targ enriches its sport and recreation offer, given the possibility to select more than one option, most respondents (66.7%) indicated the answer related to increasing the number of cycling routes in the city.

Increasing the transport external accessibility is to take place through the development of a local and sub-regional road network. The measures taken in terms of transport are mainly aimed at improving the communication system within the city.

The field inspection and the survey clearly pointed out that the city has a problem with traffic. Respondents asked whether the administration of the city of Nowy Targ takes appropriate measures to modernise its urban infrastructure said mostly 'yes' (63.3%). The 'I have no opinion' came next (23.3%) and then 'no' (13.3%).

Huge traffic problems were indicated by 96.7% of respondents. When asked about the period in which the above-mentioned difficulties occurred, the respondents mainly answered that throughout the whole year (76.7%).

The task of an active policy of urban spatial planning is to limit the suburbanization phenomenon and improve the cohesion of the urban fabric in the context of creating a regular structure for urban spaces, which would include not only the network of communication routes running through the city but also the character of buildings, organization of public spaces, production and business areas, housing estates and districts. The field inspection has proven that the suburbanization phenomenon outside the city centre is intensifying.

This problem was also spotted by the respondents who with a significant amount of votes confirmed (86.7%) the intensification of the phenomenon of dispersion of buildings beyond the central areas of Nowy Targ.

Question 19. of the survey involved an assessment of this phenomenon and the extent to which the functional elements of the 'Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030' met the expectations of the respondents. A scale of 1 to 5 was suggested. This question was given to people who were familiar with the strategy. The greatest number of responses were 3 (33.3%) and 4 (30%). The 'I have no opinion' answer was given by 26.7%.

The next examined factors the adopted definition of spatial order covered were socio-economic conditions, which are related to satisfying social needs and increasing the quality of life. The main socio-economic assumptions of the strategy were measures aimed at raising the rank of the city to give it the status of the capital of Podhale, which would result from its specific character and location. The city wants to create appropriate conditions for economic development by equipping and promoting areas for future investments.

The respondents asked whether the city of Nowy Targ undertook activities related to rational management of the area at its disposal, answering 'I have no opinion' (40%), 'no' (33.3%), 'yes' (26.7%).

These opinions were confirmed by another element of the research – a field inspection. It reached a place that has enormous economic potential, which is the Economic Activity Zone (Strefa Aktywności Gospodarczej – SAG) (Fig. 2). It covers an area of

approximately 11.5 ha and is located on the eastern outskirts of Nowy Targ. SAG was established to create appropriate conditions for business. It has facilities related to production, storage or warehousing along with accompanying infrastructure.



Photo: H. Kasprzyk

Fig. 2. Economic Activity Zone in Nowy Targ

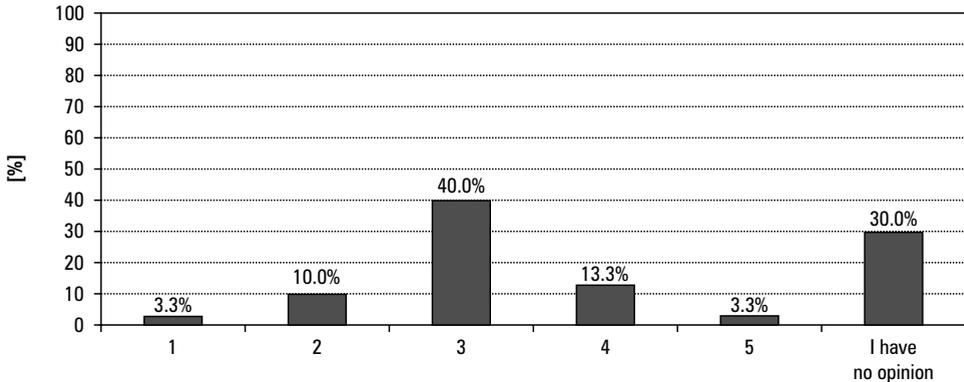
Nowa Targowica was created to strengthen the commercial character of the city, which means providing conditions for economic growth and development. Currently, thanks to its considerable possibilities, location and the availability of all kinds of goods, it has replaced the old market square (Fig. 3), which was located closer to the city centre.



Photo: H. Kasprzyk

Fig. 3. Old marketplace

Question no. 20 concerned assessing, on a scale of 1 to 5, the socio-economic elements included in the 'Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030' to find out the opinion on the extent to which they meet the expectations of respondents (Fig. 4). The question was addressed mainly to people familiar with the document.



Source: Authors' own study

Fig. 4. Assessment of the degree of satisfaction with the assumptions of socio-economic conditions included in the strategy

Measures taken to protect the valuable natural environment include the preservation of unique biodiversity, increasing the awareness of residents on issues related to the impact of air quality on health and promoting all pro-ecological attitudes. Currently, Nowy Targ belongs to the Green Podhale Energy Cluster, whose activities aim to improve the condition of the environment, air quality and promote local energy opportunities. The respondents asked in the survey whether the city is taking action to protect the natural environment, answered with a majority of 'yes' votes (46.7%), but many people indicated 'I have no opinion' (36.7%). The remaining votes were 'no' (16.7%).

The area directly related to the natural environment in the city is under the protection of the 'Bór na Czerwonem', a nature reserve functioning as an educational path.

One of the available questions in the survey was how the city of Nowy Targ undertakes activities related to the improvement of air quality. The respondents had the opportunity to choose more than one answer. The answer 'encourages changes in the heating system' (replacement of stoves, the use of heating sources alternative to coal) was selected by a significant number of votes (66.7%). The remaining responses were at a similar level, with the second-highest being 'determines specific emission standards for coal stoves' (23.3%) and the lowest 'not enclosing city ventilation corridors by further development' (13.3%). Geothermal energy is to become an alternative heating source. The new heating network is to be available in 2023. Ventilation channels, which include street corridors, are protected from development potentially blocking the free flow of air. The areas of the

valuable natural environment are boulevards, which are in direct connection with the flood embankments. The protection of these areas is to improve the city's resilience to climate change through the modernization of flood embankments. The city takes measures to prevent degradation of these areas by announcing offers aimed at supervision and maintenance of the condition of the embankments.

Question 21. included in the survey presented an opportunity to assess the extent to which the environmental elements of the 'Nowy Targ City Development Strategy for 2019-2023 with an outlook to 2030' met the expectations of the respondents. A scale from 1 to 5 was adopted. The question was addressed mainly to people familiar with the document.

The answer 'I have no opinion' was indicated by 30% of the respondents. The remaining respondents answered '3' (36.7%) and '4' (23.3%). Ratings '1' and '2' were provided by respectively 6.7% and 3.3% of respondents.

The penultimate examined factors were cultural conditions. The cultural conditions specified in the Strategy are aimed at using the potential of Nowy Targ's cultural heritage to render the city visible and attractive beyond its local context. The characteristic historic buildings in the city are the Church of St. Catherine (Fig. 5), the Church of St. Anna (Fig. 6), the market square and the town hall (Fig. 8), and the monuments of Władysław Orkan, Adam Mickiewicz (Fig. 7), and John Paul II. Renovation and modernization works on historic buildings are carried out under the supervision of the conservator to preserve their individual character achieved in the effect of performing their functions over the years.



Photo: H. Kasprzyk

Fig. 5. The Church of St. Catherine



Photo: H. Kasprzyk

Fig. 6. The Church of St. Anna



Photo: H. Kasprzyk

Fig. 7. Adam Mickiewicz's statue

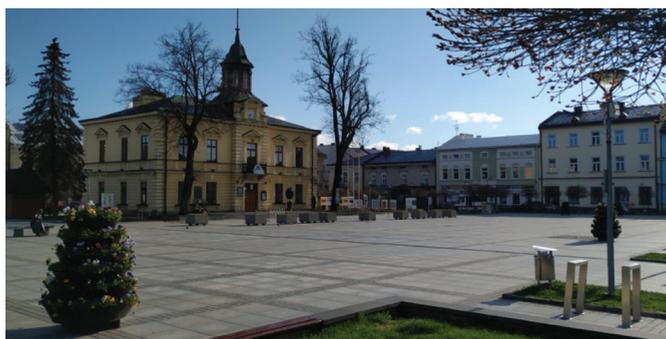


Photo: H. Kasprzyk

Fig. 8. The town hall and the market square in Nowy Targ

One of the questions asked to the respondents in the survey was whether the city of Nowy Targ developed its cultural base over the last 10 years. As many as 66.7% of the respondents answered positively, 20% answered 'I have no opinion' and 13.3% did not notice any changes in the development of the city's cultural base in the suggested period.

The city wants to use the existing cultural institutions to support all forms of participation of residents in culture. Currently, there are many cultural events in Nowy Targ, during which residents have the opportunity to broaden their knowledge and gain new experiences. These include: regional performances, music concerts, Podhale fairs, so-called 'juwenalia', printing workshops, car and aeroplane rallies, and cultural competitions. Question no.22 in the survey concerned the assessment of the extent to which the cultural elements of the 'Nowy Targ City Development Strategy for 2019–2023 with an outlook to 2030' met the expectations of the respondents. The scale was set from 1 to 5. The answer that was most often selected was 'I have no opinion' (33.3%). Following were rates '3' (30%) and '4' (26.7%). The score of '5' had 6.7%. The rarest answer was option '1', scoring only 3.3%.

The last elements examined were compositional and aesthetic conditions. Their scope covered a wide range of measures related to the improvement of the aesthetics and appearance of the city as a coherent whole. To prevent dispersion of development would involve concentrating future investments on already urbanized areas.

The conducted field inspection and the survey highlighted that the suburbanization phenomenon is beginning to affect Nowy Targ, affecting its aesthetics (Fig. 9).



Photo: H. Kasprzyk

Fig. 9. Progressing dispersion of buildings beyond the central areas of Nowy Targ

The city development strategy pays special attention to the protection of the landscape heritage, which is one of the main factors influencing the image of the city. Nowy Targ is inclined to implement the landscape law, which will provide for the provisions on effective landscape protection. Currently, landscape zones have been designated,

and the protection and ordering of the landscape mainly involve limiting the number of advertisements within Nowy Targ.

In question 18. from the survey (a multiple choice question) the respondents were asked what factors could improve the aesthetics of the city. They mostly suggested limiting the number of advertisements (70%), expanding the green areas (66.7%) and limiting unauthorized construction (53.3%).

The next question was to find out the opinion on associations with the disturbance of the spatial order in the city. The respondents had the opportunity to choose more than one answer. The vast majority of votes were given to items related to the degradation of sites (63.3%), difficulties with moving (56.7%), too densely built-up areas (53.3%). The remaining answers that were also chosen frequently were unauthorized construction (43.3%), inappropriate use of land (36.7%) and indifference of the authorities to the condition of culturally significant buildings (33.3%). The smallest number of votes, apart from the answer 'I have no opinion' (3.3%), received the item 'inadequate structure of the city' (23.3%).

The coherence of the urban fabric related to the provision of complete development areas and giving them visual and aesthetic valour is noticeable in the city centre. (Fig. 10) The city authorities take measures to preserve the historic urban layout by defining appropriate standards in spatial planning. The image of the city is to be improved thanks to the revitalization of degraded areas.



Photo: H. Kasprzyk

Fig. 10. Historic tenement houses in the city centre

Question no. 23 in the survey included an assessment of the degree of satisfaction with compositional and aesthetic elements on a scale from 1 to 5. It was aimed mainly at people familiar with the subject of Strategy. The answer most often given by the respondents in relation to the examined conditions was '3' which was marked by 46.7% of the respondents. Option '4' was selected by 10%. The other answers: '5', '2', '1' met the same percentage, 3.3% exactly. The answer 'I have no opinion' was given by 33.3% of all respondents.

6. Summary and conclusions

The coherence between the spatial order and environmental conditions was assessed by Marta Woźniak under the slogan 'ecological order'. Its main assumption was to comply with the principle of sustainable development and to take into account environmental protection when adopting all planning documents. 'In practice, it comes down to the fact that issues related to environmental protection must be taken into account when formulating all planning acts.' [Woźniak 2015]. The conducted research has shown that environmental conditions related to environmental protection are at the fore of the strategic goals of the city. Nowy Targ places emphasis on reducing the amount of air pollution and, consequently, limiting low emissions. Through pro-ecological activities, it strengthens the aesthetic aspects of the city, such as right proportions of green areas in relation to built-up areas. According to the assumptions of the examined documentation (strategy), the numbers of green areas are increasing. The dominant forms of urban greenery are private gardens. The city encourages residents to take care of the appearance of private areas, e.g. by organizing various competitions for the most beautiful garden in Nowy Targ. Research has shown that green areas located in the vicinity of flood embankments, and in areas located near the Czarny Dunajec and Biały Dunajec rivers, represent a potential that the city wants to utilise by carrying out appropriate modernization and giving these areas their own character. Currently, measures taken to improve riparian areas are aimed at upgrading the condition of flood embankments and developing adjacent areas. Moreover, the environmental values of the studied area are significantly enhanced by the presence of the 'Bór na Czerwonym' nature reserve. It is certainly a great attraction not only for residents but also for tourists. The reserve functions as an educational path, on which visitors have the opportunity to learn about its history and admire the fauna and flora. This site fits perfectly and diversified the scenery. An important role in shaping environmental factors in the spirit of the idea of spatial order is to act to reduce low emissions and the amount of urban air pollution. This seems to be the most important issue related to increasing the attractiveness of a place and adhering to the principle of sustainable development. Even though the city authorities encourage residents to change heating systems, attempt to raise environmental awareness of residents, and define specific emission standards for coal-fired stoves, Nowy Targ is still behind.

The research showed one more activity of the city in the area of improving environmental factors. It concerns the consideration of the possibility of creating ventilation channels which, together with suitably developed areas of embankments, could serve as natural air exchangers. In this way, embankments and boulevards could be integrated with the city's spatial planning. Any possibility of building development is forbidden in these areas. The activities of the municipality show the effects of modernization of flood embankments, which mainly involve appropriate appearance, preserving biodiversity and ensuring the safety of residents in the event of a rise in the water table.

Moreover, the analyses showed that Nowy Targ is taking steps to create appropriate conditions for economic growth by developing investment areas. An example of such

activities is the creation of an Economic Activity Zone located in the eastern part of the city, the task of which is to gather business entities in one area to improve business and gradually increase the opportunities offered on the local market. Entities that choose to locate their operations in these areas are exempt from property tax related to building and construction charges and encouraged by competitive lease rates.

From year to year, Nowy Targ improves its communication system, trying to relieve road transport by the railway or the airport. The conducted research has shown that despite its efforts to provide various sources of transport, the city struggles with a huge traffic problem that is present almost all year round. It is caused by the location of Nowy Targ, situated on the route to the popular Zakopane, visited by a significant number of people. Communication difficulties are also influenced by the Nowy Targ fair organized every Thursday, Saturday and Sunday, which is attended not only by residents of nearby villages but also by Slovaks.

The city's social and economic potential also includes activities focusing on the city centre, by compacting it with appropriately developed public spaces and leisure industry. In the field of entrepreneurship promotion, the city supports the development of local companies through subsidies, encourages new entrepreneurs to invest in the city by making it easier for them to 'acclimatise' thanks to access to the City Investor's Guide, supports the development of micro-enterprises.

A great advantage of the city is the use of financial opportunities resulting from membership in the 'Tatry' Euroregion. Deepening contacts, assistance in the development of large projects, supporting cross-border cooperation, development of the economic sphere are some of the many opportunities offered by membership in the Euroregion.

In conclusion, the conducted research has shown a significant potential of Nowy Targ for the implementation of the spatial order principles and high social awareness of the need to respect it by its inhabitants.

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