SUSCOMNET

Making Sustainable Communities: Network for Local Green Deals

Research findings, comparative analysis and twin-town Local Green Deal strategy

2025

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Executive Summary

This publication is the final research and strategy document of the SUSCOMNET – Making Sustainable Communities: Network For Local Green Deals – project. The document serves a dual purpose: on the one hand, it synthesises the results of the empirical research conducted within the project framework; on the other hand, it sets out the framework for a twin-town Local Green Deal strategy based on the research findings. It aims to support the local authorities of the six partner towns – Gyula in Hungary and Komárno in Slovakia, Miercurea Ciuc and Covasna in Romania, Zrenjanin in Serbia, and Wagrowiec in Poland – with scientifically sound, practically applicable and strategically adaptable background material.

The SUSCOMNET project was implemented with the support of the European Union's CERV-2023-CITIZENS-TOWN-NT programme. Its underlying philosophy is that the success of the sustainability transition is largely determined at the level of local communities, and that twinning networks can create a platform for cooperative learning and strategy-making in which the experiences of individual municipalities mutually enrich one another. The project was not a series of isolated events, but a transnational knowledge-building and strategy-making process that brought the perspectives and circumstances of six Central European towns into regular dialogue.

As part of the empirical research, 926 respondents completed a questionnaire across the six municipalities. The questionnaire covered a wide range of topics, from attitudes towards sustainability, transport habits, and renewable energy use to awareness of the Green Deal. The data collection was not based on a representative sample; however, the size and diversity of the sample – combined with the possibility of comparing the towns – provide valuable and meaningful insights into the sustainability views of populations in small towns in Central Europe.

> **Key data**
>
> 926 respondents, 6 twin towns, 129 variables, 84% consider sustainability important, 70% are willing to change their consumption habits, 57% demand cycling infrastructure

1. Figure: The research in numbers and data

The most important cross-sectional findings of the research are as follows. Interest in sustainability and a sense of shared responsibility are generally high across the six towns, yet there is a systematic gap between attitude and actual willingness to act. The role of education in sustainability enjoys strong support, which creates a solid foundation for joint programmes. Trust in the media is lacking, whilst there is relatively strong openness towards peer-to-peer communication between twin towns. People widely recognise the importance of climate adaptation, yet they do not consider themselves or their communities to be prepared for the changes. Trees are the most widely accepted elements of green infrastructure, whilst cycling and pedestrian infrastructure are the development priorities most sought after by the population. There are dramatic disparities between cities in the use of renewable energy and the

exploitation of tourism potential, which point to clear directions for knowledge sharing within the network.

The strategic section of the document proposes a Local Green Deal framework for twin towns based on four pillars: a joint educational platform, a green infrastructure network, tourism cooperation and energy knowledge-sharing. The strategy is differentiated: it recognises that not every city should do the same thing, but that the strength of the network lies in complementary strengths and mutual learning. The action plan distinguishes among short-, medium-, and long-term steps and proposes a monitoring system to keep the strategy as a living document.

The unique value of the publication lies in the fact that it does not merely summarise the research findings, but translates them into strategic terms: for each thematic block, it demonstrates the implications of the relevant research findings for the municipalities and the twin-town network. In this way, the document serves as a practical strategic background resource for decision-makers, whilst also offering substantive dissemination material for the research community.

1. Introduction

By the end of the first quarter of the 21st century, sustainability had become one of the defining concepts of European public policy. The adoption of the European Green Deal and the associated legislative package established a normative framework for the objectives of climate neutrality, the circular economy and the protection of biodiversity. However, the realisation of these global and continental-level objectives is largely determined by local communities. Cities, particularly small and medium-sized towns, are the places where people experience sustainability in their everyday lives – or, conversely, where they feel its absence. Transport, energy use, the condition of green spaces, consumption patterns, and opportunities for community participation: all these take shape at the local level and can be changed there.

The SUSCOMNET project was launched based on this realisation. 'Making Sustainable Communities: Network For Local Green Deals' brought together six Central European twin towns within a framework of cooperation that not only organised events but also generated empirical knowledge, facilitated thematic knowledge-sharing and initiated strategic thinking. The fundamental question of the project was not merely what people think about sustainability, but also how the twin-city network could serve as a cooperative platform for developing and implementing Local Green Deal strategies.

This document is the intellectual record of that process. It is not simply a final project report, nor is it merely a summary of conference materials. It aims to synthesise the full body of research findings from the SUSCOMNET project, derive patterns, lessons, and strategic directions from comparisons across the six cities, and integrate them into a coherent Local Green Deal framework that local authorities can also use. The document is therefore simultaneously a research dissemination material, a comparative municipal analysis, a strategic background document and an action guide.

The six partner towns – Gyula, Komárno, Miercurea Ciuc, Covasna, Zrenjanin and Wagrowiec – span Central Europe across four countries. Hungary, Romania, Serbia and Poland represent different institutional, economic and cultural contexts, whilst the six municipalities also differ in terms of size, characteristics and challenges. It is precisely this diversity that makes SUSCOMNET valuable: it is not a homogeneous group looking in the mirror, but six towns with distinct profiles seeking opportunities for cooperation and mutual learning. The research revealed not only what they have in common, but also what sets them apart – and the strategy is built precisely on this dual realisation.

2. The objectives, context and significance of the SUSCOMNET project

The SUSCOMNET project was implemented with the support of the European Education and Culture Executive Agency's CERV-2023-CITIZENS-TOWN-NT programme, under grant agreement No 101138675. The project is coordinated by the Municipality of Gyula, with partner cities including Komárno (Slovakia), Miercurea Ciuc (Romania), Covasna (Romania), Zrenjanin/Zrenjanin (Serbia) and Wagrowiec (Poland).

The project set out four interlinked objectives. The first objective was to involve residents in the sustainability dialogue – not by providing top-down information, but by listening to and systematically mapping their views. The second objective was to assess the level of awareness and interest in the various settlements, thereby enabling the identification of local characteristics. The third objective was to identify similarities and differences between countries and regions, laying the groundwork for comparative analysis. The fourth objective was to map out concrete opportunities for cross-border cooperation, which serves as the basis for the strategic chapters.

The context of the project is provided by the European Green Deal and the question of how it can be translated at the local level. The European Green Deal has set ambitious targets: climate neutrality by 2050, halting biodiversity loss, the transition to a circular economy, the decarbonisation of transport, and the energy transition. However, these goals often remain abstract for residents of small towns. The concept of the Local Green Deal addresses this gap precisely: it involves translating global and continental goals into local language, embedding them in a local context, and transforming them into local action programmes.

The thematic structure of the SUSCOMNET project comprised eight international conferences, each focusing on a specific area of sustainability: corporate responsibility, media and climate awareness, green energy and energy efficiency, protection of natural resources and biodiversity, sustainable tourism and cultural heritage protection, sustainable transport and mobility, sustainability in urban planning, social inclusion and sustainable communities, and climate adaptation and risk management. In addition to delegations from the six partner cities, the conferences were attended by university researchers, local experts, representatives of civil society organisations and local government decision-makers, ensuring that both academic rigour and practical relevance were upheld.

Strategic significance

The significance of the SUSCOMNET project lies not in the number of individual events or publications, but in the creation of a systematic way of thinking. For the first time, the six cities came together to consider that sustainability is not an isolated municipal task, but a networking opportunity – and that twinning is not merely a formal framework, but can serve as a genuine platform for mutual learning and joint strategy-making.

The thematic structure of the conferences reflects a deliberate approach. At the corporate responsibility conference (November 2024, Gyula), the economic dimensions of sustainability and the practical implementation of CSR were examined, ranging from greenwashing to intergenerational responsibility. At the conference on media and climate awareness (March 2025, online), the communication deficit, the role of digital platforms and issues of information noise were discussed. At the Green Energy and Energy Efficiency Conference (April 2025, Covasna), a spectrum ranging from passive house renovation to the development of SPA NZEB in Covasna, and from the dual nature of CO2 to green pedagogy, emerged. The 'Sustainability in Motion' conference (May 2025, online) placed urban strategies at the centre of the discussion, ranging from the mid-term review of the European Green Deal to knowledge-based regional strategies.

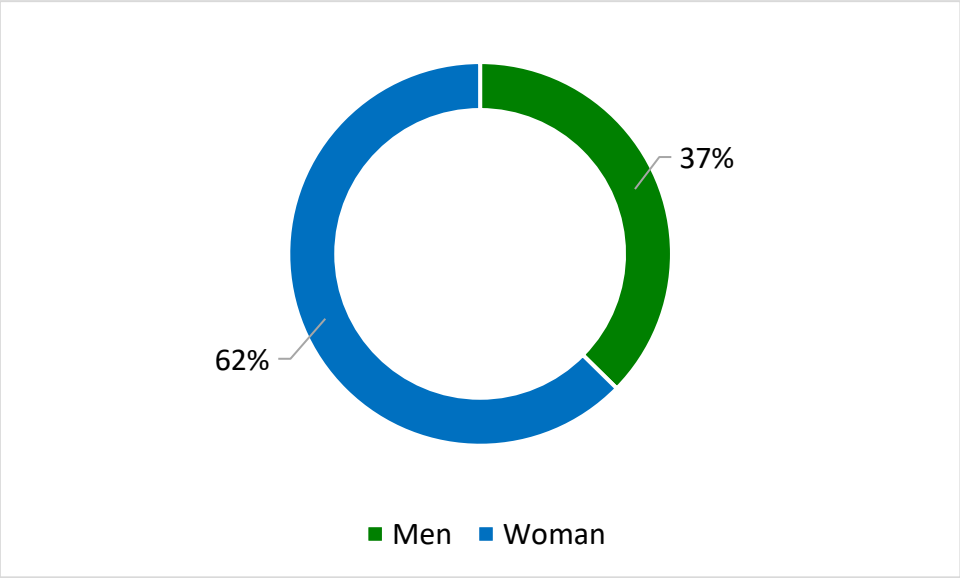
The Conference on Sustainable Transport and Mobility (May 2025, Wagrowiec) focused on the Polish town's transport success story, complemented by topics such as the health costs of transport, regional rail development and the educational promotion of green transport habits. The conference on sustainable tourism and cultural heritage protection (June 2025, Komárno) explored the potential of sustainable tourism, ranging from the development of tourism around the Komárno Fortress and the Danube region to the Slow Food movement. The conference on the protection of natural resources and biodiversity (September 2025, Zrenjanin) covered topics ranging from the Serbian town's institutionalised nature conservation system and UNDP programmes to the link between mental well-being and biodiversity. The conference on sustainability in urban planning (October 2025, Miercurea Ciuc) spanned topics, from presentations by chief urban planners to the circular economy to a critical examination of digital urbanism. The Social Inclusion Conference (November 2025, online) examined the social dimension of sustainable communities, ranging from gamification and perinatal support to the integration of people living with autism. Finally, the closing conference on climate adaptation and risk management (December 2025, Gyula) summarised the project's findings, ranging from AI-based risk management and climate anxiety to the future of forest management.

3. Research background and methodological framework

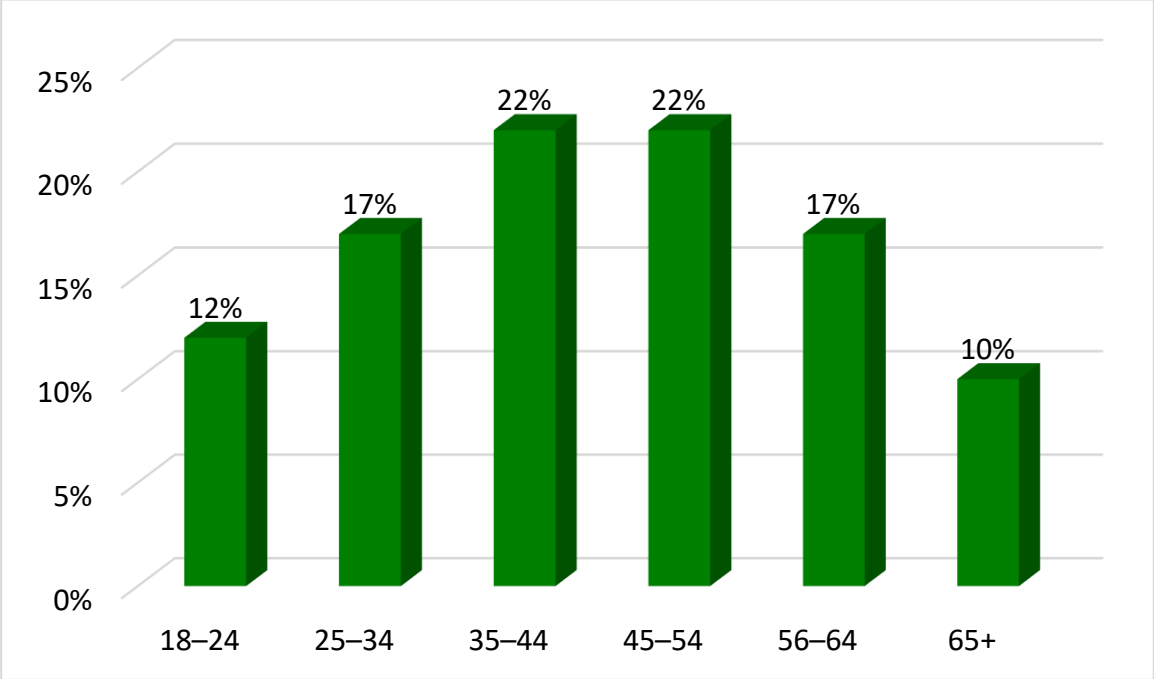
The SUSCOMNET research was based on a self-administered questionnaire survey conducted in 2024 across the six partner cities. The questionnaire was divided into six main thematic blocks: sustainability attitudes and shared responsibility; protection of natural resources and biodiversity; green energy and energy efficiency; sustainable tourism; sustainable transport and urban planning; and the European Green Deal and social inclusion. The questionnaire measured a total of 129 variables, including Likert-scale attitude questions, ordinal scales, dichotomous (yes/no) choices, and multiple-choice options.

For the Likert-scale questions, a five-point scale was used, where a score of 1 indicated 'strongly disagree', and a score of 5 indicated 'strongly agree'. The coding guide contains 56 Likert variables (L01–L56), spanning from sustainability attitudes to awareness of the Green Deal. The dichotomous variables captured media usage habits, knowledge of green energy sources, use of renewable technologies, and urban planning priorities.

Sampling was voluntary, which presents a methodological limitation: the research cannot be considered statistically representative of the entire population of the six municipalities. Among respondents, women (62%), those with higher education qualifications (75%) and the 35–54 age group were over-represented. This sample composition suggests that the research primarily reached a segment of the population that is already interested in sustainability and has a higher level of education. The results should therefore be interpreted as the views of a motivated, well-informed group, which is valuable for strategic planning precisely because it reflects the attitudes of those most likely to participate in and support local sustainability programmes.



2. Figure: Distribution of respondents by gender (%) (N=926)

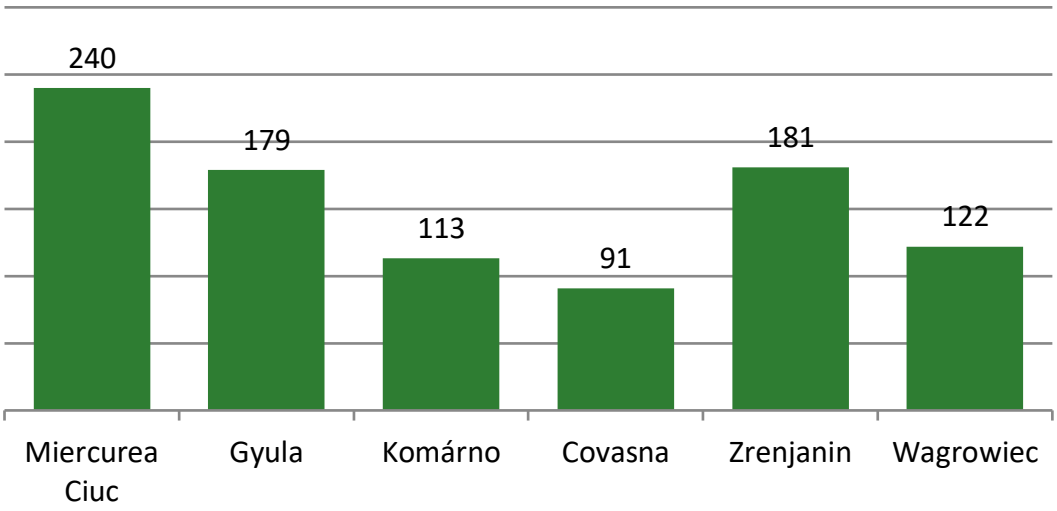


3. Figure: Age distribution of respondents (%) (N=926)

One of the methodological strengths of the research is the comparability across the six settlements: identical questionnaire, identical timeframe, identical scales. This enables the drawing up of settlement profiles and the identification of systematic differences. The methodological limitations – non-representative sampling, varying numbers of respondents per settlement, and missing data for certain questions – do not invalidate the results. Still, they do warrant cautious interpretation and the avoidance of excessive generalisations.

4. The respondent sample and the interpretative framework

A total of 926 respondents from the six partner towns took part in the research. The distribution by town was as follows:



4. Figure Number of respondents by settlement (persons) (N=926)

The distribution by settlement reflects the size of the towns and the mobilisation capacity of the local partners – Miercurea Ciuc, as the largest town, has the highest number of respondents, whilst the smaller Covasna naturally produced a smaller sample.

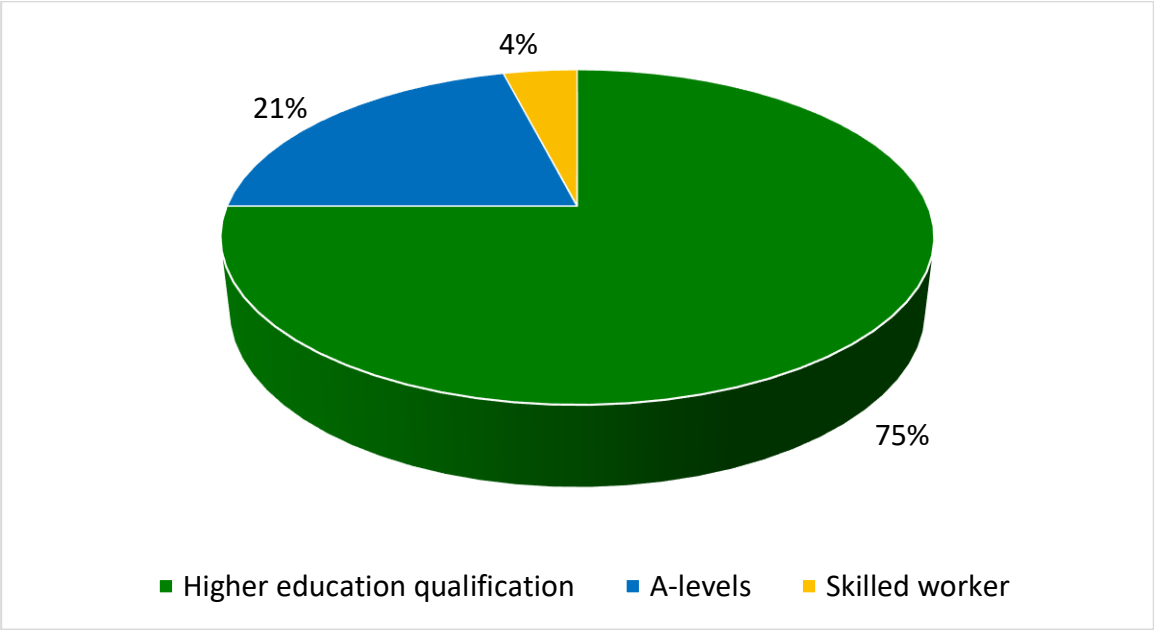
Key data

Miercurea Ciuc: 240 people (26%) | Zrenjanin: 181 people (20%) | Gyula: 179 people (19%) | Wagrowiec: 122 people (13%) | Komárno: 113 people (12%) | Covasna: 91 people (10%)

In terms of gender distribution, women were over-represented in the sample: 62% of respondents were women and 37% were men. This trend is typical of voluntary surveys, in which women generally participate more actively. The distribution of educational attainment shows a strong shift towards higher levels of education: 75% of respondents hold a higher education qualification, a further 21% have completed secondary education, and only 4% have a vocational or lower qualification. The age distribution is relatively balanced: the 35–44 and 45–54 age groups are the most active, each accounting for 22–22 per cent, those aged 25–34 and

55–64 each account for 17%, those aged 18–24 make up 12%, whilst those aged 65 and over account for 10%.

In terms of educational attainment, 75% of respondents hold a higher education qualification, 21% have a school-leaving certificate as their highest qualification, and 4% have a vocational qualification.



5. Figure: Respondents' highest level of education (%) (N=926)

The interpretative framework for the data is clear on this basis: the findings of the SUSCOMNET study reflect the views of a highly educated, middle-aged, predominantly female demographic that is already interested in sustainability. This is not a weakness, but a distinctive feature of the data. From a strategic planning perspective, it is precisely this population that constitutes the primary target group: they are the ones most open to local programmes, can act as opinion formers, and are most likely to participate. At the same time, it is important to bear in mind that the views of those with lower levels of education and lower motivation may differ, which justifies differentiating communication and engagement strategies.

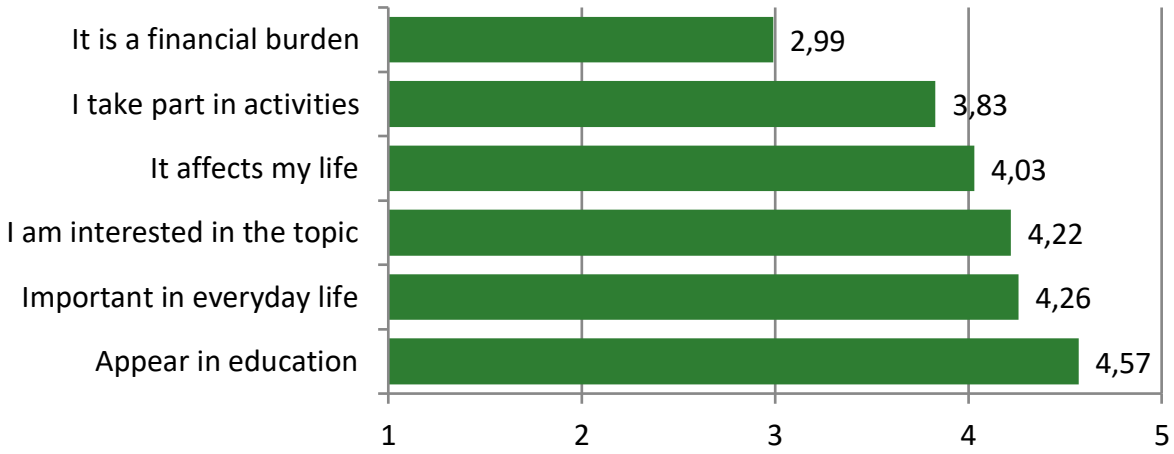
5. Key thematic findings of the research

Below, we summarise the findings of the research's six main thematic blocks, highlighting the most important figures, local differences, and strategic implications for each. This chapter does not follow the order of the questionnaire's questions, but prioritises strategic relevance: for each topic, we examine what the data reveals about the sustainability status of the municipalities and what conclusions can be drawn for twinning cooperation.

5.1 Sustainability attitudes and shared responsibility

The examination of sustainability attitudes is a fundamental starting point for the Local Green Deal strategy, as these attitudes determine the extent to which the population is open to sustainability programmes, what types of interventions they consider acceptable, and which actors they expect to bring about change. The research measured six key attitude dimensions that together map the level of social receptiveness to sustainability.

Overall, the results paint a positive picture. The importance of sustainability in education received the highest rating: an average of 4.57 on a five-point scale. This is an outstanding figure, indicating that respondents almost unanimously consider it important to prepare future generations for a sustainable lifestyle. This high level of support creates a solid basis of legitimacy for educational programmes – decision-makers can confidently invest in such initiatives because the public supports them. The everyday importance of sustainability received an average score of 4.26, whilst interest in the topic received an average of 4.22 – both in the upper range of the scale, indicating a generally positive attitude.

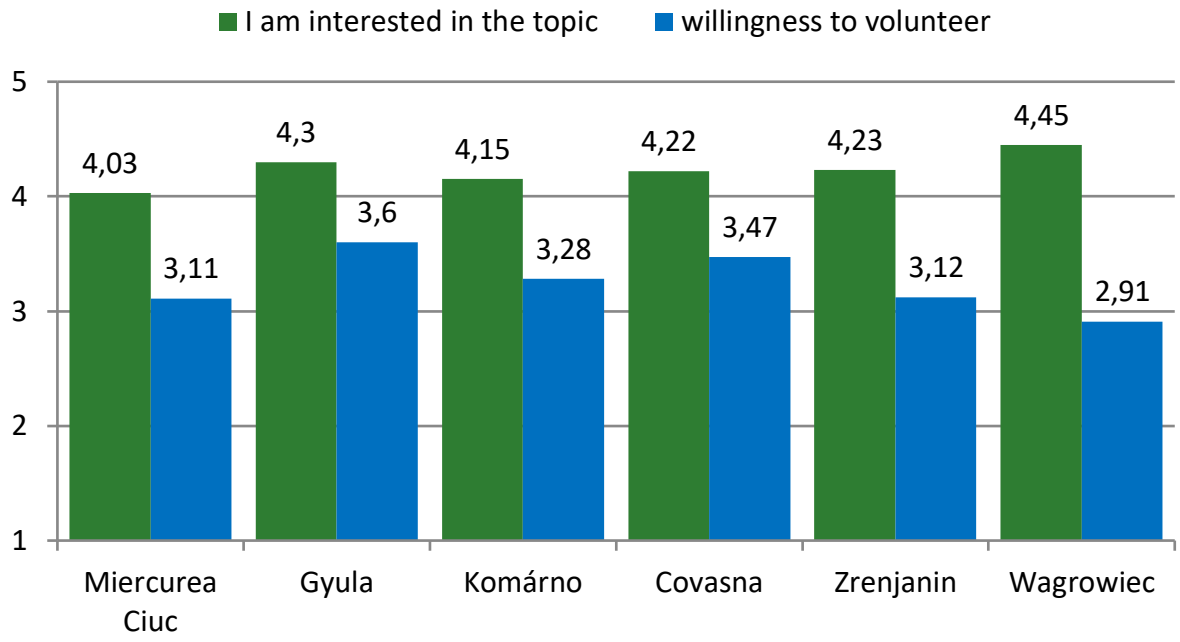


6. Figure: Interest in sustainability (5-point Likert scale)

The issue of accountability presents a more nuanced picture. The importance of corporate involvement scored 4.39, whilst the need for collective action scored 4.37 – respondents therefore primarily expect change from collective actors. The rating for personal responsibility is 3.92 – high, but noticeably lower than that for community or corporate responsibility. The question of individual versus government responsibility yielded a split average of 3.47, indicating a lack of consensus in this area.

Key finding: The attitude-action gap

One of the most important findings of the research is the identification of a systematic gap between attitude and action. The average willingness to volunteer is just 3.25 – this figure falls dramatically short of the scores for interest (4.22) or support for education (4.57). People consider sustainability important and acknowledge shared responsibility, but when it comes to concrete personal action – whether planting trees, picking up litter or tending a community garden – enthusiasm drops significantly. This gap is one of the key challenges for Local Green Deal strategies: turning attitudes into action.



7. Figure: Differences in attitudes between localities (5-point Likert scale)

The differences between localities are significant and strategically informative. In terms of interest in sustainability, Wagrowiec leads with an average of 4.45 – the residents of this Polish town are most concerned with the topic. In terms of willingness to volunteer, however, Gyula tops the list with an average of 3.60, a significant difference from the other towns. The Wagrowiec paradox is particularly noteworthy: where interest is highest, willingness to volunteer is lowest (2.91). This suggests that high awareness does not necessarily imply an intention to participate actively – further mediating mechanisms are needed between knowledge and action. In Zrenjanin, the importance of education for sustainability received a score of 4.81 – the highest among all settlements and could serve as a best practice for the network.

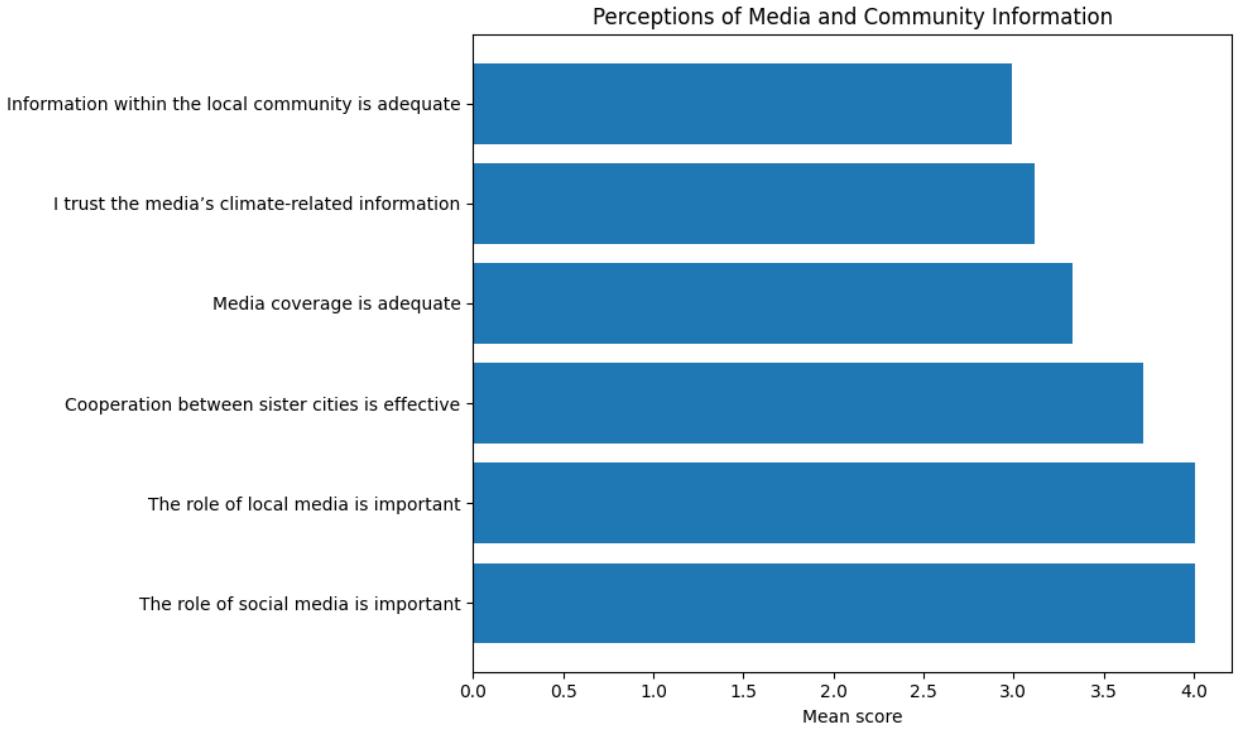
Strategic implications

Addressing the attitude-action gap requires low-threshold, easily achievable actions. Adapting the Gyula model – where the willingness to volunteer is highest – could be valuable for other towns. The Wagrowiec paradox serves as a reminder that raising awareness alone is not enough: creating opportunities for participation, organising community events and ensuring a sense of personal involvement are at least as important.

5.2 Communication, media and climate awareness

The role of the media and communication is key in shaping climate awareness, as people do not directly experience the global dimensions of climate change – they learn about scientific findings, political decisions and best practices from the media. The SUSCOMNET study examined in detail respondents' views of the media's role and reliability, the channels through which they obtain information, and the extent to which they trust their sources.

Respondents rated the importance of both community and local media at an average of 4.01 – people recognise the media's role in conveying environmental information. The effectiveness of twinning cooperation was rated 3.72, a positive result, indicating that respondents are open to cross-border cooperation. In contrast, the adequacy of media coverage was rated at just 3.33, and trust in the media at a mere 3.12. This trust deficit poses a serious challenge – a hallmark of the post-truth era. The lowest score, 2.99, was given to the adequacy of information provided by the local community: respondents feel they do not receive enough information about the city's sustainability efforts.



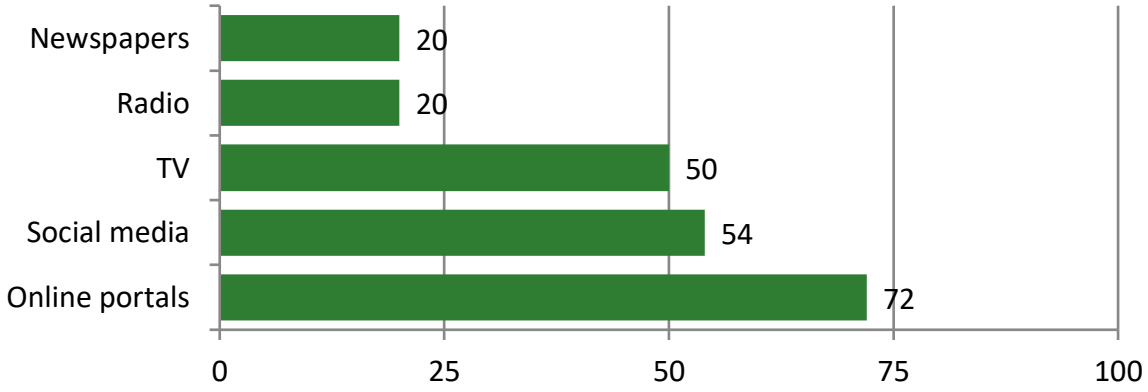
8. Figure: The role of the media in climate awareness (5-point Likert scale)

The analysis of media usage habits yielded further important insights. Online portals lead the way at 72% – news portals and specialist websites are the primary sources of

information. Social media ranks second at 54%, whilst television, at 50%, remains relevant, particularly among older age groups. The role of traditional media – radio and printed newspapers – has declined, with both showing an average reach of only around 20%. However, there is one notable exception: in Zrenjanin, newspaper usage stands at 82%, a dramatic deviation from the average. This suggests that the print media still plays a dominant role in this Serbian town – communication strategies must be adapted to local characteristics in every settlement.

Key finding: The trust deficit and the potential for twinning

The trust deficit (trust in the media: 3.12, local information: 2.99) and the relatively positive assessment of twinning cooperation (3.72), when considered together, point to an important strategic opportunity. Peer-to-peer communication – where residents of one town report on the experiences of another – appears more credible than top-down information. The twin-town network can therefore also function as a communication channel.



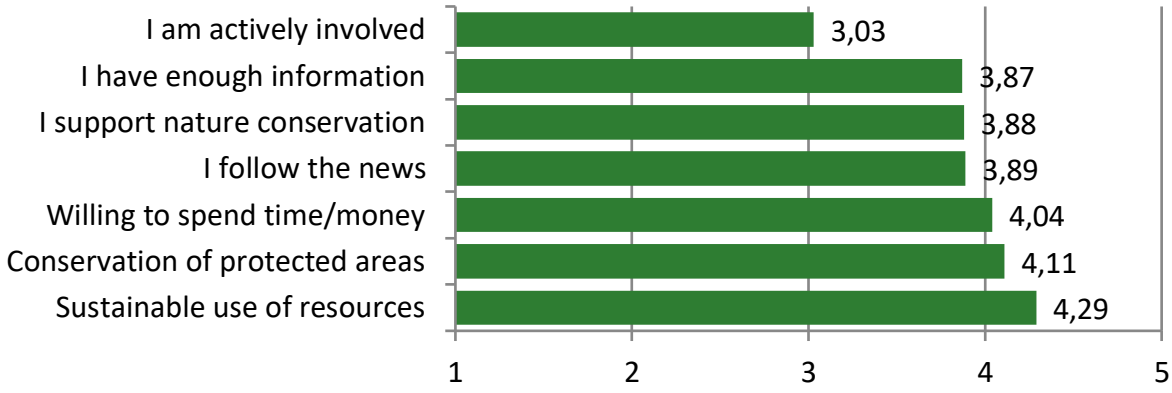
9. Figure: Exposure to the topic of sustainability (%) (N=926)

5.3 Biodiversity, natural resources and climate adaptation

The protection of natural resources and climate adaptation are perhaps the most critical areas of the sustainability strategy, where the contrast between theoretical support and actual preparedness is most pronounced. The research measured seven attitude dimensions relating to biodiversity, examining willingness to change consumption habits, personal experience of climate change, preparedness for climate adaptation, and the role of trees in the urban environment.

Attitudes towards biodiversity are positive overall: the importance of sustainable resource use scored 4.29, the conservation of protected areas 4.11, and willingness to spend on nature conservation 4.04 on average. However, active participation once again scores the lowest: a mere 3.03. This pattern is consistent with that observed in

general sustainability attitudes – the gap between values and action is evident here too.



10. Figure: Biodiversity and nature conservation (5-point Likert scale)

The willingness to change consumption habits is encouraging: 26.8% of respondents are fully willing to change, with a further 43.7% expressing a willingness to do so – meaning that, in total, more than 70% are open to more sustainable consumption habits. Only 11.4% are on the other end of the spectrum. This result indicates that the demand side is there – it is the supply side that needs work: affordable alternatives, infrastructure, and easy access to sustainable products and services.

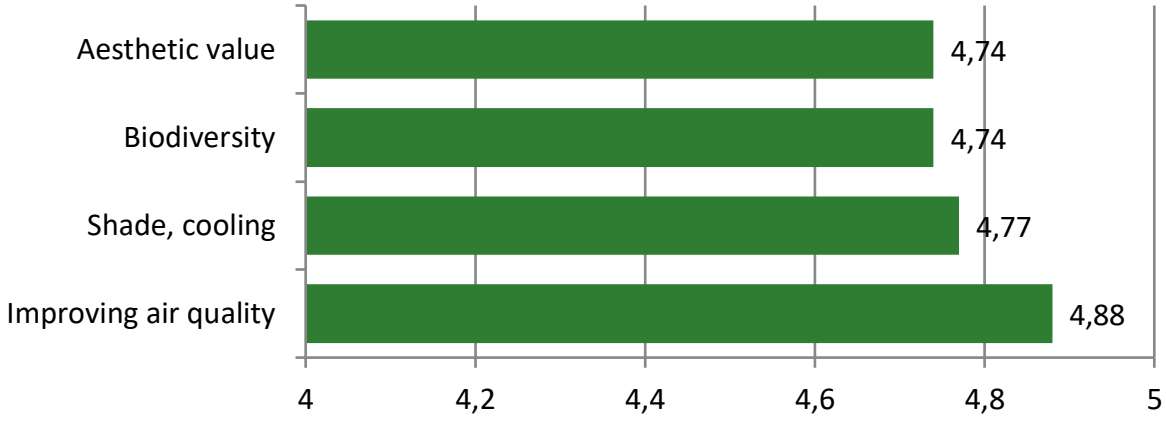
Key data

The climate adaptation gap: The importance of conscious adaptation: 4.61 | Public preparedness: 2.39 | Difference: 2.22 points – one of the most telling findings of the research

The climate adaptation gap is one of the most important findings of the research. Respondents rated the importance of conscious adaptation at an average of 4.61 – one of the highest scores in the entire study. At the same time, they rated the local community's preparedness at just 2.62 and the population's knowledge of climate adaptation at 2.39. This gap of nearly 2.2 points speaks volumes: people know they should adapt, but do not feel that they or their community are prepared to do so. The motivation is there – what is lacking is knowledge, tools and institutional support.

The role of trees in the urban environment received exceptionally high ratings: improving air quality scored 4.88 (the highest score in the entire survey), shade 4.77,

biodiversity 4.74, and aesthetic value also 4.74. According to 47.1% of respondents, the benefits clearly outweigh the drawbacks, while only 3.3% consider the drawbacks more significant. This result provides a clear mandate for urban tree-planting programmes – trees are the elements of green infrastructure that enjoy the widest support, making them ideal starting points for joint action between twin towns.



11. Figure: The role of trees in the urban environment (5-point Likert scale)

The conference materials further enrich the topics of natural resources and climate adaptation. The Romanian climatological analysis (meteorological data from 1960 to 2024) clearly demonstrated accelerating warming and increased vulnerability in the south-eastern regions, necessitating a rethinking of forestry practices as the optimal habitats of the Norway spruce recede. The Körös Regional Water Authority's experiences in drought management, flood protection, and water retention are concrete examples of the practical institutionalisation of climate adaptation. The climate adaptation challenges facing fruit growing in Békés County – the increasing frequency of droughts, the emergence of new pests and fluctuations in crop quality – illustrate the vulnerability of the agricultural sector. The forestry perspective emphasises the creation of mixed stands, the conservation of genetic resources and nature-friendly management methods. Local initiatives aimed at preserving urban trees – the Heroes' Grove in Mezőkovácsháza, the Nimfa programme in Gyula, and the Great Acorn Tree and Little Acorn Trees in Dévaványa – exemplify the combination of a heritage-based approach with community involvement.

Examining personal experiences of climate change also provides methodological insights. The proportion of people with such experiences is high in Hungarian towns: 86% in Gyula and 71.8% in Komárno, reflecting the impact of droughts and heatwaves on the Great Plain. In Romanian towns, the figures are more moderate: 66.7% in

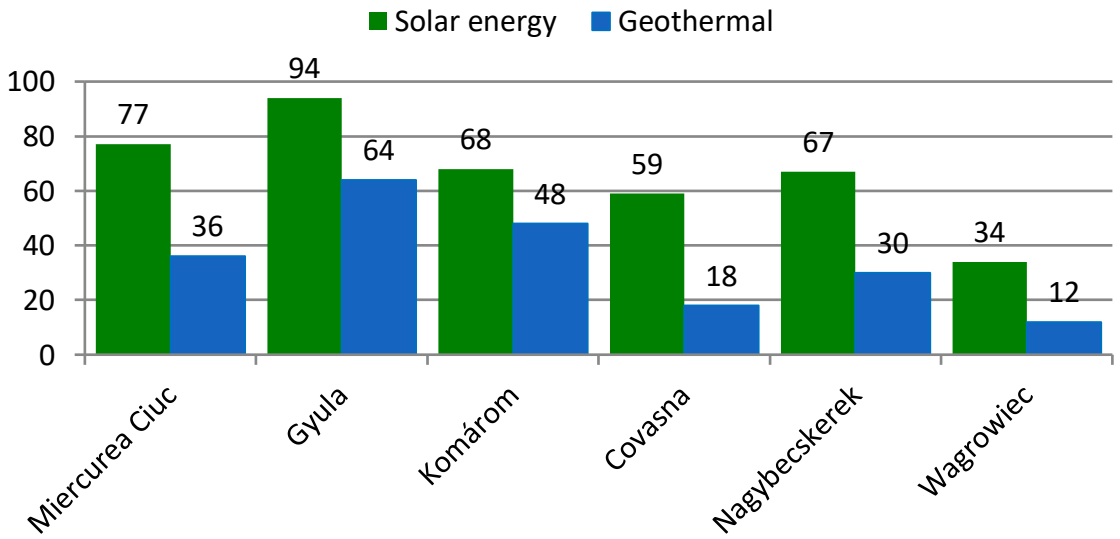
Miercurea Ciuc and 50% in Covasna. In Zrenjanin (1.5%) and Wagrowiec (0%), the near-complete lack of data likely points to a methodological issue rather than to the absence of climate change there. Nevertheless, the data clearly indicate that personal experience is a motivating force – those who have experienced a heatwave or a devastating storm think differently about the need for climate adaptation.

Strategic implications

Addressing the climate adaptation gap requires practical knowledge transfer: local workshops on preparing for heatwaves, collecting rainwater, and designing a climate-adaptive garden. The high level of acceptance of trees provides an excellent basis for joint twin-town tree-planting programmes – this is the intervention with the lowest risk and the highest level of support.

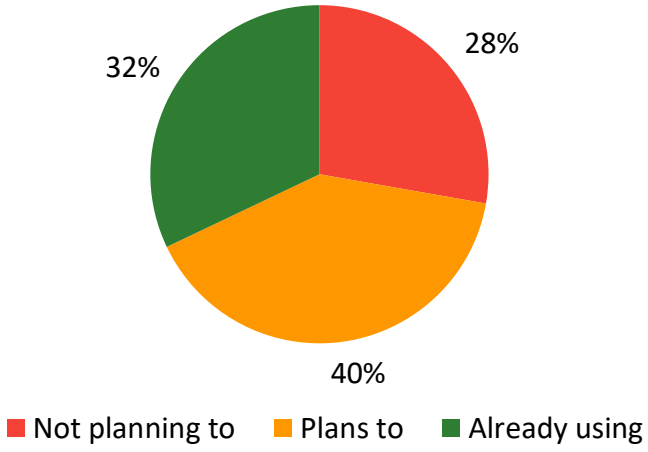
5.4 Green energy and energy consumption patterns

Awareness and use of renewable energy sources are among the areas showing the greatest disparity among the six towns. Solar energy is the best-known renewable source: 94% in Gyula, 77% in Miercurea Ciuc, 68% in Komárno, 67% in Zrenjanin, 59% in Covasna – but Wagrowiec lags significantly behind at just 34%. In the case of geothermal energy, Gyula leads with 64%, a figure that the town's spa traditions help explain.

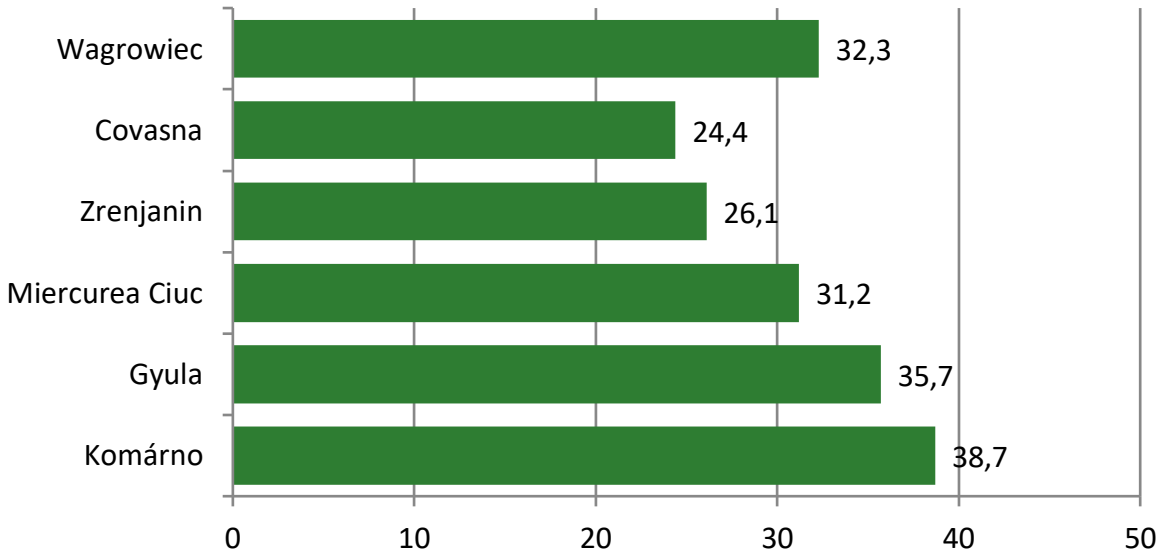


12. Figure: Availability of renewable energy sources in the settlement (%) (N=926)

The picture regarding actual renewable energy use is positive overall: 32.1% already use it, 40.2% plan to – a total of 72%. However, the differences between settlements are dramatic. Komárno leads with 38.7%, Gyula with 35.7%, and Miercurea Ciuc with 31.2%. The most striking figure comes from Wagrowiec: not a single respondent uses renewable energy, and no one plans to. This represents a 100% negative rate – an extraordinary result, which is likely attributable not to residents' attitudes but to infrastructural and regulatory barriers.



13. Figure: Use of renewable energy (%) (N=926)



14. Figure: Use of renewable energy by settlement (%)

Key finding: The Wagrowiec energy anomaly

Wagrowiec leads in sustainability attitudes (interest: 4.45) and is the most satisfied with public transport (4.24), yet its renewable energy use is 0%. This paradox is one of the key focus areas for knowledge-sharing between the twin towns: the success stories of Gyula and Komárno can inspire and provide concrete technical assistance to the Polish partner.

Priorities for energy efficiency investments also vary across localities. The most important energy efficiency investments cited were thermal insulation, heating modernisation, energy-efficient household appliances, replacement of windows and doors, and smart home solutions. Here too, the differences between settlements reflect variations in building stock, climatic conditions and economic opportunities. In Miercurea Ciuc and Covasna, where the heating season is longer due to the proximity of the Carpathians, thermal insulation and heating modernisation are top priorities – a fact supported by the NZEB development of the Covasna SPA centre and the energy-efficient refurbishment of public buildings in Miercurea Ciuc.

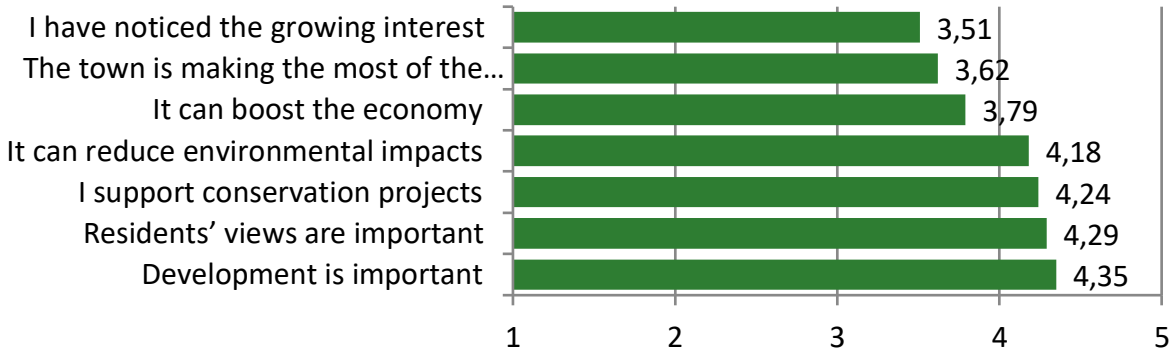
Among renewable energy sources, awareness of hydrogen technology stands out as a notable anomaly: 78% of people in Zrenjanin and 61% in Wagrowiec are aware of it – far ahead of other settlements. This is presumably linked to local industrial or research projects, and shows that news of technological innovation can reach the public if it has a visible local connection. Respondents generally recognise the cost-saving potential of energy efficiency, whilst their willingness to pay a premium for green energy is moderate but not dismissive – suggesting that price sensitivity is a key factor in the uptake of renewable energy, and that communicating support schemes and funding opportunities is crucial.

Strategic implication: Energy knowledge sharing

Inequality between the six cities in the area of renewable energy use is one of the network's most concrete areas for intervention. Knowledge sharing is proposed on three levels: (1) exchange of experiences regarding the regulatory environment and funding opportunities, (2) technical assistance for the introduction of renewable energy at the household level, (3) preparation of joint applications for larger-scale investments. The 500 kW solar park investment at Gyulai Várfürdő and Komárno's geothermal experience can serve as concrete case studies.

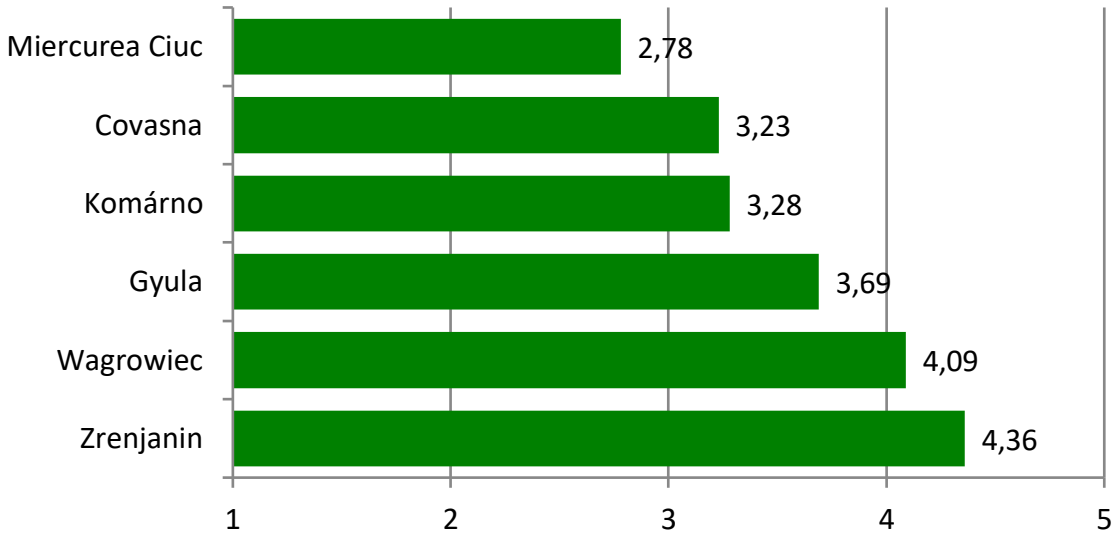
5.5 Sustainable tourism and local heritage

Support for sustainable tourism is generally high: the importance of development received an average score of 4.35, taking residents' opinions into account scored 4.29, and support for developments that preserve the environment and culture scored 4.24. Respondents also recognise the economic potential: they rated the positive impact of sustainable tourism on the local economy at 3.79. At the same time, there is significant variation in perceptions between settlements, particularly regarding the utilisation of tourism potential.



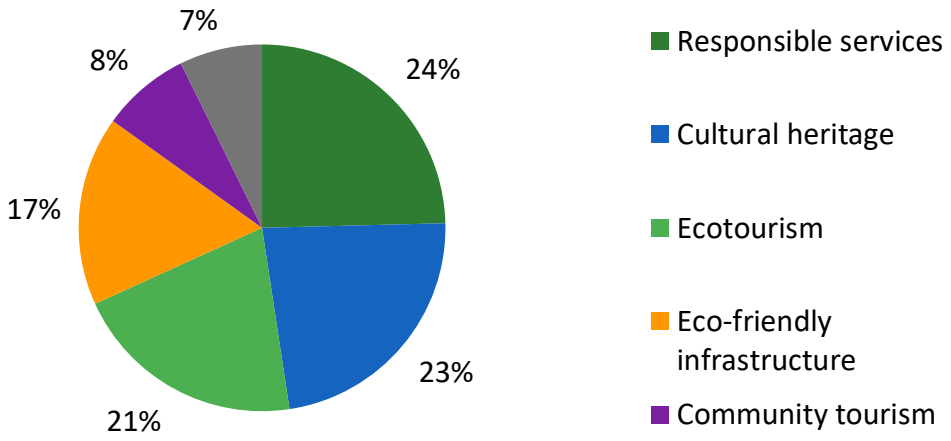
15.Figure: Sustainable tourism – attitudes (5-point Likert scale)

In terms of the utilisation of tourism opportunities, Zrenjanin leads with an average of 4.36 – the residents of this Serbian town are satisfied with their town's tourism performance. Wagrowiec follows with 4.09, and Gyula with 3.69. The Romanian towns are at the bottom of the list: Covasna 3.23, Miercurea Ciuc 2.78. The figure for Miercurea Ciuc is particularly noteworthy: according to residents, this town in the Szekler region, which boasts a rich cultural heritage and natural assets, is far from making the most of its potential. This is a criticism of local decision-makers, but it is also an opportunity – the untapped potential represents a reserve for development.



16. Figure: Utilisation of local tourism opportunities (5-point Likert scale)

The preferred types of tourism development indicate clear directions: responsible services lead at 24.6%, followed by cultural heritage tourism at 23%, ecotourism at 20.6%, and environmentally friendly infrastructure at 16.7%. The results clearly favour soft, small-scale tourism developments based on local values – not mass tourism, but high-quality, sustainable solutions.



17. Figure: Most preferred tourism development (%) (N=926)

Strategic implications

Tourism cooperation could be one of the most tangible benefits of the twin-town network: joint marketing, twin-town routes, and cultural exchange events. The tourism success stories of Zrenjanin can be shared with Miercurea Ciuc and

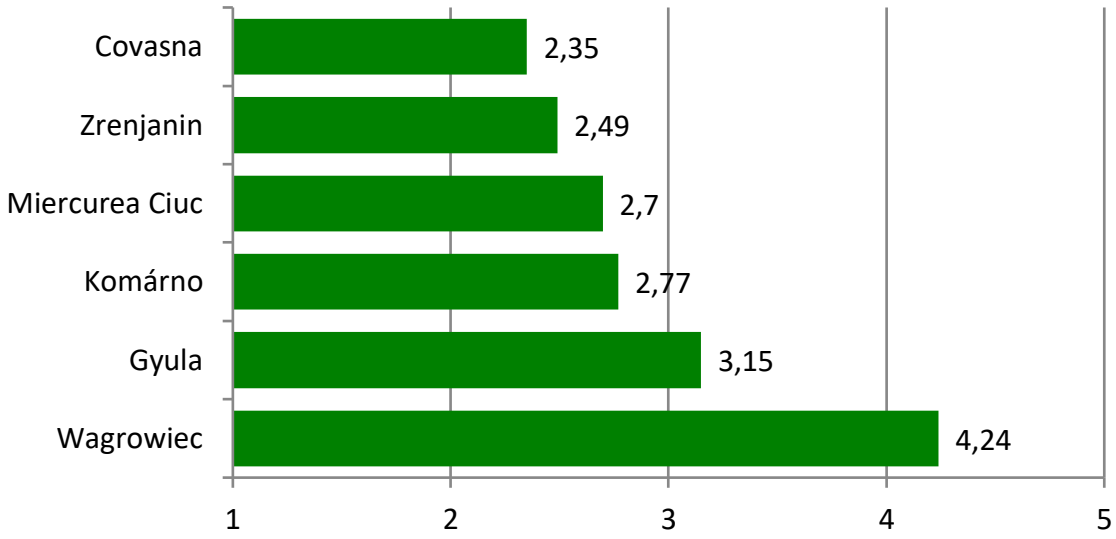
> Covasna, where the potential remains untapped. Together, the six towns can build a stronger tourism brand than they could individually.

5.6 Sustainable transport and urban planning

Transport and urban planning are areas that directly affect residents' daily lives. The research findings articulate clear public needs, providing a clear mandate for decision-makers. The development of cycling infrastructure (56.8%) and the creation of pedestrian-friendly zones (56.1%) top the list of demands – both indicating a preference for human-scale, slow transport. Rainwater harvesting systems follow at 51%, urban gardens at 48.6%, solar-powered street lighting at 42.5%, the expansion of selective waste collection at 42.1%, and tree-planting programmes at 40.1%.

In terms of transport attitudes, the Zrenjanin paradox is the most striking finding: residents of the Serbian town consider car-free days to be exceptionally important (4.68), yet they are the least willing to reduce their personal car use (2.80). This is a classic NIMBY-style pattern: they support the community solution, but are averse to making personal sacrifices.

There are dramatic differences in satisfaction with public transport. Wagrowiec stands out with a score of 4.24 – the Polish town is a success story in public transport. Gyula, at 3.15, is still relatively acceptable, but the scores of 2.77 for Komárno, 2.70 for Miercurea Ciuc, and 2.49 for Zrenjanin indicate serious dissatisfaction. Covasna received the lowest score: just 2.35. This is particularly worrying for a spa town – tourists need to be able to get to the spas as well.



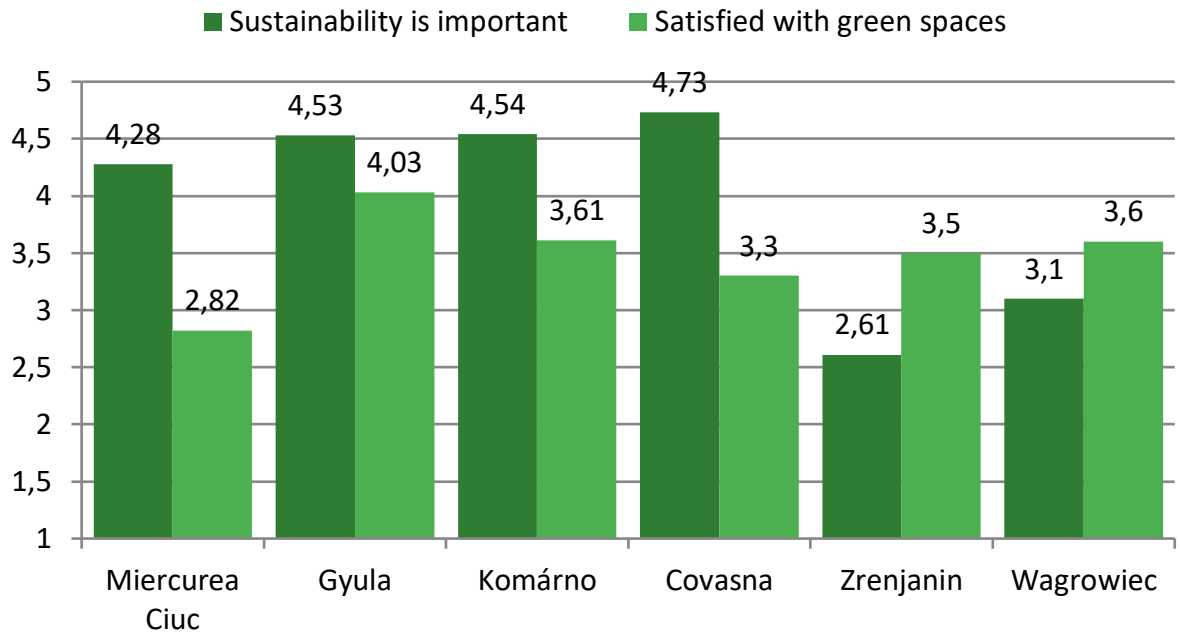
18. Figure: Satisfaction with public transport (5-point Likert scale)

The use of environmentally friendly transport is encouraging overall: 29.5% use it regularly, 25.6% occasionally – a total of 55.1%. A further 20.9% are planning to do so. A total of 76% are open to green transport – this represents huge potential. Only 16.2% neither use nor plan to use such transport.

Key data

57% want cycle paths and pedestrian zones | 76% are open to green transport | Wagrowiec transport model: 4.24 satisfaction rating | Covasna: 2.35 – requires urgent intervention

Attitudes towards urban planning add further nuance to the differences between settlements. The importance of sustainability in urban planning is highest in Covasna (4.73), which is consistent with the nature-sensitive profile of this spa town. Komárno (4.54) and Gyula (4.53) show medium-to-high values. However, the lower scores for Zrenjanin (2.61) and Wagrowiec (3.10) are noteworthy and may indicate that, in these towns, other priorities – economic development, infrastructure, job creation – are more important to residents.



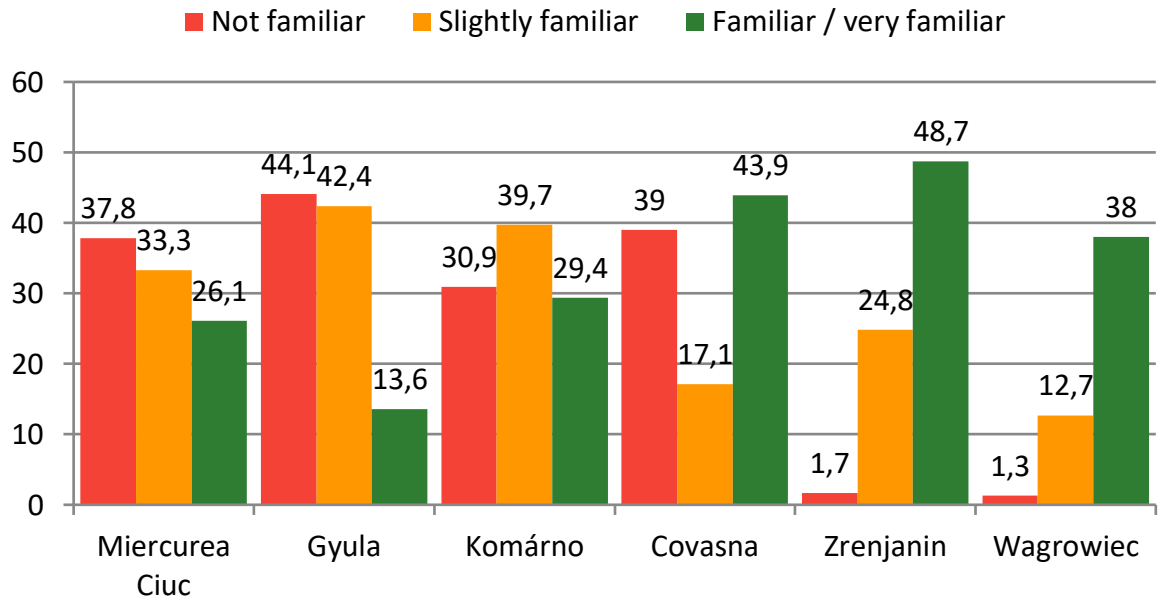
19. Figure: Attitudes towards urban planning – differences between settlements (5-point Likert scale)

Satisfaction with green spaces is highest in Gyula (4.03), reflecting the town's parks, the banks of the Körös, the green belt along the Élővíz Canal and the well-maintained public spaces. The developments presented by the head gardener – the reconstruction of Kossuth Square, Göndöcs Garden, St Nicholas Park, and the creation of biodiverse perennial beds and rain gardens – support this result. In contrast, Miercurea Ciuc's score of 2.82 indicates a significant shortfall. The green space system of this town in Szeklerland – as demonstrated in the head gardener's presentation – is under the dual burden of the urban structural legacy of the socialist era and rapid urbanisation. The examination of the application of the 3-30-300 urban planning principle (three visible trees, 30% canopy cover, green space within 300 metres) in Miercurea Ciuc aims to address this deficit precisely.

The relatively low level of support for the electric charging network (20.7%) suggests that residents prefer slow, human-scale modes of transport – cycling and walking – to achieve sustainable mobility, rather than switching to electric cars. This is an important consideration for decision-makers: in the public eye, sustainable transport is not primarily about a technological shift (from internal combustion to electric), but a modal shift (from cars to cycling and public transport). Support for green roofs (38.6%), energy-efficient buildings (38.1%) and community composting indicates a need for complex, integrated urban planning.

5.7 Social inclusion, community participation and awareness of the Green Deal

Assessing awareness of the Green Deal provides strategically important background information. There are significant differences between the municipalities: in Zrenjanin, 48.7% of respondents, and in Wagrowiec, 38% are aware of the Green Deal to some extent. In Komárno, the figure is 29.4%, and in Miercurea Ciuc, 26.1%. Surprisingly, awareness is lowest in Gyula: 44.1% of respondents are completely unaware of the programme, and only 13.6% know what it is about. This is paradoxical, as Gyula shows the best results in many other indicators – practical action and awareness of the concept do not necessarily go hand in hand.



20. Figure: Level of awareness of the European Green Deal by municipality (%)

The issue of social inclusion is of particular importance within the framework of the Local Green Deal. The importance of involving disadvantaged groups was rated at 3.82, whilst the general importance of social inclusion was rated at 3.70. At the same time, respondents gave a rating of just 3.05 to the extent to which their own community promotes inclusion, once again highlighting the gap between ideal and reality. They rated the importance of achieving the Green Deal's objectives at 3.77, the importance of local cooperation at 3.59, and the adequacy of EU funding at 3.54, indicating an overall positive but not enthusiastic attitude towards the European framework programme.

21. Figure: Green Deal and EU funding (5-point Likert scale)

Strategic implications

It is particularly necessary to raise awareness of the Green Deal concept in Hungarian towns – primarily in Gyula. To address social inclusion, the Local Green Deal strategy must explicitly address the social dimension: the fairness of the green transition, the involvement of disadvantaged groups, and ensuring access.

6. Comparative municipal analysis

Following the presentation of the results of the individual thematic blocks, it is worth conducting a cross-sectional analysis comparing the six towns. The aim of the comparative study is twofold: on the one hand, to identify the relative strengths and weaknesses of the towns, and on the other hand, to outline directions for knowledge-sharing and mutual learning within the twinning network.

The most important lesson from the analysis is that no single town leads or lags in every dimension. Every town has outstanding strengths and serious challenges. This is precisely where the value of the network lies: complementary strengths enable mutual learning, where every town can both give and receive. Gyula is strong in volunteerism and awareness of solar energy, but weak in awareness of the Green Deal. Wagrowiec leads in transport and public interest, but stands at 0% in renewable energy. Zrenjanin is strong in tourism and awareness of the Green Deal, but its residents are the least willing to reduce private car use. Miercurea Ciuc has strong sustainability attitudes, but its tourism potential is untapped, and its residents are dissatisfied with its green spaces. Covasna leads in the importance of sustainable urban planning, but its transport situation is the most critical. Komárno leads in renewable energy use and has innovative local government programmes, but overall scores are average.

The second key dimension of the comparative analysis is the spatial pattern of the attitude-action gap. This gap is not of equal magnitude in every town. It is the smallest in Gyula – here, alongside high levels of interest, the willingness to volunteer is also relatively high, suggesting that something in the town's community culture encourages action. In Wagrowiec, the gap is the widest – there is outstanding interest, but low willingness to act. It is worth examining the reasons for this in greater depth: cultural differences, differing traditions of volunteering, or a lack of opportunities for participation may lie behind this.

The third comparative dimension concerns differences in the local media and communication environment. The 82% newspaper readership in Zrenjanin is unique – here, the print media remains the dominant information channel. In the other towns, online portals and social media lead the way. This difference directly determines which channels are best for communicating Local Green Deal programmes: what works as a Facebook campaign in Miercurea Ciuc is more effective in Zrenjanin as a newspaper advert and editorial content. Localising the communication strategy is not a luxury, but a basic prerequisite for effectiveness.

The fourth comparative dimension concerns the varying levels of institutional capacity and local government innovation. Komárno's free public transport, e-bus programme, tree nursery and climate mask initiative; Zrenjanin's €160 million Zelena Agenda programme and institutionalised nature conservation; Covasna's NZEB investments and digital waste collection points; Miercurea Ciuc's energy modernisations and waste management reform; Wagrowiec's integrated transport hub and geothermal plans; Gyula's green space programmes and energy efficiency investments – all of these demonstrate that municipal-level innovation has developed in different areas and to varying degrees across the six cities. Knowledge sharing within the network can make precisely these innovation experiences mutually accessible.

7. City Profiles

The following chapter presents a unique profile of each partner city, based on research findings, conference materials and local presentations. The aim of the profiles is not merely to list data, but to outline the strategic character of each municipality: where the city's strengths lie, where its bottlenecks are, and what role it can play within the twinning network.

7.1 Gyula

Gyula is the coordinating town of the SUSCOMNET project and also the settlement that shows the best results across many dimensions of the research. The town was represented by 179 respondents in the sample (19%). Its strategic strengths include willingness to volunteer (3.60 – the highest among the six towns), satisfaction with green spaces (4.03 – also the highest), awareness of solar energy (94% – exceptionally high), the use of renewable energy (35.7% – the second highest) and personal experience of climate change (86% – by far the highest).

Gyula's strength lies in its sustainability practices: respondents not only consider sustainability important, but are also at the forefront of concrete action. The town's green space programmes – the Spring Town Flowering, the Flowery Gyula competition, and the Most Beautiful Kitchen Gardens programme – are exemplary community initiatives that elevate greening to a cultural and identity-forming activity. The energy-efficiency programme at the Gyula Castle Baths – modernisation of the thermal wells, a 500 kW solar panel array, and expansion of the heat-exchange system – is an example of the sustainability transformation of energy-intensive tourist facilities. The ICOMOS-award-winning renovation of Almásy Castle is a model project for the sustainable utilisation of cultural heritage.

Further strengths of Gyula also emerge from the conference materials. Gyulai Közüzemi NKft.'s system-wide approach to sustainability – selective waste collection, recycling of construction and demolition waste, heat pump systems, and the use of rainwater collected in stormwater retention basins for irrigation – serves as a model for the green transition of the public services sector. The 'Water into the Landscape' programme, the water retention strategy and the drought monitoring system implemented within the area of the Körös Regional Water Authority exemplify the institutionalised management of climate adaptation. The nature conservation and ecotourism activities of the Körös-Maros National Park, the permaculture community-building work of the FEVŐK Foundation, the Hetedhét Játékváros programme of the Mi egy Másért association, and the climate-conscious educational practices of local

schools together form a multi-stakeholder, organically developing local sustainability ecosystem.

Gyula's main challenge is low awareness of the Green Deal: 44.1% of respondents are completely unfamiliar with the programme, and only 13.6% know what it entails. This is a paradoxical situation – the town does a great deal for sustainability in practice, but it is unclear about its conceptual framework. Within the twin-town network, Gyula can primarily play a leading role in voluntary programmes, green space management, sharing experiences in solar energy, and best tourism practices. At the same time, it can learn from Zrenjanin and Wagrowice in communicating the Green Deal.

Settlement profile box: Gyula

Strengths: Highest willingness to volunteer (3.60) | Highest satisfaction with green spaces (4.03) | 94% awareness of solar energy | Exemplary green community programmes | ICOMOS-award-winning heritage management Challenges: Low awareness of the Green Deal (13.6%) | Average satisfaction with transport (3.15) Network role: Knowledge exporter – volunteering, green spaces, solar energy, tourism

7.2 Komárno

Komárno (Komárno) was represented by 113 respondents in the sample (12%). A distinctive feature of this border town is its dual identity – Hungarian and Slovak – which is relevant to both transport and cultural cooperation. The town's strategic strength lies in its actual use of renewable energy: 38.7% – the highest of the six municipalities. Awareness of geothermal energy stands at 48%, which can be explained by the town's thermal spa traditions.

The municipality of Komárno plays an active and innovative role in sustainability programmes. It was the first in Slovakia to introduce free, air-conditioned public transport, to launch an e-bus service to support cross-border transport, and to develop an international cycling network. It has carried out an urban climate assessment using the Climate-Smart methodology, runs its own tree nursery programme, and has launched the 'Adopt a Tree' campaign. Its strategy for older people is a model of social inclusion: pensioners' clubs, a Senior Card scheme, and language and digital training. The tourism development of the Komárno Fortress is a good example of combining cultural heritage protection with sustainable tourism.

Its challenges include a moderate level of transport satisfaction (2.77), a 29.4% awareness level of the Green Deal, and an overall moderate position – neither exceptionally good nor particularly weak – across most dimensions. Komárno is a stable mid-table player in the network, capable of exporting expertise in renewable energy and local government innovation.

Settlement profile box: Komárno

Strengths: Highest renewable energy usage (38.7%) | Innovative local government programmes | Free public transport | Integrated climate assessment Challenges: Average transport satisfaction (2.77) | No outstanding performance in any attitude dimension Network role: Stable mid-table player – exporter of renewable energy and municipal innovation

7.3 Miercurea Ciuc

Miercurea Ciuc is the settlement with the largest sample size in the survey: 240 respondents (26%). This town in Szeklerland, situated at the foot of the Eastern Carpathians and home to some 35,000 inhabitants, boasts a rich cultural heritage and natural assets. Strong attitudes towards sustainability characterise it: the importance of sustainability in urban planning received a score of 4.28. Awareness of solar energy stands at 77%, whilst the use of renewable energy is 31.2%.

Miercurea Ciuc's most significant challenges are concentrated in two areas: the underutilisation of tourism potential (2.78 – the lowest of the six settlements) and dissatisfaction with green spaces (2.82 – also the lowest). According to residents, this town in Szeklerland, which boasts Szekler traditions, Lake Saint Anne and the surrounding mountains, is far from realising its full tourism potential. Dissatisfaction with the state of green spaces may be linked to rapid urbanisation and the development of green areas.

According to the conference materials, Miercurea Ciuc is actively working to address these challenges: the green space system presented by the head gardener, with a focus on biodiversity; the annual tree-planting programmes; the rain gardens; and the exploration of the 3-30-300 urban planning principle all point in this direction. The transformation of the waste management system through the installation of digital waste collection points, the modernisation of public lighting energy use, and the Transylmagica ecological restoration programme are all elements of the broader sustainability strategy. Miercurea Ciuc can primarily play a receiving role within the

network in the fields of tourism and green spaces, whilst it has untapped export potential in terms of cultural heritage and natural resources.

Miercurea Ciuc's municipal strategy – as presented by Mayor Attila Korodi and Deputy Mayor Béla Bors – interprets sustainability as a horizontal principle that permeates every level of the town's operations. The digital modernisation of the HARVÍZ water management system (GIS and SCADA systems, digital water meters), the installation of solar panel systems and investments in wastewater treatment are concrete steps in the infrastructure transition. Teaching and research on the theoretical and practical foundations of the circular economy at the Miercurea Ciuc campus of Sapientia Hungarian University of Transylvania provide the necessary knowledge base. The socio-medical services of Caritas Alba Iulia strengthen the dimension of social inclusion. Miercurea Ciuc's unique asset is the strength of the Szekler cultural identity – traditions, community cohesion and a close connection with nature are socio-cultural resources that imbue the transition to sustainability with a distinctive character. The legacy of the socialist era in terms of settlement structure – industrial zones, housing estates, and the transformation of the historic urban fabric – presents a specific challenge, which the city is addressing through an integrated approach.

Settlement profile box: Miercurea Ciuc

Strengths: Rich cultural and natural heritage | Strong sustainability mindset | Large sample size – detailed data Challenges: Untapped tourism potential (2.78) | Dissatisfaction with green spaces (2.82) | Moderate awareness of the Green Deal Network role: Hub – tourism, green spaces | Potential exporter – cultural heritage, natural resources

7.4 Covasna

With 91 respondents, Covasna is the settlement with the smallest sample size in the survey (10%). The unique position of this small spa town stems from its profile in health tourism: the mofettes, the thermal waters and the natural surroundings define the town's identity and economic potential. Covasna rated the importance of sustainability in urban planning the highest: 4.73 – the highest score among the six settlements. This high figure suggests that the residents of the spa town are particularly sensitive to environmental issues, which is only natural: the quality of the natural environment is the foundation of health tourism.

Covasna's most critical challenge is satisfaction with public transport: a mere 2.35, the lowest of the six towns. For a town of such importance to tourism, this is particularly worrying – tourists need to be able to reach the spas and health resorts. Sustainable urban development investments – the NZEB-compliant development of the spa and wellness centre, the modernisation of public spaces, digital waste collection points, the cycle path and electric charging stations – point in a positive direction, but addressing the transport deficit remains a strategic priority.

CO_2 as a therapeutic resource (mofetta therapy) is a unique local asset, and its sustainable, tourism-based utilisation requires an innovative balance between climate policy discourse and local natural resource management. Within the network, Covasna can primarily share its specific experience in health tourism and natural resources, whilst learning from the Wagrowiec model in transport.

Settlement profile box: Covasna

Strengths: Highest urban planning sustainability rating (4.73) | Unique health tourism potential | Active NZEB investments Challenges: Lowest transport satisfaction (2.35) | Small sample size – limited database Network role: Exporter – health tourism, natural resources | Recipient – transport (Wagrowiec model)

7.5 Zrenjanin

Zrenjanin (Zrenjanin), with 181 respondents, is the second-largest settlement in the sample by sample size (20%). The town in Vojvodina boasts rich historical, cultural and natural assets – the architectural heritage of the old town, the Császár Marsh nature reserve and the wetlands along the Begej River provide a diverse range of tourist attractions. Zrenjanin leads in exploiting its tourism potential, with an average score of 4.36, the highest among the six settlements in the region. Awareness of the Green Deal is also highest here: 48.7% of respondents are familiar with the programme to some extent.

The investment package of around €160 million implemented under the Zelena Agenda 2025 – a new drinking water treatment plant, a wastewater treatment centre, a section of the ring road, an air quality monitoring network, and the planting of tens of thousands of trees – is a complex, large-scale example of sustainable urban management. The institutional framework for nature conservation is provided by the public institution Rezervati prirode Zrenjanin, which manages the Carska bara and Rusanda nature reserves and complements them with ecotourism programmes.

Zrenjanin's experience of European territorial cooperation is also noteworthy: bird conservation programmes in partnership with Hungary, water quality monitoring in collaboration with Romania, and the 'Breathing Bus Stops' student project, which is an innovative example of combining green infrastructure with environmental education. The 'Incubator of Change' project at Zrenjanin Grammar School demonstrates that educational institutions can play an active role in sustainable urban innovation. The specific nature of the city's communication environment – where, alongside 82% newspaper readership, electronic media and online platforms also play a significant role – requires a differentiated media approach. The application of the quadruple helix model in the field of climate communication – cooperation among local government, business, academia, and civil society – is an example of a systemic approach.

The most notable challenge in Zrenjanin is a specific form of the contradiction between attitude and action: car-free days are considered extremely important (4.68), yet residents are the least willing to reduce their personal car use (2.80). This highlights the importance of addressing the gap between awareness-raising and personal commitment. The 82% newspaper readership rate is also noteworthy – the communication strategy must be tailored accordingly.

Settlement profile box: Zrenjanin

Strengths: Best utilisation of tourism potential (4.36) | Highest awareness of the Green Deal (48.7%) | Large-scale Zelena Agenda investments | Institutionalised nature conservation Challenges: Low willingness to reduce car use (2.80) | 82% newspaper readership – unique media landscape Network role: Exporter – tourism, Green Deal communication, nature conservation | Recipient – increasing personal commitment

7.6 Wagrowiec

Wagrowiec was represented by 122 respondents in the sample (13%). The distinctive profile of this small town in central Poland is that of a town of paradoxes: it leads the way in several dimensions, whilst lagging dramatically behind in one key area. Interest in sustainability is the highest (4.45), satisfaction with public transport is by far the best (4.24), and personal willingness to drive less is also leading (4.53). At the same time, the use of renewable energy stands at zero – none of the respondents uses renewable energy, and none plan to do so.

The Wagrowiec model's transport success story deserves deeper analysis. The town has developed a sustainable urban mobility plan, established an integrated transport centre (Zintegrowane Centrum Komunikacyjne), provides free local bus services, is developing the cycle network and uses real-time passenger information. The modernisation of railway line 356 between Poznań and Wagrowiec – including intermodal hubs, car park and bicycle storage facilities – serves as a model for regional transport development. The exploration of the city's geothermal potential, its solar energy development plans and its ideas for biogas utilisation lay the foundations for a future energy strategy.

In the field of social integration, the experiences of the Activus Centre in Wagrowiec – local partnerships, mentoring schemes, community-based initiatives – serve as model examples of sustainable community building. The town can play a dual role within the network: as an exporter of expertise in transport and social integration, and as a recipient of renewable energy, with the experiences of Gyula and Komárno adaptable.

Settlement profile box: Wagrowiec

Strengths: Highest level of interest in sustainability (4.45) | Highest satisfaction with transport (4.24) | Integrated mobility model | Geothermal potential Challenges: Renewable energy use: 0% – a dramatic lag | Willingness to volunteer is the lowest (2.91) Network role: Exporter – transport, social integration | Importer – renewable energy (Gyula/Komárno model)

8. Strategic lessons from the SUSCOMNET research

Five key strategic lessons emerge from the synthesis of the research findings, which together form the basis for the twin-town Local Green Deal framework.

The first lesson is the universality of the attitude-action gap. In every thematic area and in every municipality, the pattern emerges that support, in principle, is higher than willingness to act. Volunteering, active participation in nature conservation, and reducing car use – in all these areas, attitudes are more positive than the actual intention to act. This gap does not disappear simply by raising awareness: it requires active engagement strategies, low-threshold opportunities for participation, and the assurance of a positive experience of taking action.

The second lesson is the system of complementary strengths. The differences between the six cities are not weaknesses, but the network's most important resources. Gyula excels in volunteering, Wagrowiec in transport, Zrenjanin in tourism and Green Deal communication, Komárno in renewable energy and local government innovation, Covasna in urban planning and health tourism, and Miercurea Ciuc in cultural heritage and natural assets. The value of the network lies not in uniformity, but in mutual learning.

The third lesson is the strategic significance of the communication deficit. Low levels of trust in the media, gaps in local information provision and uneven awareness of the Green Deal concept collectively indicate that current forms of sustainability communication are ineffective. Peer-to-peer communication between twin towns, the targeted use of online portals and social media, and a channel strategy tailored to local characteristics are required.

The fourth lesson is the critical lack of preparedness for climate adaptation. The gap between the importance rating of 4.61 and the preparedness rating of 2.39 is the most striking finding of the research. This is not a communication problem – it is a lack of knowledge and capacity. Practical climate adaptation training, local adaptation plans and community-level preparedness programmes are needed.

The fifth lesson is the need to incorporate social justice. The gap between the importance of social inclusion and its practical implementation indicates that the Local Green Deal strategy must explicitly address the need to ensure that the green transition does not exacerbate social inequalities. The involvement of disadvantaged groups, ensuring access and the principle of a just transition must be structural elements of the strategy.

9. Twin Town Strategy for the Local Green Deal

Building on SUSCOMNET's research findings, the twin-city Local Green Deal strategy is based on four strategic pillars that together cover the main areas of the research and identify specific courses of action. The strategy's underlying philosophy is that not every city needs to do the same thing: the strength of the network lies in complementary strengths and mutual learning.

9.1 First pillar: Joint education platform

The 4.57 rating for educational support is one of the highest in the research – a strong mandate for joint educational programmes. Within the framework of this pillar, the development of joint twin-city teaching materials, the coordination of school environmental awareness projects, the organisation of student exchange programmes and the design of adult education modules are recommended. The curricula contain both a common core and local adaptations – schools in the six cities can draw up a joint project calendar, focusing on a different sustainability theme each month. Gamification tools – such as the 'Sustainability City' module in Minecraft: Education Edition – digital quizzes and project-based learning methods provide modern elements of the pedagogical toolkit.

The scientific and professional background of the educational pillar is established in the project's conference materials. Climate education, facilitating intergenerational dialogue, developing emotional resilience and strengthening student agency are pedagogical approaches that were explained in detail in the presentations by researchers from the University of Szeged. The management of climate anxiety as a psychological risk, the integrated development of environmental education and media literacy, and the shaping of energy-efficiency awareness at the school level – all of these can be incorporated into the joint educational platform as specific methodological elements. The experience of the Faculty of Health and Social Sciences at Gál Ferenc University in the areas of values transmission, lifelong learning, and intergenerational programmes (the Retirees' Academy and the 'Be Healthy – Be Mindful' programme) helps enrich the adult education dimension.

> **Action point**
>
> Specific educational actions: (1) Development of a joint curriculum package comprising 6–8 sustainability modules, with local language adaptations; (2) Annual twin-town student exchange – e.g. students from Gyula studying the

transport model in Wagrowiec, and students from Miercurea Ciuc studying tourism projects in Zrenjanin; (3) A series of adult education workshops on climate adaptation, renewable energy and sustainable consumption; (4) Creation of an online learning platform for shared use by the six towns.

9.2 Second pillar: Green infrastructure network

The 4.74–4.88 acceptance rating for trees, the 57% demand for cycling and pedestrian infrastructure, and the 70% willingness to change consumption habits collectively provide a strong mandate for developing green infrastructure. Under this pillar, joint twin-town tree-planting programmes, the exchange of experience in cycle-path planning, and the development of rainwater-harvesting systems and urban gardens are recommended. An annual joint tree-planting day – held simultaneously in all twin towns, for example, around Earth Day – could be a spectacular, easily communicable event that strengthens community cohesion.

Based on the research findings and conference materials, the implementation of the green infrastructure pillar is proposed on three levels. The first level is the greening of public spaces: tree-planting programmes, the creation of biodiverse perennial beds and rain gardens, the examination of the 3-30-300 principle, and the mitigation of the urban heat island effect. Presentations by the head gardeners of Gyula and Miercurea Ciuc provide a detailed technical background for this – the use of native species, climate-adaptive species selection, nature-based maintenance models, and integrated stormwater management could all form part of the shared curriculum. The second level is transport infrastructure: designing cycle paths, creating pedestrian-friendly zones, and adapting the Wagrowiec integrated transport model. The third level is the built environment: applying NZEB principles (as in the Covasna SPA pilot project), insulating buildings, installing solar panel systems, and promoting the EnerPHit renovation methodology for Kádár-style family homes.

Action point

Specific green infrastructure actions: (1) Annual joint twin-town tree-planting day – around Earth Day, simultaneously in every town; (2) Workshop on exchanging experiences in cycle path planning – between Wagrowiec and Gyula, with a documented methodology; (3) Joint application for the development of rainwater harvesting systems and urban gardens; (4) Assessment of the application of the 3-30-300 principle in all partner towns.

9.3 Third pillar: Tourism cooperation

The tourism support score of 4.35 and the differences in untapped potential between the towns (Zrenjanin 4.36 vs Miercurea Ciuc 2.78) indicate both the necessity and the potential for tourism cooperation. Joint marketing of cultural heritage and ecotourism, the development of twin-town routes, the organisation of joint events, and the exchange of experiences in geothermal and health tourism (the Gyula–Covasna axis) are the main elements of this pillar. Six towns can build a stronger tourism brand together than they could individually – the concept of a sustainable tourism network of Central European twin towns has marketing value in itself.

Specific forms of tourism cooperation can be developed based on the research findings and conference materials. In the field of cultural heritage tourism (23% public preference), the experiences at Almásy Castle in Gyula, the Komárno Fortress, and the old town of Zrenjanin can be developed into joint tourist routes and publications. In the field of ecotourism (20.6%), the Körös-Maros National Park, the Carska Bara nature reserve and the natural environment of Covasna offer opportunities for joint programmes. In the field of health tourism, the Gyula Castle Spa, the 'Healthy Life' initiative, the mofettes and spas of Covasna, and the thermal water traditions of Komárno form the basis of a geothermal health tourism axis. The Transylmagica ecological restoration project and the Slow Food movement's Earth Market in Karva create opportunities for sharing sustainable gastronomic and ecotourism innovations. The experience of the Dunamente TDM and Gyulai TDM organisations provides the professional background for destination management.

Action points

Specific tourism initiatives: (1) Joint twin-town tourism brochure and website – six towns in six languages; (2) Themed tourism routes: spa tour (Gyula–Covasna), cultural heritage tour (Gyula–Komárno–Zrenjanin), nature walk (Miercurea Ciuc–Covasna); (3) Annual twin-town gastronomic festival with a rotating venue; (4) Documentation of Zrenjanin's best tourism practices and a workshop for Miercurea Ciuc.

9.4 Fourth pillar: Energy knowledge sharing

The dramatic disparities in renewable energy use – Komárno at 38.7% vs Wagrowiec at 0% – underscore the necessity of the fourth pillar. Sharing Gyula and Komárno's solar energy experiences with Wagrowiec, joint mapping of geothermal potential (Wagrowiec's planned geothermal district heating, Gyula and Covasna's existing experience), technical assistance to overcome regulatory barriers, and joint applications for the development of renewable energy sources – these are the specific elements of this pillar.

22. Figure: Strategic pillar

10. Knowledge-sharing and cooperation matrix

Based on the research findings, the following main directions of knowledge flow can be identified within the twin-city network. Each direction is based on specific data – not a general recommendation, but a cooperation plan grounded in the differences in competencies revealed by the research.

Gyula → other towns: organising volunteer programmes and community mobilisation (willingness score of 3.60 – the highest); solar energy utilisation at household level (94% awareness, 35.7% actual use); green space management and community greening (satisfaction rating of 4.03); sustainable tourism use of cultural heritage (Almásy Castle, Várfürdő models).

Wagrowiec → other towns: sustainable transport model (satisfaction rating of 4.24 – by far the best); integrated transport hub and free local bus services; regional rail development (modernisation of line 356); social integration programmes (Activus Centre model).

Zrenjanin → other cities: tourism development strategy (4.36 potential utilisation); Green Deal communication (48.7% awareness); institutionalised nature conservation (Rezervati prirode model); large-scale environmental investment model (Zelena Agenda).

Komárno → other cities: domestic use of renewable energy (38.7% – the highest); geothermal utilisation; innovative local government programmes (free transport, e-bus, tree nursery); strategy for elderly care and social inclusion.

Covasna → other cities: potential for health tourism and the sustainable use of natural resources; NZEB architectural experience (SPA centre); the social foundations for prioritising sustainability in urban planning (4.73).

Miercurea Ciuc → other cities: cultural heritage and natural assets (Szekler traditions, Carpathians); water management experience (HARVÍZ model); lessons from the sustainable transformation of the socialist urban fabric.

11. Short-, medium- and long-term action plan

11.1 Short-term (0–6 months)

Action point

Network level: Presentation of results to local decision-makers and residents in all partner cities. Signing of the Twin Cities Local Green Deal cooperation declaration. Creation of a joint communication platform (website, social media group). Preparation of an accessible summary of key research findings in all local languages.

Action point

Municipal level: Establishment of local working groups in each town to define town-specific priorities based on the research findings. Presentation of key local data to local councils. Organisation of the first joint twin-town tree-planting day.

Action point

Coordination: Maintain a project management group beyond the grant period, with regular online coordination meetings at least every six months. Appoint responsible persons in each town to liaise within the network.

11.2 Medium term (1–2 years)

Action point

Network level: Submission of joint applications for the Interreg, LIFE, Horizon and CERV programmes. Operation of thematic working groups based on the four strategic pillars. Organisation of an annual twin-town sustainability workshop, held at a rotating venue. Development of joint educational materials and an online learning platform.

Action point

Municipal level: Launching pilot projects in the areas of tree planting, cycle path planning and climate adaptation training. Studying the Wagrowiec transport model and preparing adaptation plans for Covasna and other towns. Organising renewable energy study trips to Gyula and Komárno for the Wagrowiec delegation and developing Miercurea Ciuc's tourism strategy based on the experiences of Zrenjanin.

11.3 Long-term (3–5 years)

Action point

Network level: Local Green Deal strategy adopted in every town – an official document with binding commitments. Establishment of a twinning monitoring system with common indicators. Repeat the research – a new survey in the six towns to compare results and measure progress. Explore the expansion of the SUSCOMNET network – involving further twin towns.

Action point

Municipal level: Evaluation of the implementation of infrastructure developments (cycle paths, tree planting, renewable energy). Re-measuring transport satisfaction and climate adaptation readiness. Adoption of local climate adaptation plans and commencement of their implementation.

12. Monitoring, reassessment and strategic learning

The strategy is a living document – not a static plan, but an adaptive framework kept relevant through regular feedback and review. The monitoring system has a dual purpose: on the one hand, to measure progress; on the other, to continuously fine-tune the strategy to changing circumstances.

The components of the proposed monitoring system are as follows. The first component is a repeat survey: repeating the research in 2–3 years, preferably using the same questionnaire, would enable comparison over time and the tracking of changes. The second element is a simple system of indicators that measures progress at the local authority level: number of trees planted, kilometres of cycle paths, renewable energy penetration, number of volunteers, and percentage change in awareness of the Green Deal. The third element is the annual twin-town review workshop, where representatives from the six towns meet to share their experiences and jointly assess progress. The fourth element consists of half-yearly reports from local working groups, which document actions taken at the local level. The fifth element is peer evaluation, where a delegation from one city assesses the progress of another, providing an external perspective and constructive feedback.

To ensure strategic learning, monitoring is not merely data collection but a reflective process. At every annual workshop, three questions must be answered: What has been achieved and why? What has not been achieved and why? What needs to be done differently in the next period? This adaptive cycle ensures that the strategy does not become rigid or irrelevant.

> **Strategic recommendation: Institutionalising monitoring**
>
> For the monitoring system to function, a clear structure of responsibility must be established: in each town, who is responsible for local data collection, who coordinates the network-level comparison, and who prepares the annual review document. The role of the coordinating city (Gyula) is key in this regard, but sharing responsibility – e.g. coordination by thematic pillar – strengthens the network's sense of ownership.

12.1 Proposed set of indicators

The following set of indicators, aligned with the strategy's four pillars, includes metrics that can be measured at the local authority level. The criteria for selecting the indicators were simplicity, measurability and comparability – the aim is not to build a

complex statistical system, but to regularly monitor a few key figures that provide feedback on progress.

Indicators for the education pillar: the number of pupils participating in sustainability education programmes annually; the number of participants in twin-town pupil exchange programmes; the adoption of shared curriculum modules (yes/no, by municipality); the number of adult education workshops and their participants. Indicators for the green infrastructure pillar: the number of trees planted in the given year; the length of the cycle path network in kilometres; the number of rainwater harvesting systems; the proportion of green spaces relative to the municipality's total area; the number of community garden schemes. Indicators for the tourism pillar: publication of joint twin-town tourism materials; trends in the number of overnight stays (where available); number of joint events; changes in perceptions of sustainable tourism in the repeat survey. Indicators for the energy pillar: the estimated proportion of households using renewable energy; progress in the modernisation of municipal buildings' energy systems; the status of public lighting modernisation; the number of knowledge-sharing events (study trips, workshops).

It is recommended that the indicators be collected annually, with this task assigned to the local working groups. The data is collated and compared at the annual twin-town workshop, where the coordinating town prepares a brief report on network-level progress. The report is not a lengthy document, but a concise, visually presented summary that displays the progress of the six cities across each pillar in a dashboard-style format.

12.2 The logic of network governance

To ensure the long-term sustainability of the twin-city Local Green Deal strategy, a network governance structure is required that is based not on the dominance of a single city, but on shared responsibility. In the proposed model, the coordinating city (Gyula) performs administrative and organisational tasks, but the coordination of the thematic pillars is shared: the education pillar is coordinated jointly by Gyula and Miercurea Ciuc (due to the university background), the green infrastructure pillar by Gyula and Wagrowiec, the tourism pillar by Zrenjanin and Komárno, and the energy pillar by Komárno and Gyula. This shared coordination makes every city an active participant, not merely a beneficiary.

Recommended channels for network communication: a shared closed online group (e.g. Teams or a similar platform) for ongoing consultation; quarterly online

coordination meetings with the participation of pillar coordinators; an annual in-person twin town workshop held at a rotating venue; a joint newsletter to support local communication. Decision-making is consensual: the agreement of all cities is required for every significant strategic decision, ensuring a sense of ownership and an equal partnership.

13. Concluding remarks

The joint message of the SUSCOMNET project and this document is that the sustainability transition is not an abstract goal, but a concrete task that can and must be implemented at the local level. The views of the 926 respondents from the six twin towns clearly show: the motivation is there, the values are in place, and the willingness is high. What is lacking is not the intention but the knowledge, infrastructure, opportunity, and institutional support.

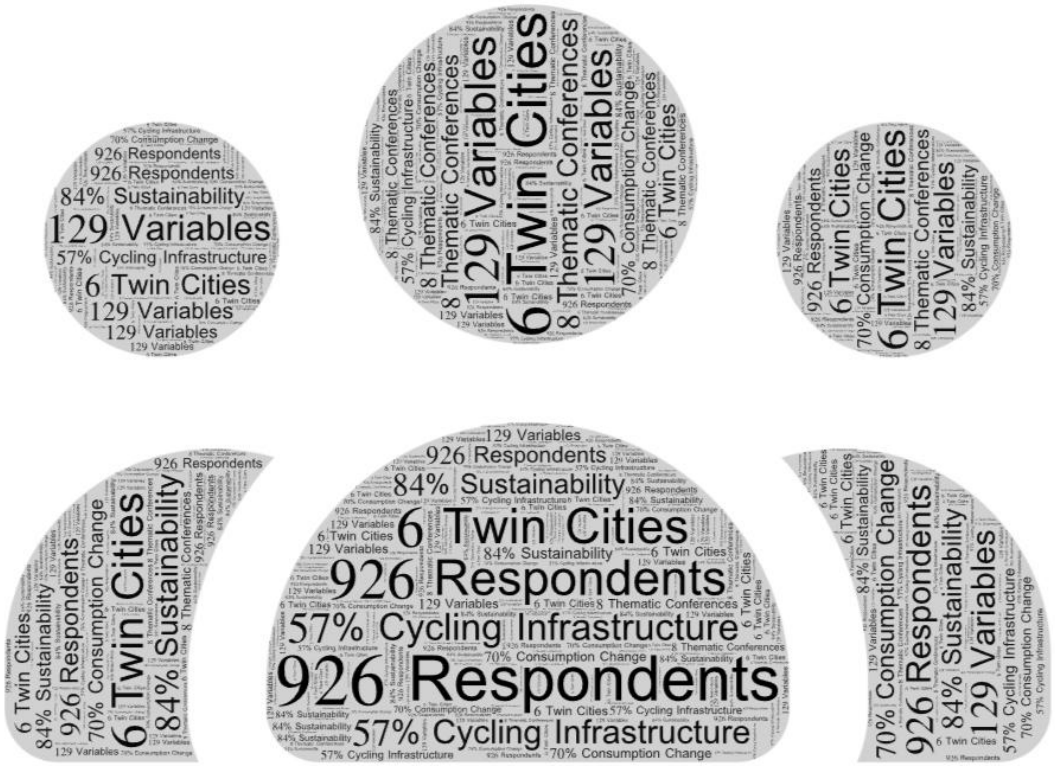
The most important finding of the research is not a single figure or trend, but a pattern: the systematic gap between attitude and action, which appears in every thematic area and every municipality. This gap is not a weakness – it is an opportunity. If decision-makers understand that people are ready for change and need the opportunity, then sustainability programmes will not be fighting an uphill battle but will be responding to an existing social need.

The value of the twinning network lies not in uniformity, but in diversity. Every town is different – with different characteristics, strengths, and challenges. That is precisely why they can learn from one another. Covasna can adapt the transport successes of the Wagrowiec model. Other towns can adopt Gyula's volunteer programmes. Zrenjanin's tourism experiences can inspire Miercurea Ciuc. Komárno's successes in renewable energy can serve as a model for Wagrowiec. This mutual learning is the essence of network cooperation.

The Local Green Deal is not a single document, but a process. This publication lays the intellectual foundations for this process – translating research findings into strategic directions, transforming local differences into opportunities for cooperation, and breaking down the shared vision into a concrete action plan. The next step lies with decision-makers and local communities: the research has done its job – now is the time for action.

The network model of the SUSCOMNET project also offers broader lessons for European town twinning partnerships. Experience shows that town twinning relationships become a genuine strategic tool when they go beyond the formal framework and result in concrete, measurable forms of cooperation. Joint research, regular thematic conferences, the publication of abstract booklets (with ISBNs), the systematic documentation of local best practices, and the joint development of a strategic framework – all these are elements of the SUSCOMNET model that can be adapted for other twinning networks.

Sustainability is not a project – sustainability is a state that must be achieved and maintained through continuous, conscious, community-based work. The SUSCOMNET project provided the impetus, knowledge base and strategic framework for this process. The task for the six cities now is to maintain this momentum, apply the knowledge and implement the strategy. The research findings provide a solid foundation for this – the data speaks for itself, the patterns are clear, and the directions have been set. The sustainability transition of small towns in Central Europe is not a utopia – it is a practical possibility, for the realisation of which the SUSCOMNET project has provided both the necessary knowledge and the framework for cooperation.



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