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Sociological Studies on the Social Infrastructure of Communities in the Sumy Region: A Geographical Perspective on Problems and Prospects for Sustainable Development in Wartime

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Abstract. Social infrastructure plays a key role in building sustainable and cohesive communities. A sociological survey of the local population is an effective tool for obtaining relevant information to make informed decisions on developing social infrastructure. The article aims to analyse the state of social infrastructure in Sumy region based on a sociological survey of residents and identify key problems of social infrastructure functioning and ways to solve them. The target audience was residents of Sumy region aged 18 and over. The survey is being conducted from 31 July to 31 August 2024 as part of the international research and education project 'Territory of Innovations: Best Practices for Sustainable Development at the Local Level' and the research project 'Organisational and Economic Support for post-war Sustainable Development of territories based on the infrastructure and service methodology for the development of innovative communities. The survey was conducted digitally using the Google Form tool. The questionnaire covered a wide range of issues related to key aspects of social infrastructure, such as healthcare, educational services, cultural institutions, communications and household services, trade services, and tourist services. The survey involved 109 residents from 22 communities representing all administrative districts of Sumy region, although most respondents were from Sumy district and Sumy city. The results of the sociological survey indicate significant problems in the development of the social sphere in Sumy region, which the hostilities have exacerbated. 67% of respondents consider the social infrastructure in their communities to be underdeveloped. The article discusses ways to improve the social infrastructure of Sumy region, including the modernisation of educational and medical institutions, effective management of housing and communal services, development of regional programmes with a focus on the needs of rural areas, and support for cultural and tourism initiatives. Based on the survey results, a roadmap for developing social infrastructure has been developed in line with the sustainable development goals. The survey highlights the needs of the population, inequality in access to services and development priorities, taking into account the specifics of the territories. The survey results can be used to formulate effective local policies to support social cohesion and strengthen communities.

Keywords: social infrastructure, Sumy region, sociological survey, state of development, communities, statistical analysis.

Соціологічні дослідження соціальної інфраструктури громад Сумської області: географічний вимір проблем і перспектив сталого розвитку в умовах війни

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Анотація. У статті проаналізовано стан соціальної інфраструктури територіальних громад Сумської області на основі соціологічного опитування. Соціальна інфраструктура, яка включає заклади освіти, охорони здоров'я, культури, що надають житлово-комунальні послуги, побутове і торговельне обслуговування, туристичні послуги є ключовим фактором формування стійких громад і забезпечення соціальної рівності. У межах дослідження проведено соціологічне опитування, яке охопило жителів територіальних громад різного соціально-демографічного складу. В опитуванні взяли участь 109 жителів з 22 територіальних громад, які репрезентують усі райони Сумської області. На основі опитування встановлено значну незадоволеність населення станом соціальної інфраструктури (67% опитаних вважають соціальну інфраструктуру у своїх громадах недостатньо розвиненою). Хоча 70,6% частково задоволені рівнем медичного обслуговування, основними проблемами залишаються нестача кваліфікованих кадрів, застаріле обладнання та байдужість персоналу. Освітні реформи,

пов'язані зі створенням опорних шкіл, отримали позитивну оцінку від 73,4% респондентів, але й значну критику через закриття шкіл у малих громадах. 62,4% респондентів незадоволені роботою ЖКГ. 74,3% респондентів задоволені якістю культурних послуг, однак понад 30% закладів культури потребують ремонту. Якість побутових послуг задовольняє 85,3% опитаних, але є проблеми з доступністю певних видів послуг, передусім, у малих громадах. Найбільшими проблемами визначено нерівномірний доступ до послуг у міських і сільських громадах, дефіцит кваліфікованих кадрів, застарілі технічні засоби та руйнування інфраструктури через воєнні дії. Більшість респондентів вважають, що для покращення якості життя необхідно модернізувати інфраструктуру, забезпечити рівномірний розподіл ресурсів і створити нові об'єкти, орієнтуючись на потреби місцевих громад. Розроблено дорожню карту розвитку соціальної інфраструктури з урахуванням цілей сталого розвитку. Окреслено найбільш важливі шляхи покращення соціальної інфраструктури регіону, а саме ремонт доріг, модернізація закладів соціальної інфраструктури на основі використання сучасних технологій, залучення інвестицій.

Ключові слова: соціальна інфраструктура, Сумська область, соціологічне опитування, стан розвитку, громади, статистичний аналіз.

Introduction

In the context of deteriorating socio-demographic situation, depopulation and growing social inequality, the study of social infrastructure is particularly relevant for ensuring the sustainable development of regions and individual communities. Social infrastructure, including educational, healthcare, cultural, consumer services, and other institutions, is key to forming sustainable and cohesive communities. Social infrastructure development is closely linked to achieving the Sustainable Development Goals (SDGs). Social infrastructure is a key element of sustainable development (What, 2024), as it ensures the achievement of many of its goals. In particular, it contributes to meeting the basic needs of the population through access to healthcare services (SDG 3 – Good health and well-being), quality education (SDG 4 – Quality education) and efficient housing and communal services (SDG 11 – Sustainable cities and communities). Ensuring equal access to these services helps to reduce social inequality and supports social cohesion and equity (SDGs 10 – Reduced inequalities). Job creation and economic growth are ensured by investments in social infrastructure (SDGs 8 – Decent work and economic growth), while the fight against climate change and the use of environmentally friendly technologies reduce the negative impact on the environment (SDGs 13 – Climate action). The availability of educational and cultural institutions contributes to the development of human potential and forms an active and conscious society capable of adapting to the challenges of today. In addition, social infrastructure is the basis for sustainable regional development, as it contributes to developing all its economic, social, and environmental aspects. Mechanisms that facilitate creating and maintaining community ties and mutual support improve the quality of life and contribute to financial stability, social capital and equality. These aspects are key to the long-term sustainability of communities. As Aldrich (2012) and Klinenberg (2018) noted, such connections are essential for recovery from natural disasters and economic shocks.

Unequal access to social infrastructure can exacerbate social and regional. Latham and Layton (2019) note that investing in social infrastructure reduces these inequalities and enables the efficient allocation of resources in communities.

M. Davern et al. (Davern, 2017) note that high-quality social infrastructure should be evenly distributed across territories. They confirm that communities with access to public spaces and services have higher health indicators, higher levels of education and social cohesion.

Social infrastructure contributes to forming social capital, the basis for community cohesion and their ability to adapt to sustainable development challenges, such as climate change or economic instability. It provides support in the context of social inclusion and plays a vital role in promoting economic growth and environmental sustainability. Integrating social infrastructure into the socioeconomic development plans of communities and regions can contribute to achieving the Sustainable Development Goals, particularly in poverty reduction, health improvement, and quality education. Therefore, the study of the level of development of social infrastructure in the frontline regions is relevant and necessary. Given the challenges faced by the communities of Sumy region during the war, it is essential to find out the actual state of social infrastructure based on a sociological survey of residents. Due to the destroyed social infrastructure, insufficient funding, and outflow of personnel, the basic needs of citizens in frontline communities are at risk. Studying the state of the social sector allows us to identify key problems and formulate proposals for attracting investors, partners and other resources for its restoration. Our research also contributes to developing development strategies that consider each community's specifics, increasing their resilience to future challenges. Studying the opinion of residents about the current state of social infrastructure is nec-

essary from many perspectives. First, it provides an opportunity to learn about the community's needs. Community residents are the primary users of social infrastructure, so they are the best judges of what works well and what needs to be improved. Their answers help identify weaknesses and key issues in developing social infrastructure. It is easy to understand which aspects require priority intervention (e.g., healthcare, education, etc.). Secondly, based on the processed material, it is possible to formulate effective and valuable solutions and adapt strategies to the specific needs of each community. Based on the survey results, avoiding resource misuse is possible. Third, it is the development of a strategic vision. For frontline communities, it is essential to consider the survey results when developing long-term development strategies that will improve social infrastructure, create comfortable living conditions, and attract investors, partners, and donors, focusing on the most pressing needs. Fourth, the survey involves the local population in the decision-making process. After all, when people see that their opinions are considered, trust in local authorities and organizations increases, and citizens are encouraged to participate actively in solving everyday problems. Fifth, because of the war, frontline communities are particularly affected by the destruction of infrastructure, and the survey will help determine the extent of the damage and establish which institutions or facilities need immediate restoration. Sixthly, identifying problems and developing solutions to them allows for providing basic needs, such as access to healthcare or education, which will improve the population's quality of life. Such measures reduce social tension, creating conditions for sustainable community development.

Thus, a sociological survey of community residents is an effective tool for obtaining relevant information that allows for informed decisions on developing social infrastructure. Considering citizens' opinions in this process makes it more transparent and increases the chances of successfully solving urgent problems. This is especially important for the recovery and development of frontline communities, which are crucial for the region's stability.

The article aims to analyse the state of social infrastructure in Sumy region based on a sociological survey of residents and identify key problems of social infrastructure functioning and ways to solve them.

Review of previous research. Many scholars have studied the role of social infrastructure in the national economy and quality of life. In the article by T. Fedotova (Fedotova, 2023), the author assessed the state of social infrastructure development in Ukraine and identified the vectors of its impact on the state of the labour sphere and the level of development of labour potential. The role of social infrastructure as a factor of sustainable development of the territory is described in the article by S. Iurchenko and O. Iurchenko (Iurchenko, 2022). Several publications are devoted to studying the state of social infrastructure based on surveys of local residents. The article by R. Zahnow (Zahnow, 2024) examines the relationship between social infrastructure, social cohesion, and subjective well-being. A survey of 1400 Australian residents was conducted to find out how social infrastructure facilities (parks, cafes, shops) affect people's sense of belonging, social cohesion, and wellbeing. The survey's main findings showed that respondents believe that social infrastructure is crucial in improving the quality of life and promoting social interaction and cohesion. The study provides an empirical basis for urban planning focused on strengthening social infrastructure as a key asset for public health and wellbeing. The paper by Y.-K. Kim (Kim, 2024) examines the role of social infrastructure in social exclusion within urban communities. Based on surveys of residents of South Korea, the authors found that developed social infrastructure reduces social isolation and improves the quality of life.

K. Saginov et al. (Saginov, 2024), based on the study of the relationship between the state of the urban ecosystem and the quality of infrastructure, establish the mental level of well-being of the residents of Astana. The study focuses on assessing ecological balance and urban ecosystem services in the context of sustainable development of urban agglomerations. The authors surveyed 425 residents of Astana, using the Warwick-Edinburgh Mental Well-Being Scale to measure mental well-being and the project-based technique of «mental maps». The survey covered all city administrative districts, making it possible to consider regional peculiarities. As a result, it was found that the population living in the city's central districts with a higher level of social infrastructure development has the highest level of mental health due to modern infrastructure, transport accessibility and cultural facilities. Peripheral areas have a lower level of infrastructure development, which leads to stress, feelings of isolation, and less satisfaction with ecosystem services. The article emphasizes that the sustainable development of urban agglomerations should consider the environmental conditions, social needs, and residents' satisfaction with infrastructure services.

In the research by O. Kornus et al. (Kornus, 2009), a sociological survey of the region's residents

was conducted to assess the state of functioning of the service sector in Sumy region and compare it with the level of needs of the population. The survey aimed to determine residents' satisfaction with the level of social services and develop recommendations for improving the service sector.

As part of the Estonian-Ukrainian research project «Development of Ukrainian frontline communities and tourism business in the context of war and strategies for the future», a survey was conducted among residents of frontline communities, including Sumy region, on the peculiarities of the development of Ukrainian frontline communities and tourism business in the context of war. Based on the survey of local residents, changes, threats, problems, opportunities, and prospects for developing tourism activities in the post-war and post-war period were identified (Rozvytok, 2023).

M. Craig-Scheckman et al. (Craig-Scheckman, 2024) study the awareness of social and green infrastructure in the United States and the factors that influence this knowledge. They emphasize the importance of these infrastructure forms for increasing communities' resilience to the effects of climate change and natural disasters. Analysis of the survey data from nearly 1,000 respondents (including 84 experts) revealed significant knowledge gaps between experts and the public. Only 23% of non-experts could correctly define the concept of «social infrastructure», while this figure was 86% among experts. The main factors that positively influence the level of knowledge are education and expertise, while demographic characteristics, social capital, and disaster experience did not show a significant impact. The authors emphasize that low levels of public awareness can hinder the effective implementation of social and green infrastructure projects and suggest introducing educational programs, integrating these concepts into the school curriculum, and intensifying public debate. This publication contributes to understanding the role of academic initiatives and the need to engage experts to raise public awareness of social and green infrastructure. The results of such studies allow for the development of educational programs and policies aimed at raising awareness, creating equal conditions for the community and improving its sustainability.

Thus, the analysis of scientific research shows that social infrastructure plays a key role in shaping a quality living environment, economic development, and social cohesion. It affects various aspects of citizens' lives, including labour potential, well-being, reduction of social exclusion, and resilience to crises. These aspects form the basis for further studying the impact of social infrastructure on the quality of life and sustainable development of communities.

Material and research methods

The methodology proposed by V. Omelyanenko was used to study the state of social infrastructure in Sumy region and allows us to study both general trends and local features, which provides a deep understanding of the issues under study. The methodology is based on the infrastructure and service approach proposed in previous studies (Omelyanenko, 2023), which aims to adapt the management of innovation communities to sustainable development challenges. This approach opens up opportunities for researching promising organizational and economic management mechanisms based on assessing the impact of changes in the state of the financial space and their consequences on the quality of life, living space, and human capital. The approach is based on the ideas of the geography of innovation and regional economy and studies the geographical (spatial) patterns of emergence, implementation and dissemination of new ideas, technologies, and products, as well as the impact of these processes on regional (local) development. The approach is based on the potential of the territories and is aimed at more intensive use of existing opportunities. The infrastructure and service approach to developing innovation communities implies an understanding that innovations encompass not only technological changes but also changes in organizational, labour, and social practices that can potentially affect the state of human capital in communities. From an applied perspective, using local resource-based approaches (Local Resource Based, LRB) (Local, 2020) is essential. LRB approaches optimize local resources, including labor and technology, and locally available materials, tools, and equipment from local suppliers throughout the project cycle from the planning stage to the implementation and maintenance of infrastructure. LRB approaches promote the involvement of relevant stakeholders: community residents, local service providers, small contractors, and local authorities. Participatory processes are ensured during consultations to enable vulnerable groups in the community, such as women, youth, people with disabilities, and older people, to have a voice in decision-making and to actively participate in the development process. Thus, by channelling infrastructure investment through local communities, LRB approaches create jobs and stimulate markets and economies by creating sustainable infrastructure assets.

In the context of this methodology, an analysis of available literature sources was first conducted, including statistical data and research on the socio-geographical features of the current state of social infrastructure in Sumy region (Empowering, 2024). This stage allowed us to form a clear picture of the current state of the infrastructure and identify existing knowledge gaps. Particular attention was paid to the impact of administrative-territorial reform and military operations on the social sphere of communities.

The second stage involved the development of a questionnaire tool for data collection. The questionnaire covers a wide range of issues related to key aspects of social infrastructure, such as healthcare, educational services, cultural institutions, communications and household services, trade services, and tourism services. The questionnaire includes both closed questions for quantitative analysis and open-ended questions to collect qualitative information about the needs and suggestions of respondents. The purpose of the survey is to find out the opinion of the region's residents about the social sphere's development level in Sumy region, including the current state and main problems. The target audience was residents of Sumy region aged 18 and older. The survey was conducted from 31 July to 31 August 2024, as part of the international research and education project «Territory of innovations: best practices for sustainable development at the local level» and the research project «Organizational and economic support for post-war sustainable development of territories based on the infrastructure and service methodology for the development of innovative communities».

To ensure the representativeness of the data, a simple random sampling procedure was applied, which involves selecting a subset of individuals or elements from a larger population so that each person or element, in our case, different types of settlements (cities, villages, towns) and different socio-demographic groups (age, gender, occupation), has an equal chance of being included in the sample. The survey was conducted digitally using the Google Form Tool.

The following are the main areas of research:

1. The level of satisfaction with medical care, accessibility of medical facilities and the impact of medical reform.
2. The condition and accessibility of educational institutions, the quality of educational services, and the consequences of reforming the educational system.
3. Assessment of the quality of housing and communal services.
4. Accessibility of cultural services, the state of cultural institutions and their impact on community life.
5. Development of tourism and other types of social services.
6. Consequences of military operations for social infrastructure.

The collected data was analyzed qualitatively and quantitatively using statistical analysis methods. Statistical analysis allows us to identify key trends, compare the situation in different communities, and identify the most critical aspects. For this purpose, we used descriptive statistics, comparative analysis, and regression modelling. The survey results were processed using Microsoft Excel 2010 and SPSS Statistics V21.0. Qualitative analysis provides a deeper understanding of respondents' opinions and expectations. Thematic analysis of open-ended responses allows us to identify the main problems and needs that are not always reflected in quantitative data.

The triangulation method was used to increase the reliability of the results. The data collected during the surveys are compared with official statistics and supplemented by expert interviews with local government representatives, NGOs, and businesses. This allows us to verify the accuracy of the findings and formulate practical recommendations tailored to the specifics of each community.

Results and discussion

A sociological survey was conducted to assess the level of development of social infrastructure among the residents of communities in Sumy region. A total of 109 residents representing 22 territorial communities from all administrative districts participated in the survey, with the majority coming from the Sumy district and Sumy city (Fig. 1). In terms of communities, the majority (53.2%) of respondents were from Sumy territorial community; 7.3% – from Romny city community; 4.6% – from Shostka city community; 4.6% – from Velyka Pysarivka rural community. 3.7% of respondents were from Putivl' city, Okhtyrka city, and Lebedyn city communities. 2.8% of respondents from Nedryhayliv rural community, 1.8% from Krolevets city, Konotop city, Buryn' city and Boromlya village communities. 0.9% of respondents from Yampol' rural, Chernechchyna village, Khotyn' village, Stepanivka rural, Synivka village, Svesa rural, Mykolaivka rural, Lypova Dolyna rural, Kyrykivka rural and Dubovyazivka rural communities.

76.2% of the respondents covered by the survey live in cities, with 11.9% each from rural areas and urban-type settlements. The gender distribution showed

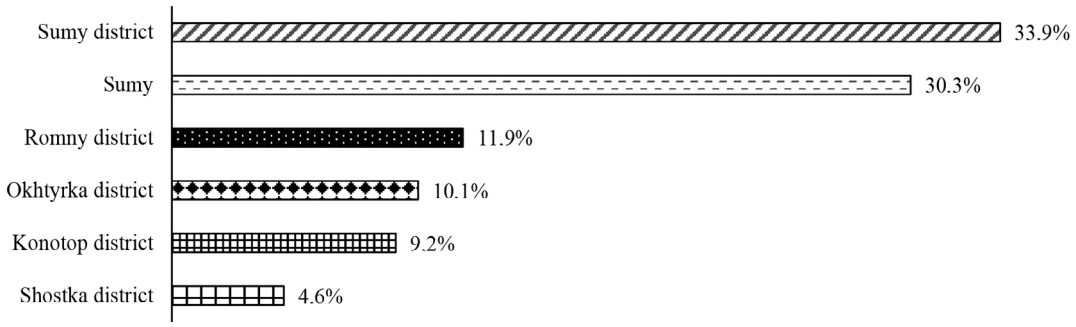

Fig. 1. Distribution of respondents by administrative units of Sumy region

a significant predominance of women (79.8%), while men accounted for 20.2%. The largest age group included individuals aged 35–59 (57.8%), followed by 18–34 (37.6%), and only 4.6% of respondents were aged 60 or older.

The analysis of the respondents' professional employment showed that representatives of the education and science sector predominate among the respondents (58.7%). Other sectors are represented in much smaller numbers: 9.2% are business representatives, 4.6% are cultural workers, and 4.6% are unemployed. A small share of the sample comprised representatives of the following areas of activity: 3.7% – youth policy, 1.8% – pensioners, 1.8% – agricultural workers. Each region accounted for 0.9%: banking, humanitarian activities, social work, medicine, law enforcement, call center operators, tourism, and pharmaceuticals.

The sample of respondents represents mainly the urban population, middle-aged women, a significant proportion of whom are employed in education and science. This distribution indicates the vital role of educators in the socio-economic environment and the prevalence of the active working-age population among the respondents. At the same time, the low share of youth policy, culture, and business representatives may indicate the need to involve these groups in such studies to ensure greater social representativeness.

The survey results identified substantial dissatisfaction with the state of social infrastructure in the region. A significant majority (67%) of respondents rated the social infrastructure in their communities as underdeveloped, while only 24.8% were satisfied, and 8.3% stated that it was not developed at all. These results indicate a general dissatisfaction of residents with the level of social infrastructure development, which points to the need to improve it, including education, healthcare, cultural and social facilities.

The state of road infrastructure remains a critical issue, with 79.8% of respondents deeming road quality unsatisfactory. Only 11.9% expressed satisfaction. Similarly, the road infrastructure was perceived as needing significant improvement, with 54.1% of respondents suggesting urgent modernization. These findings underscore the persistent challenges related to road maintenance, traffic safety, and infrastructure development in the Sumy region.

The sociological survey aimed to determine residents' opinions regarding the availability and quality of medical services in the communities of Sumy region. The majority of respondents (57.8%) indicated that there are medical facilities in their locality, such as hospitals, outpatient clinics (20.8%), doctor's offices (12.6%), or paramedic and obstetric stations (6.3%). At the same time, only 1.9% reported having all the necessary medical facilities, and 0.6% of respondents have access to municipal non-profit enterprises of Primary Health Care Centers (PHC). Most of the population of communities has access to medical facilities, but only a small proportion uses the full range of medical services.

When asked how long it takes to get to a healthcare facility, the answers were as follows: 30.6% of respondents can reach the facility within 15 minutes on foot, 25.5% – within 30 minutes on foot, 20.3% – within 15 minutes by car. Less accessible options include: 8.3% – more than 30 minutes on foot, 6% – up to 30 minutes by car, 0.8% of respondents each use a bicycle, need more than 30 minutes by car, or spend 1 hour on the road. This indicates that most residents have satisfactory accessibility to healthcare facilities, but a specific part of the population faces difficulties due to the length of the route. A significant proportion of respondents can reach healthcare facilities on foot or by car within 30 minutes, a positive indicator.

The survey results showed that 70.6% of respondents are partially satisfied with the level of medical care, 21.1% expressed satisfaction with the quality of services, and 8.3% remain dissatisfied. Among the main reasons for dissatisfaction with medical services, respondents noted: insufficient number of

qualified personnel – 20.7%; reduction of medical staff – 13.8%; indifference and unfriendliness of medical staff – 13.8% each; outdated equipment – 13.8%; closure of medical departments – 10.3%; difficulties with making an appointment with a doctor and corruption – 6.9% each. These factors indicate that the medical sector's problems are systemic and personal. Although most respondents are partially satisfied with the level of service, there are serious systemic problems related to staffing, equipment, and organization of medical services.

The questionnaire included whether residents have difficulty getting to medical facilities. Most respondents (75.2%) indicated no problems getting to medical facilities. However, 13.8% noted that public transportation is irregular, and 9.2% stated it is unavailable. Other issues include poor road conditions (0.9%) and dependence on the time of day (0.9%).

When asked about the level of satisfaction with the healthcare reform, 65.1% of respondents expressed support for its implementation, 32.1% were dissatisfied, and another 2.8% said they were partially satisfied with the reform. Although most respondents are optimistic about the reform, certain population groups point out its shortcomings, which require further analysis and identification of ways to improve. Among the main shortcomings of the healthcare reform mentioned by the respondents were corruption, difficulties with making an appointment with a doctor, closure of medical departments, outdated equipment, and problems related to the human factor, such as unfriendly attitude and indifference of medical staff. In addition, survey participants noted the reduction of medical staff and the lack of qualified personnel, significantly affecting the quality of medical care.

It is necessary to ensure adequate staffing and improve the qualifications of medical personnel to improve healthcare services; modernize the equipment and infrastructure of medical facilities; improve the organization of access to medical services, including doctors' work schedules and transportation; and continue to improve healthcare reform, taking into account the needs of communities. These measures will help improve medical care and meet the population's healthcare needs.

The sociological survey also included an analysis of the state of education in the communities of Sumy region. The survey found that the following educational institutions operate in the communities: general secondary education – 22.2%; preschool education – 21.4%; above – 19.8%; vocational education – 15.3%; higher education – 6%. At the same time, 1.2% of respondents indicated no educational institutions in their settlements.

Most respondents (78.0%) are satisfied with the quality of educational services in their communities. Another 3.7% expressed partial satisfaction. However, 17.4% of respondents remain dissatisfied, and 0.9% found it difficult to assess. The main reasons for dissatisfaction were as follows: distance learning, which has hurt the quality of education; insufficient number of teachers and qualified personnel; teachers' indifference to students' progress and the large number of children in classes; outdated teaching methods and equipment in schools; low salaries of teachers, which does not encourage them to develop professionally; and excessive demands on teachers, which distract them from the primary learning process.

Regarding the accessibility of educational institutions, most respondents (75.4%) have no problems getting to educational institutions. Among those who use school buses, 7.0% of respondents were. However, some of the population faces difficulties, including irregular public transport – 8.8%; lack of public transport – 7.9%; poor road surface – 0.9%. The absence of educational institutions in certain settlements of the communities indicates inequality in access to educational services. Although most respondents do not have problems with transportation, transportation infrastructure in some communities remains problematic due to irregular public transportation and poor road conditions.

When asked to evaluate the education reform, 73.4% of respondents positively assessed the creation of hub schools. Only 0.9% expressed partial satisfaction, while 19.3% of respondents were dissatisfied, and 6.4% were undecided. Although most respondents supported establishing support schools, public authorities must advance reform to ensure equal access to education, especially in remote communities, and address human and organizational challenges.

The shortcomings of the education reform include untimely implementation of the reform by local authorities, job cuts and lack of professional management personnel, closure of educational institutions in some settlements, violation of equal access to education, especially for children living in remote villages (sometimes they have to travel up to 30 km to a hub school), inadequate quality of shelters in schools, which is relevant in the current environment, lack of gradual implementation of the reform.

The respondents named the following as recommendations for improving the state of education: to expand the range of educational services in communities by providing access to vocational and higher ed-

ucation institutions; to solve staffing problems, modernize educational equipment and introduce modern teaching methods; to improve transport links between settlements to ensure access to education; to implement educational reforms gradually, with the involvement of specialists and taking into account the needs of communities. The study results indicate the need for a comprehensive approach to improving the educational sector in communities to ensure quality, accessible and modern education for all region residents.

The study of the state of social infrastructure in the communities of Sumy region included the establishment of residents' opinions on the work of housing and communal services. Respondents rated their satisfaction with the work of the housing and communal services as follows: 32.1% were satisfied, 3.7% were partially satisfied, 62.4% were dissatisfied, and 1.8% hesitated to answer. Among the main reasons for dissatisfaction, residents named long response times of housing offices to calls (29.9%), difficulties in dealing with housing and communal services (26.8%), irregular garbage collection (16.5%), lack of garbage cans (14.2%), frequent water supply interruptions (7.9%). These indicate significant problems in housing and communal services, which require the attention of both authorities and service providers. Many respondents are not satisfied with the work of housing and communal services due to several organizational and infrastructure problems. Local governments must introduce an adequate system of responding to citizens' appeals and optimize waste management.

The purpose of the sociological survey was also to determine the population's satisfaction with the quality of communication. Among the types of communication, residents of the communities most often use mobile communication (56.8%), Nova Poshta services (28.6%) and Ukrposhta services (14.6%). The surveyed questionnaires showed that 75.2% of respondents are satisfied with the quality of communication services, 2.8% are partially satisfied and 22% are dissatisfied. These responses indicate a relatively high level of satisfaction, although some dissatisfied respondents (22%) indicate the need to improve the communication infrastructure.

The state of trade services in the communities of Sumy region is defined as satisfactory. 89% of respondents said they were satisfied with trade services, 2.8% were partially satisfied, and 8.2% were dissatisfied. Respondents mentioned inflated prices, low employee culture, irresponsibility, and staff indifference among the main reasons for dissatisfaction. These aspects require attention to improving service standards and professional training.

One item in the questionnaire was to determine the level of development of these establishments' catering infrastructure and services. When asked about the availability of catering facilities, 94.9% indicated that such facilities were available, while 5.1% indicated that they were not. Among the types of establishments, the most common are cafes (42.2%), restaurants (31.4%), canteens (24.7%), bistros (1.3%), and all types of establishments (0.4%). Regarding the level of service in food establishments, 87% of respondents generally are satisfied with the service; 2.8% are partially satisfied; 4.6% are dissatisfied; 5.6% do not use these services.

Based on the survey results, the retail and catering sectors are performing well, though improvements in service culture remain necessary.

The analysis of the survey data showed that 42.5% of settlements have all types of consumer service facilities, while 5.2% of respondents reported a complete absence of such facilities in their area. The overall public satisfaction with household services remains high: 85.3% of respondents rated them positively, 2.8% were partially satisfied, 10.1% expressed dissatisfaction, and 1.8% said they did not use such services. Although public facilities in most settlements meet the needs of citizens, some regions face a shortage of these services, which indicates the need to expand and modernize them to ensure accessibility throughout the territory.

From the list of cultural institutions available in the locality where the respondents live, the respondents mentioned: library (22.7%); music school (21.3%); museum (20.9%); house of culture (20.6%); theater (13.2%); cinemas (0.2%); public organization related to the field of culture (0.2%); art school (0.2%) and all of the above (0.2%). 0.2% of respondents said there are no cultural institutions in their settlements. At the same time, 54.1% of respondents indicated that the condition of cultural institutions is satisfactory, 34.9% indicated that cultural institutions need repair, 10.1% of respondents consider the condition of cultural institutions unsatisfactory, and 0.9% stated that there are no cultural institutions. The results of the sociological survey of residents of the communities of Sumy region demonstrate a generally high level of satisfaction with the quality of cultural services in the region. In particular, 74.3% of respondents are satisfied with the services provided, 1.8% are partially satisfied, 22.9% expressed dissatisfaction with their quality, and 0.9% do not use such services. Among the most popular types of cultural events provided by local cultural institutions, respondents mentioned concerts (25.6%), performances (19.4%), fairs (15%),

and festivals (3.1%), while 33.8% mentioned all of these services. At the same time, there are problems in the field of cultural services: 2.5% of respondents indicated that cultural institutions in their community are temporarily closed, and 0.6% reported that the local club is in disrepair. These results emphasize the need to modernize cultural infrastructure to ensure access to quality cultural services.

The questionnaire included a study of the level of tourism development in the communities. The results of the sociological survey showed that 50.9% of respondents indicated that their community provides tourism services. In comparison, 33.3% indicated that such services are not offered, and 15.8% did not have information about this. Among the types of tourism developed in the communities, the most common were organising various tourist events (24.1%) and excursions, including sightseeing and thematic ones (20.7%). The development of rural (green) tourism (8.6%), hiking (urban) and recreational tourism (6.9% each), ecotourism (6.9%), health and wellness (5.2%), and water (kayaking and rafting) tourism (5.2%) was also noted. Other types of tourism, such as educational and event tourism, were mentioned by less than 3.4% of respondents. Tourism services in communities are characterized by considerable diversity. Still, the survey results indicate the need to raise residents' awareness about community tourism opportunities and develop less popular tourist destinations to expand their potential and attractiveness.

The sociological survey was also aimed at determining the losses of social infrastructure in Sumy region's settlements due to the hostilities. According to the survey, almost half of the respondents – 46.9% – reported damage to key social facilities in their settlements, indicating the need for restoration. 44.5% said that social infrastructure facilities were not damaged, 7.8% of respondents have no information on this issue, and 0.8% assessed the damage as partial. The results show a significant level of destruction and the need to restore and develop key social facilities. Among the most common responses about the destruction of social infrastructure facilities are educational institutions (schools, colleges, colleges, the State Lyceum-Boarding

School with enhanced military and physical training «Cadet Corps» named after I. H. Kharitonenko). Kharitonenko, kindergartens, a centre for aesthetic education), medical facilities (hospitals, blood transfusion station), energy and housing infrastructure, cultural facilities (libraries, museums, houses of culture) and other facilities (service stations, gas stations, children's camps), post offices (Nova Poshta, Ukrposhta). Most facilities have been damaged and must be repaired or completely rebuilt. Some of the population is unaware of the state of the infrastructure, which may indicate insufficient communication between local authorities and citizens.

The respondents also expressed their vision for developing social infrastructure by opening new facilities. Among the most popular were clubs for children, rehabilitation centres, hairdressing salons, youth spaces, youth centres, leisure facilities for young people, facilities for pensioners and single people, and a club for older people. According to respondents, local governments need to develop the following types of services in their settlements: psychological assistance to children and adults, support for vulnerable categories of the population (displaced persons, persons with disabilities, victims of hostilities), tourist services, green tourism, etc. All the services already available in the community also need to be developed. The study results demonstrate the urgent need to address social infrastructure problems in war-affected communities. The issue of providing access to psychological assistance to the war-affected population is an acute one. There is insufficient coverage of services for children, youth and older people. The diversity and severity of the damage emphasize the need for comprehensive efforts to restore infrastructure.

Considering the survey results, we can propose a roadmap for the development of social infrastructure in Sumy region based on the data obtained from the sociological survey and considering sustainable development goals (Table 1). To develop the roadmap, we divided the measures into shortterm (up to 1 year), medium-term (1-3 years) and long-term (3-5 years).

Conclusions

The results of the sociological survey indicate significant problems in the development of the social sphere in Sumy region, which the hostilities have exacerbated. 67% of respondents consider the social infrastructure in their communities to be underdeveloped. Although 70.6% are partially satisfied with the level of medical care, the main problems remain the lack of qualified personnel, outdated equipment, and staff indifference. Educational reforms related to the creation of hub schools were positively assessed by 73.4% of respondents, but there is a significant amount of criticism due to the closure of schools in small communities. 62.4% of respondents are dissatisfied with the work of housing and communal services, with the main problems being irregular garbage collection, long delays in responding to citizens' re-

Table 1. Roadmap for the development of social infrastructure in Sumy region

Sustainable Development Goals	Short-term measures (up to 1 year)	Medium-term measures (1-3 years)	Long-term measures (3-5 years)
Ensuring access to basic services (Goal 1 No poverty, Goal 3 Good health and well-being, Goal 4 Quality education)	Identify the communities with the most significant medical, educational, cultural, and household services deficit. Establish transportation links to ensure accessibility of existing services. Provide funding to restore damaged social infrastructure.	Modernize equipment in medical and educational institutions. Develop training and retraining programs for the social sector. Ensure quality planning and construction of new facilities in underserved communities.	Develop new medical, educational, and cultural institutions into a strategic plan for the region's development. Create mechanisms for continuous monitoring of the quality of services in communities.
Reducing social and territorial inequalities (Goal 10 Reduced inequalities, Goal 11 Sustainable cities and communities)	Analyze the inequality in access to social infrastructure between urban and rural communities. Create targeted programs to support rural areas and frontline communities.	Introduce mobile services (medical, educational, cultural) for remote communities. Stimulate the development of business and social entrepreneurship to create new jobs.	Develop a system of subsidies to ensure equal access to services for vulnerable groups. Create a strategy for the integrated development of cities and villages that considers the needs of different social groups.
Developing social capital and strengthening community cohesion (Goal 11 Sustainable cities and communities)	Involve citizens in discussing priorities for social infrastructure development. Conduct information campaigns on the importance of social infrastructure for community cohesion.	Create multifunctional cultural and educational centers that unite communities. Organize social events for different groups (youth, pensioners, internally displaced persons).	Develop long-term social cohesion strategies that include the development of an inclusive society. Invest in the creation of modern public spaces and parks for social interaction.
Supporting environmental sustainability (Goal 11 Sustainable cities and communities, Goal 17 Partnerships for the goals)	Conduct an environmental audit of social infrastructure (energy saving, environmentally friendly materials). Involve local communities in environmental initiatives related to social infrastructure.	Develop standards for environmentally sustainable construction of new facilities. Introduce programs for energy saving and implementation of green technologies.	Expand the use of renewable energy sources in social infrastructure facilities. Integrate environmental practices into all aspects of infrastructure development.
Leveraging resources and partnerships for development (Goal 17 Partnerships for the goals)	Develop a plan to attract funding from donors, international organizations, and state funds. Organize partnerships with civil society organizations and businesses to restore social infrastructure	Create regional innovation hubs to coordinate social infrastructure development initiatives. Introduce grant programs for communities focused on solving urgent problems.	Introduce mechanisms of public and private partnership to support social infrastructure. Develop research programs to create new innovative models of social infrastructure.

quests, and frequent water outages. 74.3% of respondents are satisfied with the quality of services provided by cultural institutions, but more than 30% need to be repaired. The quality of household services satisfies 85.3% of respondents, but there are problems with the availability of certain types of services in small communities. The study showed that tourist services in communities are characterized by considerable diversity, but there is a need to raise awareness among residents about the tourist opportunities in communities and develop less popular destinations, which will help expand their potential and attractiveness.

Recommendations for improving the social infrastructure of Sumy region include the development of medical and educational infrastructure with a focus on training and modernization of institutions, ensuring effective management of housing and communal services, improving the quality of utilities and introducing modern technologies, developing regional programs for the development of social infrastructure with a focus on the needs of rural areas, and implementing measures to support cultural and tourism initiatives that can stimulate the local economy. Implementing the proposed measures will help improve the population's living conditions and gradually stabilize the socio-economic situation.

A sociological survey of the population is a valuable tool for collecting data on the population's needs

and expectations and assessing the effectiveness of social infrastructure. It allows us to determine which aspects of social infrastructure are most important to the local population (education, housing and utilities, healthcare, consumer services, cultural institutions, tourism, etc.). Such surveys allow us to assess the degree of inequality in access to social infrastructure facilities, which contributes to the development of equitable policies and helps optimize investments. Surveys allow for the specifics of different territories to be considered, as urban and rural communities may have different needs and priorities. It should be noted that social infrastructure must be adapted to the demographic and geographical characteristics of the community. At the same time, there are real prospects for improving the situation through resource mobilization, effective management, and coordination of efforts by the community, authorities, and partners. The survey results make it possible to create a roadmap for developing social infrastructure, considering sustainable development goals. The survey results will help develop effective management solutions to improve social infrastructure, formulate proposals for the modernization of institutions and services, and identify priority areas of development that consider all stakeholders' interests. They help prioritize investments in social infrastructure, contributing to the uniform development of communities that can adapt to modern challenges. The study of this topic contributes to forming a new vision of regional development focused on people and their needs. It will improve the population's quality of life and contribute to the sustainable development of communities.

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