Post-conflict revival of tourism: Sustainable models for communities and regions in Ukraine

Tetiana Tymoshenko[a] ✉ | Yuriia Opanashchuk[a] | Kristina Yurchenko[a] | Inna Illiashenko[a] |
Oksana Bogoslavets[a]

[a]Department of Regional Studies and Tourism, Kyiv National Economic University named after Vadym Hetman, Kyiv, Ukraine.

Abstract The armed invasion of Ukraine by Russia has caused significant damage to infrastructure, the economy, and the socio-political sphere, including tourism. Tourism recovery is currently a relevant and practically important problem, particularly in the prospective aspect of the post-war recovery of Ukraine. This study examines the post-war recovery of the tourism sector in communities and regions of Ukraine, using the Kyiv region as an example. It identifies the extent of damages and their negative impact on the sustainable development of the territory. Additionally, the study determines the needs of participants in tourist destinations. The research analysed the impact of various factors on the stability of tourism development. The aim was to develop recommendations and advice for restoring balance and developing tourist destinations. The study identifies systematic trends in the recovery of sustainable tourism development and unifies strategic tasks for tourism development at the community level. The need to optimise the motivational policy of local government bodies is justified by the developed methodology for assessing the vulnerability of tourist destinations due to military aggression. The research results showed that the Kyiv region suffered damage unevenly, requiring a targeted approach and proposals based on the current state and needs. Models for post-war tourism recovery have been developed, considering the extent and nature of damages and the dynamics of tourism activity indicators. These models can be effectively applied in community-based practical activities.

Keywords: tourism industry, domestic tourism, full-scale invasion, innovative concept of marketing, concept of strategic development, "green" entrepreneurship in tourism

1. Introduction

The impact of the state of war on Ukrainian tourism has been profound, especially in terms of international travel. Due to full-scale military actions, flights were widely cancelled, and insurance companies refused to cover risks. People feared for their safety and left Ukraine in large numbers, resulting in significant population migration beyond its borders.

The Kyiv region and Kyiv city suffered significant destruction, especially during the invasion. Following the invasion, certain restrictions were imposed on designated tourist routes, including a ban on visiting forests and green areas outside residential areas and staying at tourist locations near the borders, including those with Belarus.

From September 2023 to January 2024, Uppsala University supported a research project to develop a crisis management model for tourist destinations focusing on stakeholder engagement. The project was implemented amidst the war, which became a driving force for the tourism industry, causing significant economic, financial, energy, and food market disruptions and leading to inflation worldwide. Therefore, tourism recovery in the Kyiv region, particularly in the post-war period, is a relevant and promising topic in today's conditions.

The research aimed to analyse the extent of damages and their negative impact on the sustainable development of the territory, as well as to identify the needs of participants in tourist destinations. The chosen negative impact factor was the consequences of Russian military aggression in Ukraine, specifically in the Kyiv region.

Several contemporary authors, including notable members of the academic community such as Motsa et al. (2022), as well as Zarubina and Demchuk (2022), have explored the conceptual foundations of post-war recovery in the national tourism sector. Scholars have established that the tourism industry has suffered significant damage as a result of the Russian-Ukrainian war, both within Ukraine and beyond its borders. Specific promising directions for post-war regeneration of the national tourism sector have been identified through research. These include the development of educational businesses, medical facilities, and green tourism (Niziaieva et al., 2023).

Contemporary studies (Sira et al., 2022) aim to identify the specifics of activity in the tourism sector, considering the dynamics of socio-economic transformations during periods of crisis and political phenomena. It is particularly relevant for Ukraine during martial law and subsequent recovery.

The research conducted by Rojik and Nedzvecjka (2022) and Nosyrjev et al. (2022) highlights the potential for post-war recovery of the tourism sector in Ukraine. The year 2022, amidst the full-scale Russian invasion, is considered a crucial test for

the industry. However, scientists suggest that significant reconstruction of the corresponding infrastructure is necessary to achieve effective post-war regeneration of national tourism. They also propose motivating the development of domestic tourism, which will ensure the successful progress of the tourism business under proper institutional support.

Some scientists (Xu et al., 2020; Roxas et al., 2020) propose a methodology for assessing the scale of damages and the level of their negative impact on indicators of the effectiveness of the implementation of the concept of sustainable development in tourism. In addition, a number of researchers (Chenavaz et al., 2022; Lee and Xue, 2020) identify the current and actual needs of participants in tourist destinations. Some scientists (León-Gómez et al., 2021; Hysa et al., 2021) analyzed the influence of various factors on the stability of the development of tourism in the post-crisis period of regeneration.

Hall (2021), Ivars-Baidal et al. (2023), Higgins-Desbiolles (2020) work on the development of recommendations for ensuring the balanced development of tourist destinations. The cited scientists identified the systemic trends of sustainable development of tourism, and also synergized the priority strategic goals of the development of the tourism sphere at the community level.

The results of research by Rasoolimanesh et al. (2023), Scott (2021), Streimikiene et al. (2021) convincingly testify that crisis socio-political phenomena cause damage unevenly, which requires, in turn, a targeted approach to optimization based on the assessment of the current state and priority needs. At the same time, individual scientists (Meanwhile, Khan et al., 2020) have developed post-crisis tourism recovery models that take into account the dynamics of tourism activity indicators, the duration and extent of damage, and their nature. Such models can be effectively applied in practical activities at the community level in the process of post-war recovery of tourism in Ukraine.

2. Methods

The research methodology is based on a range of scientific and specialised cognition methods, including abstract-logical and structural analysis, synthesis, concretisation, induction, deduction, and theoretical modelling. A comprehensive systemic approach was applied during the research, allowing the object of study to be examined as a system in the aggregate of interrelations and interdependencies.

Various methods of analysis were used to identify the factors that influence the development of the studied object, its defining functional elements, and transformational possibilities regarding contemporary management strategies. Prognostic analysis was implemented using induction to determine the expected effectiveness of applying developed models for optimising the tourism sector during the post-war recovery period. The conceptual foundations of the integrity of the management paradigm in tourism were formed through abstraction. The synthesis method was performed to formulate priority directions for optimising the tourism management paradigm by leveraging probabilistic modelling capabilities in conditions of uncertainty and crisis phenomena.

A unified research methodology for assessing the level of damage is necessary. It will enable stakeholders in the development of tourism in the Kyiv region and other regions of the country to use it in the future.

A methodology for assessing the vulnerability of tourist destinations due to military aggression was developed, and models for post-war tourism recovery were formed. This methodology aims to analyse the extent and nature of the damage, identify systemic trends regarding the restoration of sustainable tourism development, and unify strategic tasks for tourism development at the community level. Additionally, it aims to enhance the motivation of local self-government bodies.

The proposed methodology enables determining the extent of damage to objects and analysing the resulting negative socio-economic consequences for the respective territory. It aids in identifying the most effective methods and tools for restoring the balance of tourism development in the region, considering the readiness and disposition of local authorities and other stakeholders.

3. Results and Discussion

Crisis phenomena in the tourism infrastructure indicate the need to optimise the management paradigm in the industry, establish priorities and main principles of activity in the tourism sector, and implement effective regulatory, information, economic and management mechanisms for regenerating tourism as a significant component of the Ukrainian economy (Pletsan et al., 2023). Under martial law, the development and state of the tourism industry is affected by:

1. Reduction of international tourist flows caused by suspending flights to Ukraine.
2. Destruction of tourist infrastructure: hotel and restaurant complexes, museums, historical, cultural, recreational, and resort facilities.
3. Restriction of tourist information.
4. Lack of investment in tourism services.
5. Lack of an automated system for recording statistical data on the provision of tourism services.

In the course of the scientific research, a methodology was developed based on a system-component approach to assessing qualitative indicators and provides for the following comprehensive stages (Abiltarova et al., 2022):

Stage I. Conduct a survey of representatives of the Kyiv region communities to determine the damage caused, the nature of the socio-economic consequences of Russian aggression, and the readiness to restore the hospitality sector and overcome the crisis.

Stage II. Analyse the survey results and developing proposals for models to restore the hospitality sector in the region.

Stage III. Evaluate the world practice of anti-crisis tourism management and implementing it for post-war tourism recovery in Kyiv region communities.

Stage IV. Conduct focus group discussions (public report) on the research results with the involvement of local government representatives responsible for tourism development, stakeholders, and industry experts.

During the project's first stage, a survey of representatives of Kyiv region communities was conducted in September-October 2023. Representatives of the tourism development departments of the executive committees of local councils of 22 territorial communities of the Kyiv region took part in the survey (two communities submitted two responses simultaneously).

It was proposed to assess the damage caused to tourist destinations in the Kyiv region by three groups of indicators that will form an aggregate indicator for assessing the level of vulnerability of a tourist destination as a result of military aggression: Group A indicators: the level of damage caused by Russian aggression; Group B indicators: the nature of socio-economic consequences for the territory; Group C indicators: the level of readiness to recover and overcome the consequences of the crisis (Kulikov et al., 2023).

The study used quantitative and qualitative research methods to form conclusions for each indicator group. Quantitative methods were based on statistical and research data, while qualitative methods relied on expert opinions and focus group studies. Due to limited access to statistical information and ongoing military actions in Ukrainian territories, qualitative methods such as surveys, focus group techniques, rapid assessment by discussion participants, integration of expert assessments, and the method of integrated assessment were utilised in this research stage (Bayev et al., 2023).

To determine the indicator of group "A": the level of damage caused by Russian aggression, the following indicators were relied upon: Indicator A1: the extent of infrastructure damage; Indicator A2: the extent of damage to historical and cultural heritage sites; Indicator A3: the extent of damage to tourist infrastructure; Indicator A4: the extent of environmental damage; Indicator A5: the level of dissatisfaction (discomfort) among community residents caused by the damage; Indicator A6: the level of dissatisfaction (discomfort) among hospitality industry entrepreneurs in the region caused by the damage; Indicator A7: the level of dissatisfaction (discomfort) among tourists (visitors to the region) caused by the damage.

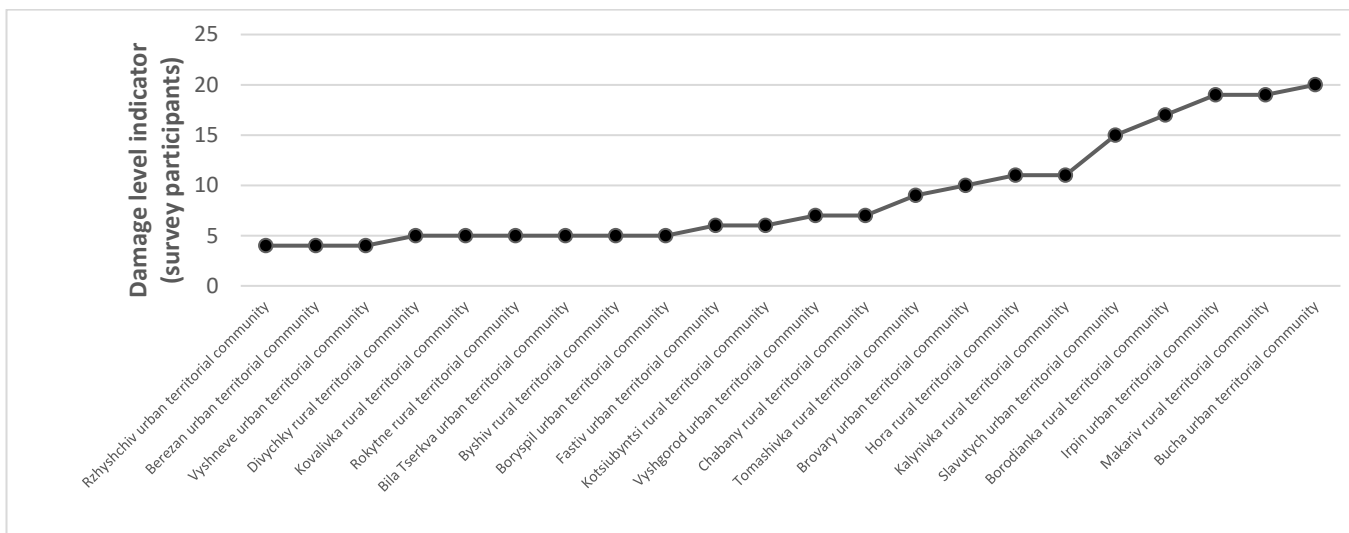The data analysis results are presented in Figure 1, which ranks the communities from least to most affected.

Figure 1 Damage caused by Russian Aggression.

The analysis of the information resulted in the formation of an aggregate indicator of the level of damage in the communities of the Kyiv region. The indicator is divided into four categories: minimal damage (4-7 points), minor damage (8-11 points), medium damage (12-16 points), and significant damage (17-21 points).

Indicators for Group "B": The impact of military actions on socio-economic development indicators for communities, including their effect on tourism development, is demonstrated by the nature of the socio-economic consequences for the territory. The analysis of these indicators aims to determine the level of socio-economic consequences for the hospitality sector. Indicator B1 shows changes in tourist flow to the destination. Indicator B2 indicates changes in the number of actively operating hospitality businesses. Indicator B3 tracks the dynamics of staff reduction in hospitality businesses. Indicators B4 and B5 are aggregate indicators of employment of internally displaced persons in the hospitality sector. Indicator B6 measures the number of relocated hospitality businesses.

The data analysis results are presented in Figure 2, ranking communities from least to most affected.
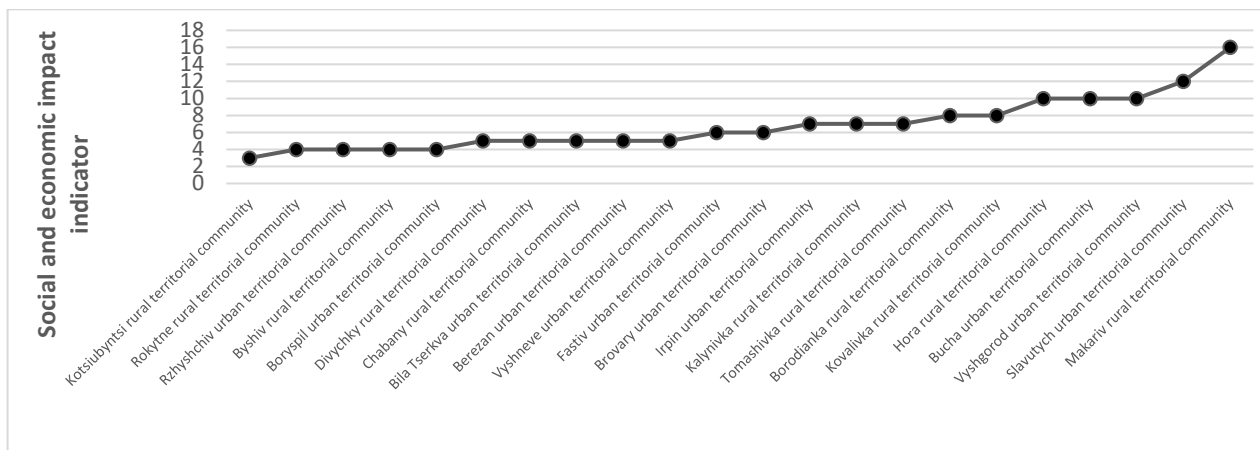

Figure 2 Nature of Social and Economic Impacts on Kyiv Region.

The analysis of the information received in response to the questions of the second block of the questionnaire resulted in the formation of an aggregate indicator of the level of negative impact on the indicators of socio-economic development of the communities of Kyiv region that took part in the survey. The study categorises the results into four groups based on the score obtained. A score of 0-4 points indicates minimal impact on the indicators of socio-economic development, while a score of 5-8 points indicates a minor impact. A score of 9-12 points reflects a medium impact, and a score of 13-17 demonstrates a significant negative impact.

Indicators of group "C": The readiness level for recovery and overcoming crisis consequences demonstrates the starting positions of communities regarding their readiness for recovery and overcoming crisis consequences. During the study, indicators were identified: Indicator C1: designation of tourism as a strategic priority for the community; Indicator C2: involvement of stakeholders in discussing crisis response measures; and Indicator C3: communication effectiveness at horizontal and vertical levels.

The results of this analysis are presented in Figure 3, which ranks communities from those demonstrating the lowest level of readiness to those with a high level of readiness for recovery and overcoming crisis consequences.
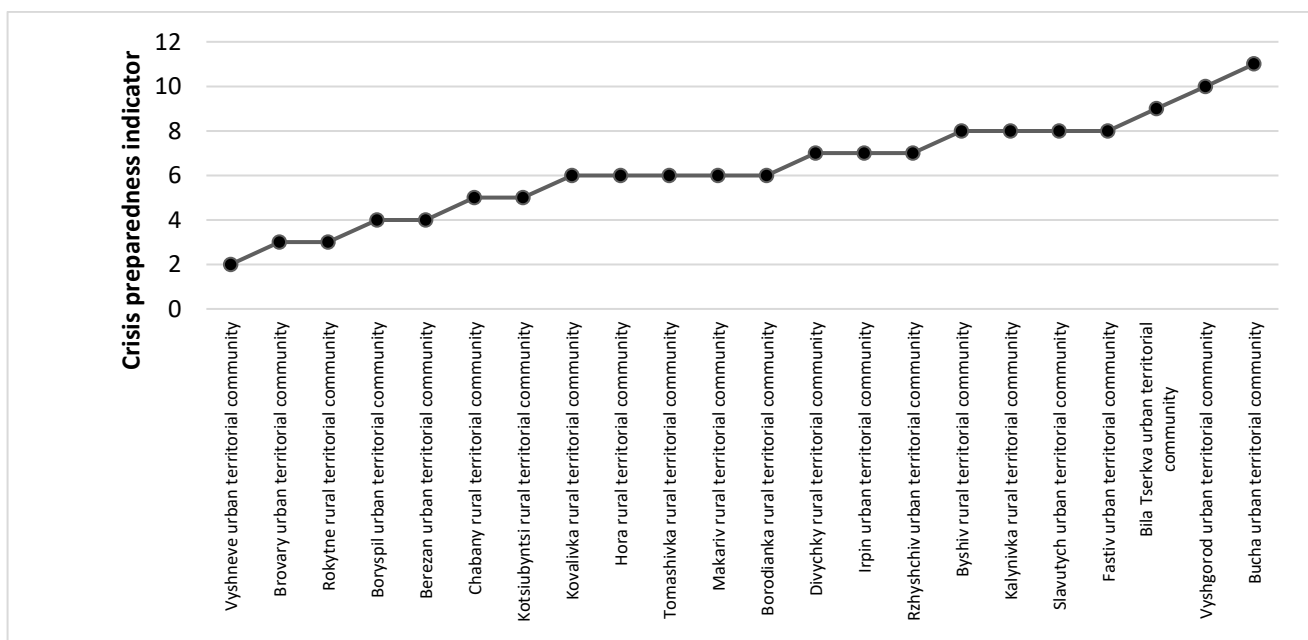

Figure 3 Readiness to Recover and Overcome Crisis Consequences.

An aggregate indicator of the readiness level of the Kyiv region communities that participated in the survey to recover and overcome the consequences of the crisis was formed based on the analysis of the information received in response to the questions in the third block of the questionnaire. The results are classified into four categories based on the score: 1-3 points indicate the minimum level of readiness, 4-7 points demonstrate a low level of readiness, 8-10 points show an average level of

readiness, and 11-12 points reveal a high level of readiness. The analysis of vulnerability indicators in communities in the Kyiv region revealed systemic characteristics of tourist destinations. These characteristics formed the basis for the territory assessment matrix, which considers the extent and nature of damage to infrastructure and tourist facilities, environmental impact, level of dissatisfaction among residents, entrepreneurs, and tourists, as well as the dynamics of tourist flow and business activity in the hospitality sector (Table 1).

Table 1 Systemic Characteristics of Tourist Destinations as a result of Russian Aggression.

	Areas with significant damage to the tourism sector	Areas of moderate tourism impact
Integral indicator	more than 25 points	15-25 points
Criteria	1) Significant damage to infrastructure and tourist facilities 2) High level of environmental pollution 3) High level of dissatisfaction among residents, entrepreneurs, and tourists (visitors) 4) Significant reduction in tourist flow 5) Significant deterioration in business activity in the hospitality sector	1) Moderate level of damage to infrastructure and tourist facilities 2) Moderate level of environmental pollution 3) Moderate level of dissatisfaction among residents, entrepreneurs, and tourists (visitors) 4) Moderate reduction in tourist flow 5) Moderate deterioration in business activity in the hospitality sector
	Areas with minor damage to tourism	Protected areas of tourism
Integral indicator	10-15 points	up to 10 points
Criteria	1) Low level of damage to infrastructure and tourist facilities 2) Low level of environmental pollution 3) Low level of dissatisfaction among residents, entrepreneurs, and tourists (visitors) 4) Insignificant reduction in tourist flow 5) Slight deterioration in business activity in the hospitality sector	1) No damage to infrastructure and tourist facilities 2) No environmental pollution 3) Low level of dissatisfaction among residents, entrepreneurs, and tourists (visitors) 4) The volume of tourist flow has not changed or is growing 5) The level of business activity in the hospitality sector has stayed the same or is increasing.

Based on the systematisation of the data obtained, Kyiv region communities that took part in the survey were divided into categories based on the level and nature of damage and the dynamics of tourism development indicators (Table 2).

Table 2 Matrix for Assessing the Territory Affected by Russian Aggression in the Tourism Sector.

	Areas with significant damage to the tourism sector	Areas of moderate tourism impact
Integral indicator	more than 25 points	15-25 points
Kyiv region communities	Makariv community (35) Bucha community (30) Slavutych community (27) Irpin community (26) Borodianka community (25)	Tomashivka community (16) Brovary community (16) Vyshgorod community (17) Kalynivka community (18) Hora community (21)
	Areas with minor damage to tourism	Protected areas of tourism
Integral indicator	10-15 points	up to 10 points
Kyiv region communities	Divychky community (10) Bila Tserkva community (10) Fastiv community (12) Chabany community (13) Kovalivka community (13)	Rzhyshchiv community (8) Rokytne community (9) Vyshneve community (9) Berezan community (9) Byshiv community (9) Boryspil community (9) Kotsiubyntsi community (9)

For each of the categories, an action plan for the restoration of tourism under four different scenarios is proposed, considering international experience and modern concepts and models of tourism development (Streimikiene et al., 2021; Rasoolimanesh et al., 2023). Based on the study results, the Kyiv region has suffered damage unevenly and, therefore, requires a targeted approach and the development of proposals based on the current situation and needs.

To this end, we propose an action plan for the restoration of the affected areas of Kyiv region under four different scenarios, considering the level and nature of damage and the dynamics of tourism development indicators:

1)   Recovery model (Figure 4)

Initial data: infrastructure is significantly damaged, historical and cultural heritage sites have been affected; the territory is restricted for visits due to mining and/or contaminated by the remains of military facilities; business activity in the hospitality sector has significantly decreased with significant problems in the labour market (Higgins-Desbiolles, 2020; Scott, 2021).
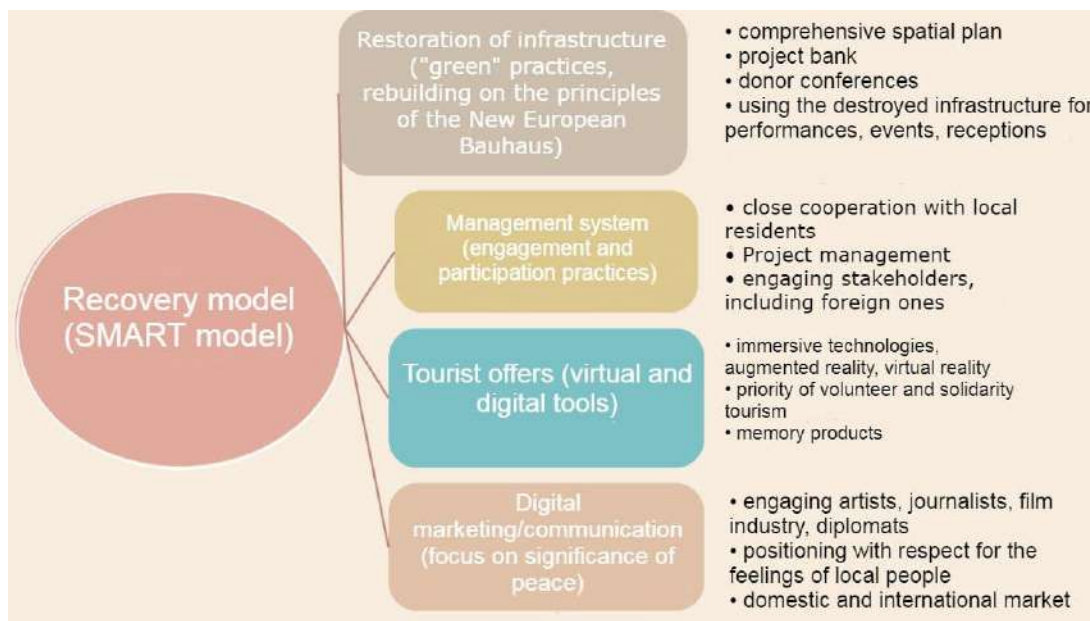

Figure 4 Recovery model parameters.
Source: Higgins-Desbiolles (2020); Scott (2021)

2)   Enhanced tourism recovery model (Figure 5)

Initial data: average level of damage to infrastructure and historical and cultural heritage sites; moderate environmental damage; tourist flows partially preserved; business activity capable of rapid recovery (Ivars-Baidal et al., 2023; Font et al., 2023).
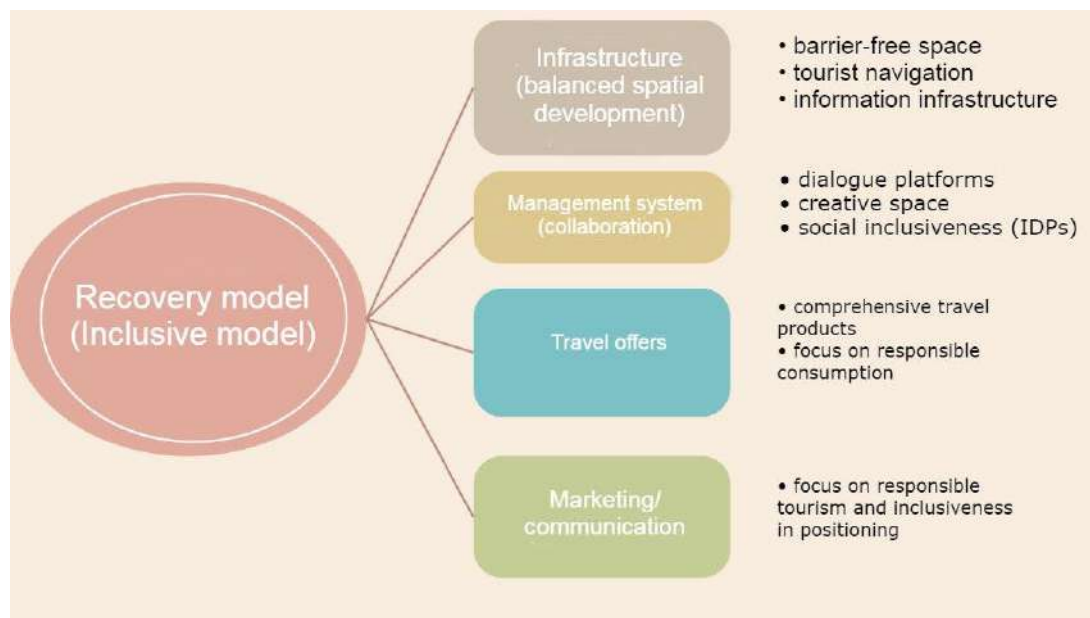

Figure 5 Enhanced tourism recovery model parameters.
Source: Ivars-Baidal et al. (2023); Font et al. (2023)

3)   Regional growth poles through tourism development – a cluster model (Figure 6)

Initial data: infrastructure has not suffered critical damage; environmental damage is negligible; tourist flows have remained at pre-war levels and have the potential to grow; business activity has been maintained (Roxas, 2020; Sharpley, 2020).
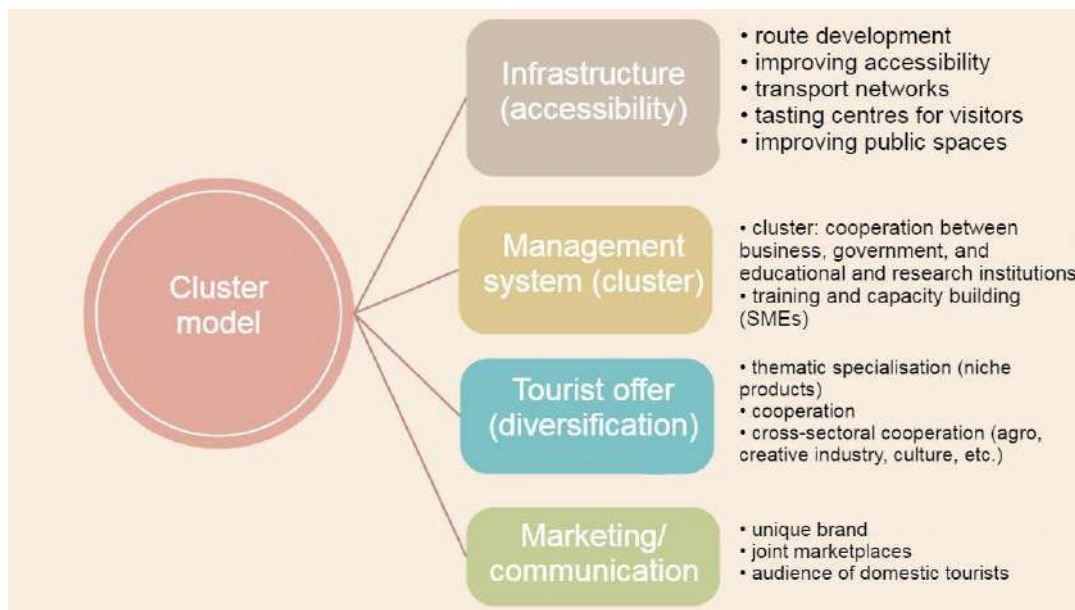
Figure 6 Cluster Model Parameters.
Source: Roxas, (2020); Sharpley (2020)

4) Sustainable tourism development model (Figure 7)

Initial data: the infrastructure is not damaged; the state of the environment is satisfactory; business activity is capable of growth; tourism offers are diversified (Hall, 2021; Font et al., 2021).

Figure 7 Sustainability Model Parameters.
Source: (Hall, 2021; Font et al., 2021)

Thus, the models introduced will enable phased post-war recovery of sustainable tourism in communities. They consider the level and nature of damage and the dynamics of tourism development indicators (Lee and Xue, 2020).

The transformation of the tourism sector in uncertain conditions requires dynamic approaches to forming management decisions. According to some scholars (León-Gómez et al., 2021), this is achieved through effective adaptation of market entities to the instability of the economic environment. Scholars argue that identifying influencing factors for probabilistic modelling should be based on classical risk management methodology. This methodology considers the probability characteristics and their impact level and should be updated regularly.

According to recent research by Hysa et al. (2021), adapting the traditional tourism management paradigm through process modelling is a crucial element in making precise and efficient management decisions for optimising the industry in post-war recovery conditions. Scholars argue that the most effective way to assess the effectiveness of management decisions is through modelling processes in the modern innovative field, using digital optimisation tools.

Xu et al. (2020) highlight the importance of the methodological foundation of sustainable tourism and the need to pre-develop a plan of prospective measures. They suggest modelling can be an effective analytical tool for coordinated management and successfully adapting optimisation measures.

Based on the research findings mentioned above, contemporary scholars (Chenavaz et al., 2022) have outlined the fundamental requirements for modelling to mitigate the impact of destructive factors on sustainable tourism development during times of crisis. Meanwhile, Khan et al. (2020) emphasise the importance of aligning sustainable tourism, economic viability, and environmental safety during socio-economic instability.

These conceptual principles are crucial for improving the crisis environment of tourism. However, research on modelling tourism development in post-war Ukraine towards sustainable development and circular economy is limited in practical applications. It is essential to explore this issue further to promote sustainable tourism development in Ukraine. Most studies focus on theoretical aspects and describing modelling algorithms. Prospects for future research involve developing a practical managerial toolkit for decision-making in unstable economic environments. It can be achieved by digitising probabilistic modelling processes and using artificial intelligence tools. Doing so would enable the identification of the maximum tourist potential and implementing an individualised approach to its development (Kvasnii et al., 2023).

The concept of regenerating and transforming the national tourism sector during the post-war reconstruction period involves creating a sustainable complex within effective tourism management. It includes strategic guidelines for expanding tourism infrastructure within the country and optimising the industry through digital means (Nosyrjev et al., 2022). Additionally, tourism development should consider three vectors: tourism direction, investment project activities, and local specificity.

4. Conclusion

The study examines the potential for post-war development of the tourism sector in Ukraine's communities and regions within the sustainable development framework, specifically in the Kyiv region. It assesses the extent of damage caused, its negative impact on the territory's sustainable development, and the needs of tourist destination participants.

By analysing the volume and nature of the damage, we identified systemic trends in restoring sustainable tourism development. We objectively evaluated these trends and unified strategic tasks for tourism development at the community level. It has enhanced the motivation of local self-government bodies. A methodology was developed to assess the vulnerability of tourist destinations to military aggression. Models for post-war tourism recovery were also formulated.

In summary, the survey of community representatives in the Kyiv region has determined the damage caused by Russian aggression and the readiness to restore the hospitality sector and overcome the crisis. The survey results have been analysed, and proposals for hospitality sector recovery models for the region have been formulated. The study found that the Kyiv region suffered damage unevenly and, therefore, requires a targeted approach and the development of proposals based on the current state and needs. To this end, four models of post-war sustainable tourism recovery in communities were introduced, considering the level and nature of the damage and the dynamics of tourism development indicators: the recovery model, the enhanced tourism recovery model, regional growth poles through tourism development - the cluster model, and the sustainable tourism model.

Ethical considerations

Not applicable.

Conflict of Interest

The authors declare no conflicts of interest.

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