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ARTICLE

Reframing Sustainable Tourism in Crisis-Affected Destinations: Strategic Communication, Digital Memory, and Destination Recovery in Ukraine

Liudmyla Bovsh [1*] **, *Alla Rasulova*** [1] **, *Larysa Hopkalo*** [2]

[1] *Department of Hotel and Restaurant Business Management, Faculty of Technology and Business, State University of Trade and Economics, Kyiv 02156, Ukraine*

[2] *Department of Hotel and Restaurant Business and Tourism, National University of Life and Environmental Sciences of Ukraine, Kyiv 03041, Ukraine*

ABSTRACT

Global environmental crises, armed conflicts, and large-scale infrastructure disruptions increasingly challenge the foundations of sustainable tourism, particularly in destinations experiencing prolonged instability and environmental loss. This study examines how sustainable tourism can be reconfigured in crisis-affected destinations, using Ukraine as an empirical case. The aim of the study is to explore how strategic communication, community engagement, and digital memory practices contribute to the recovery of tourism destinations affected by environmental degradation and limited physical accessibility. The research is based on a qualitative design, combining semi-structured expert interviews (N = 15), thematic analysis, and secondary data analysis. The findings demonstrate that environmental degradation in crisis contexts operates as a systemic destabilizing factor affecting not only ecological conditions but also institutional capacity, destination identity, and tourist trust. In such conditions, recovery cannot be reduced to physical restoration alone. Instead, community-based eco-revitalization, strategic communication, and digital memory emerge as key mechanisms supporting the continuity of tourism functions and the reconstruction of destination narratives. The study conceptualizes digital memory as a socio-cultural process that enables the preservation and reinterpretation of tourism destinations under conditions of

*CORRESPONDING AUTHOR:

Liudmyla Bovsh, Department of Hotel and Restaurant Business Management, Faculty of Technology and Business, State University of Trade and Economics, Kyiv 02156, Ukraine; Email: l.bovsh@knute.edu.ua

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disruption. It further highlights the role of stakeholders as communicative agents in sustaining trust and coordinating recovery processes The results contribute to the development of adaptive models of sustainable tourism and offer practical insights for managing tourism in crisis-affected and post-conflict destinations.

Keywords: Crisis-Affected Destinations; Sustainable Tourism; Strategic Communication; Digital Memory; Community Engagement; Destination Resilience

1. Introduction

Today, society faces many challenges that have led to a global, multidimensional crisis. For example, environmental and artificial disasters, pandemics, and armed conflicts cause large-scale destruction of the environment and infrastructure. Their negative impact is increasingly changing the antecedents under which sustainable tourism can exist and develop. Therefore, traditional models, largely built on stability, conservation planning, and the long-term development of tourism destinations, are unable to respond adequately to critical situations when ecosystems are destroyed, access to destinations is limited, and local communities experience uncertainty and instability. As a result, the processes of coordination, communication, and interaction in tourism destinations require new approaches that go beyond recovery as a purely physical or economic process and instead address long-term environmental sustainability.

Recent research in sustainable tourism has expanded to include topics such as climate change adaptation, community-based tourism, destination resilience, and technological innovation. However, most existing research continues to focus on locations facing environmental challenges or post-crisis recovery in relatively stable institutional settings. Much less attention has been paid to regions affected by active armed conflict and ecocide, where ecological losses are accompanied by fragmentation of collective memory and public perceptions, symbolic destruction of heritage, and temporary or permanent loss of physical tourist attractions.

To better situate the study within broader theoretical frameworks, this research is positioned at the intersection of tourism geography, destination resilience, and heritage management. Within tourism geography, crisis-affected destinations can be understood as spaces undergoing spatial fragmentation, functional disruption, and reconfiguration of tourism flows. The concept of destination resilience provides a framework for interpreting how tourism systems adapt to environmental shocks, institutional instability, and prolonged uncertainty. At the same time, heritage management perspectives emphasize the role of both natural and cultural assets as carriers of identity, memory, and symbolic value, which become particularly vulnerable under conditions of conflict and ecological degradation. Integrating these perspectives allows for a more comprehensive understanding of how tourism destinations can be reconfigured when their material, functional, and symbolic foundations are simultaneously disrupted.

A critical case study for advancing this discussion is Ukraine. Since 2022, large areas of the country have suffered significant environmental degradation as a result of war, including the loss of protected natural areas, biodiversity degradation, and large-scale ecological damage following the destruction of the Kakhovka hydroelectric power station. Southern regions, including Kherson and Zaporizhzhia, and adjacent coastal ecosystems, which were previously important tourist destinations and natural monuments, have been severely affected. These events challenge traditional assumptions about the sustainability, visibility, and continuity of tourist destinations, raising urgent questions about how strategic communications, public narratives, and digital technologies can contribute to their recovery when physical recovery is delayed or impossible.

An equally important yet often overlooked dimension of destination recovery in conflict-affected regions is the preservation of cultural heritage. Beyond physical reconstruction, post-crisis recovery involves restoring collective memory, reinforcing local identity, and rebuilding the social fabric disrupted by war and environmental destruction. Cultural heritage sites, traditions, and symbolic landscapes function as anchors of belonging and continuity, supporting psychological resilience and community cohesion. International legal frameworks emphasize this role. In particular, the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict[1] recognizes cultural heritage safeguarding as a shared responsibility of the in-

ternational community and a foundation for post-conflict societal recovery. Protecting cultural assets is therefore not solely a conservation imperative but also a strategic instrument for strengthening identity and restoring a collective sense of belonging. Integrating cultural heritage preservation into sustainable tourism recovery enhances the socio-cultural foundations of destination resilience.

In view of this, the study aims to explore how sustainable tourism practices and strategic communication can contribute to the recovery of tourism destinations affected by crisis. In this study, digital memory is conceptualized not merely as a technological solution, but as a process of preserving and reconstructing the symbolic and narrative dimensions of tourism destinations under conditions of disruption. Using the Ukrainian case, the article examines the role of communicative and digital mechanisms in preserving ecological and cultural heritage, maintaining destination identity, and sustaining public trust under conditions of limited access and environmental loss. It is argued that sustainable tourism recovery in war-affected contexts requires innovative management approaches that integrate environmental restoration with communication, digital memory practices, and community engagement. The findings suggest that eco-revitalization of territories, implemented through collaborative initiatives of tourism stakeholders and local communities, performs not only restorative but also communicative and identity-forming functions.

The proposed approach provides a viable basis for rethinking sustainable tourism and developing adaptive models of interaction in tourist destinations in a prolonged state of crisis uncertainty, with an emphasis on communication, co-creation, and the preservation of tourist identity.

2. Materials and Methods

2.1. Research Area

Ukraine (22°08′–40°13′ E, 44°23′–52°22′ N) is located in Eastern Europe. It is one of the largest countries in the region with an area of about 603,700 km^2 (**Figure 1**). The country borders Poland, Slovakia, Hungary, Romania, and Moldova to the west and southwest, and has access to the Black and Azov Seas, which creates significant recreational and tourist potential for coastal areas. The landscape of Ukraine is characterized by plains, steppe ecosystems, river basins (particularly the Dnieper and the Southern Bug), and mountain systems, including the Carpathians and the Crimean Mountains.

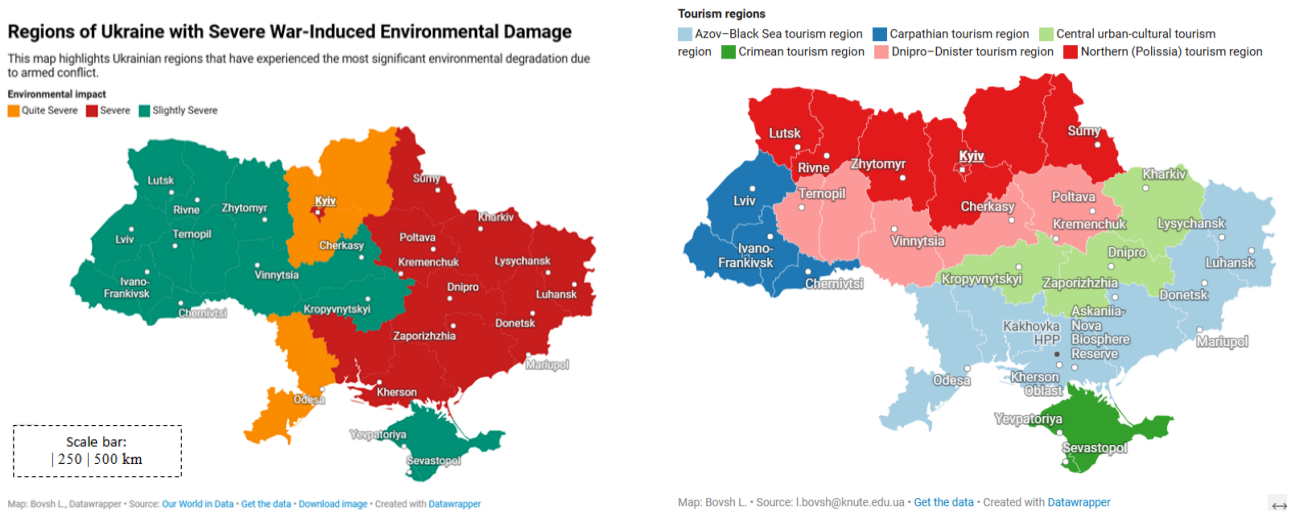

Figure 1. Presentation map of the study area.

Source: https://www.datawrapper.de/_/rtV5V/?v=2; https://www.datawrapper.de/_/ZxVPO/?v=2.

The climate of Ukraine is predominantly temperate continental, with an average annual temperature of around 7–9 °C and an average annual rainfall ranging from 300 mm in the southern steppe regions to over 1,200 mm in the mountainous areas. This natural diversity provides the basis for the development of various forms of sustainable tourism, including ecotourism, rural, coastal, and nature-based tourism.

Ukraine's natural capital—from mountain forests and river valleys to steppe reserves and marine ecosystems—positions the country as a potential leader in Eastern European eco-tourism. Of particular ecological value are the southern steppe territories and wetlands, in particular the Askania-Nova Biosphere Reserve, as well as the coastal zones of the Black and Azov Seas. At the same time, large hydrological systems, such as the Lower Dnieper Basin, play a key role in supporting ecosystem services, agricultural production, and the region's tourist attractiveness.

Since the beginning of the full-scale war (since 2022), these territories have experienced significant environmental stress, manifested in the degradation of aquatic and terrestrial ecosystems, loss of biodiversity, disruption of natural landscapes, and the functioning of infrastructure systems. Protected natural areas, coastal ecosystems, and regions dependent on the stable operation of energy and water management infrastructure have been particularly vulnerable. In addition to direct environmental losses, disruptions in energy supply have a significant impact on the state of the environment and the functioning of sustainable tourism systems, limiting the capacity for environmental monitoring, natural resource management, and the provision of tourism services. Taken together, these processes form a complex spatial and ecological context within which sustainable tourism faces systemic challenges and requires new approaches to recovery and adaptation.

2.2. Research Design

This study adopts an interpretive qualitative research design aimed at exploring how strategic communication, digital memory practices, and community engagement contribute to the recovery of tourism destinations affected by environmental and social crises. Ukraine was selected as an empirical case due to large-scale war-induced ecological degradation, destruction of tourism infrastructure, and prolonged limitations in physical access to affected territories.

The research design integrates three qualitative components:

- Semi-structured expert interviews;
- Qualitative content analysis;
- Secondary source analysis for contextual triangulation.

Such a design enables an in-depth understanding of complex socio-ecological processes and stakeholder experiences in crisis-affected destinations.

2.3. Collection of Empirical Data

2.3.1. Sampling Strategy

A purposive sampling strategy was employed to recruit participants possessing direct professional or practical experience in crisis-affected tourism destinations. Respondents were selected according to the following inclusion criteria:

- Professional involvement in tourism management, environmental initiatives, community governance, or digital heritage projects;
- Direct experience working with destinations affected by war-related environmental degradation;
- Active participation in recovery, communication, or preservation initiatives.

Exclusion criteria included individuals without professional engagement in tourism or crisis-recovery contexts.

The final expert sample consisted of N = 15 participants and represented the following stakeholder groups:

- Local community leaders and municipal authorities;
- Tourism professionals (destination managers, small and medium-sized enterprises, communication specialists);
- Researchers and practitioners in digital heritage and environmental restoration;
- Representatives of NGOs and community initiatives.

The purposive sampling strategy applied in this study is consistent with established qualitative research approaches, where the emphasis is placed on the depth, relevance, and contextual richness of participants' expertise rather than on statistical representativeness [2, 3]. In this context, purposive sampling enables the selection of information-rich cases that provide the greatest analytical value.

In studies of rural and crisis-affected destinations, the use of relatively small yet highly qualified expert groups is methodologically appropriate. Such contexts are characterized by limited data availability, restricted physical access, and the need to interpret complex, locally embedded processes. Therefore, expert-based approaches relying on context-specific knowledge are particularly relevant.

The expert panel (N = 15) was sufficient to achieve analytical depth and data saturation, which was confirmed during the final stage of data collection, when no substantially new insights emerged. This approach aligns with contemporary qualitative research practices in tourism studies, destination management, and sustainable development.

2.3.2. Interview Procedure

Semi-structured interviews were conducted in 2025 in an online format due to security restrictions and limited physical access to territories.

Each interview lasted approximately 60–90 min, was audio-recorded with participant consent, and subsequently transcribed verbatim.

The interview protocol included thematic blocks addressing:

- Environmental impacts on tourism systems;
- Community-based recovery practices;
- Communication strategies in crisis conditions;
- Digital tools for preserving destination identity;
- Risks and limitations of recovery without physical access.

2.3.3. Data Saturation

Data collection continued until thematic saturation was reached—the point at which additional interviews no longer generated new conceptual insights or thematic categories. Saturation was observed during the final stage of fieldwork, as recurring patterns and consistent expert perspectives emerged across stakeholder groups.

2.3.4. Secondary Materials and Data Sources

In addition to interviews, the study used:

- Scientific publications on sustainable tourism, destination recovery, crisis communications, and digital memory;
- Materials from international organizations, professional tourism associations, and environmental initiatives;
- Open digital resources (online archives, virtual tours, digital memory platforms, community communication campaigns).

All materials used are open and available for review. Links to sources are provided in the bibliography.

2.4. Data Analysis

The analytical procedure was informed by established qualitative research frameworks, particularly thematic analysis and the principles of trustworthiness in interpretive research.

To ensure methodological transparency, a qualitative evaluation scale for assessing the level of tourism function loss in selected eco-attractions was developed through an inductive coding process [4]. The analysis followed a multi-stage procedure. First, primary empirical material was collected through semi-structured expert interviews and supported by secondary source analysis. Second, open coding was applied to identify recurring analytical patterns related to the condition, accessibility, and tourism functionality of eco-attractions under crisis conditions. At this stage, initial codes (e.g., physical destruction, functional inaccessibility, symbolic loss, environmental degradation) were generated directly from the data without predefined categories.

At the next stage, axial coding was used to group these initial codes into broader analytical categories reflecting different types of losses (physical, functional, and symbolic) and their implications for tourism systems. Selective coding then enabled the integration of these categories into higher-order analytical constructs and the construction of a coherent evaluative framework aligned with the research objectives.

The qualitative evaluation scale was derived from the frequency, intensity, and co-occurrence of coded analytical categories across expert responses. Frequency reflects how often a category appeared, while intensity captures the depth and emphasis attributed to it by respondents. The co-occurrence of categories enabled the identification of complex patterns of loss. These dimensions were systematically interpreted and translated into a four-level qualitative scale of tourism function loss (limited, moderate, severe, critical), reflecting varying degrees of disruption in the tourism role of eco-attractions under crisis conditions.

This approach is consistent with established qualitative research traditions, particularly thematic analysis frameworks and interpretive methodologies widely used in tourism and social science research [5–7]. The analysis followed a multi-stage coding procedure (open, axial, and selective coding) conducted inductively to ensure that findings emerged from the data. To enhance analytical rigor and trustworthiness, the study adhered to established qualitative criteria,

including credibility, dependability, confirmability, and interpretive consistency.

The findings are presented in a qualitative interpretive format, avoiding quantitative aggregation in order to maintain consistency with the research design. Secondary source analysis was used to contextualize the empirical findings and to align them with contemporary research in sustainable tourism.

2.5. Ethical Aspects of Research

The study did not involve interventions or experiments involving humans. All interviews were conducted voluntarily, with informed consent and respondent anonymity. Names, specific locations, and sensitive information are not disclosed for security reasons. The study complies with generally accepted ethical principles in the social sciences and humanities.

2.6. Data Availability

Anonymized interviews, coding schemes, and summarized analytical materials may be provided upon request for research purposes. Access restrictions are related to security considerations and respondent protection. All other materials are based on open sources.

2.7. Study Limitations

The study has several objective limitations due to war conditions. Physical access to occupied territories and zones of active hostilities is absent or significantly limited, particularly in certain areas of the Zaporizhia, Mykolaiv, and Kherson regions, the Autonomous Republic of Crimea, as well as in Donetsk, Luhansk, and, to a lesser extent, Dnipropetrovsk regions. Limited access also applies to the border areas with Russia in Chernihiv, Sumy, and Poltava regions. A significant number of settlements in these regions have been completely or partially destroyed, which makes field research and direct observation impossible. In addition to demographic losses, these territories face large-scale environmental consequences, including the degradation of natural landscapes, the loss of protected areas, and long-term risks to ecosystems. In this regard, the study relies on remote methods, digital sources, and expert testimony, which is a reasonable approach in the context of crisis destinations.

3. Results

3.1. Environmental Degradation as a Disruptor of Sustainable Tourism Systems

In the scientific literature, sustainable tourism is traditionally viewed as a system based on the balanced use of natural resources, the preservation of ecosystems, and the long-term ability of tourist destinations to maintain economic, social, and ecological balance[8, 9]. However, in the context of large-scale environmental destruction, these basic assumptions are vulnerable. Let us consider the key antecedents of eco-degradation and the prospects for sustainable tourism.

Thus, the causes of environmental degradation in crisis destinations are complex and include both natural and anthropogenic factors. Armed conflicts, accidental incidents, and the destruction of hydrotechnical and energy infrastructure lead to the loss of biodiversity, the degradation of landscapes, the pollution of soils and water resources, and the destruction of protected areas[10, 11]. Unlike gradual environmental changes, these processes are sudden and large-scale, making it impossible to apply standard tools for sustainable development planning.

In turn, the consequences of environmental degradation for tourism go beyond the physical loss of natural attractions. The destruction of ecosystems disrupts tourism value chains, reduces the attractiveness of destinations, erodes trust among potential visitors, and reduces local communities' participation in tourism activities[12]. In such conditions, sustainable tourism ceases to serve as a tool for long-term development and becomes a field that requires crisis management and adaptation.

In addition, environmental degradation affects the symbolic and identification dimension of tourist destinations. Natural landscapes, protected areas, and ecosystems are not only resources, but also elements of collective memory and local identity that shape the image of a place as a tourist destination[13]. Their loss or damage creates a gap between the destination's experience and its current state, complicating the communication of sustainability and prospects for recovery.

It is worth noting that one of the least studied but critically important dimensions of environmental degradation

in crisis destinations is its impact on the institutional and information infrastructure that underpins the functioning of sustainable tourism[14, 15]. In stable conditions, environmental data, spatial planning systems, protected area monitoring and visitor management form the empirical basis for sustainable tourism governance[16]. In war conditions, these information flows are disrupted or fragmented along with physical infrastructure, forming so-called environmental and management "blind spots". In addition, the loss or unavailability of data on the condition of soils, water resources, landscapes, protected area boundaries and ecological risk zones significantly reduces the ability of authorities, tourism operators and communities to assess hazards, plan for recovery and communicate about ensuring the safety of potential visitors. In this sense, ecological degradation in crisis regions is not only a biophysical process, but also a crisis of knowledge and governance, in which uncertainty displaces evidence-based decision-making.

This directly undermines the classical models of sustainable tourism, which are based on the assumption of the measurability of recreational capacity, ecosystem stability, and the predictability of anthropogenic load[17]. In war and post-war conditions, degraded landscapes are almost always accompanied by degraded systems of environmental control, which makes tools such as zoning, limits of permissible changes, or environmental impact assessment of little use or purely formal. As a result, tourism management shifts from long-term optimization to a regime of crisis containment and adaptation.

Environmental degradation also increases the security risks of tourist areas. Polluted water bodies, mine-hazardous landscapes, burned forests, and damaged industrial, energy, and hydraulic facilities form spaces where ecological, sanitary, and physical threats overlap. Such areas are transformed into hybrid risk landscapes, where traditional signs of natural attractiveness coexist with invisible but potentially lethal dangers.

For tourists, this means losing the ability to interpret space as safe and predictable. Even in the absence of active hostilities, environmental degradation creates a constant threat that significantly reduces the willingness to travel. Thus, it acts not only as a physical barrier but also as a reputational shock to destinations, undermining trust in their ability to provide safe, ethical, and sustainable tourism experiences.

Importantly, this reputational effect is long-lasting. While ecosystems may gradually recover, the image of a destination in digital media and international tourism discourse recovers much more slowly. Territories are permanently fixed in consumers' minds as polluted, dangerous, or destroyed, creating an asymmetry between the actual ecological state and the symbolic geography of tourism.

Thus, the results of the literature analysis indicate that ecological degradation in crisis destinations acts as a systemic destabilizing factor that simultaneously affects the ecological, social, and communicative foundations of sustainable tourism. This necessitates a rethinking of approaches to the sustainable development of tourist destinations—from an orientation towards the preservation of stable ecosystems to models capable of functioning in conditions of prolonged ecological uncertainty and limited physical access.

To move from a theoretical understanding of ecological degradation as a systemic destabilizing factor to its applied analysis in a military context, key Ukrainian crisis destinations were summarized. **Table 1** presents an analytical comparison of types of ecological degradation, the military-induced drivers, and their consequences for the functioning of sustainable tourism systems, allowing us to interpret eco-degradation not as a local problem but as a structural transformation of tourism systems.

Table 1. Environmental degradation in selected Ukrainian crisis-affected destinations and implications for sustainable tourism.

Crisis-Affected Destination	Types of Environmental Degradation	War-Related Drivers	Ecological Losses	Implications for Sustainable Tourism Systems
Kakhovka Reservoir & Lower Dnipro Region	Hydrological collapse, wetland loss, soil salinization, water pollution, biodiversity destruction	Destruction of the Kakhovka dam, uncontrolled drainage, military contamination	Collapse of aquatic ecosystems, loss of fish spawning areas, degradation of irrigated landscapes, large-scale wetland die-off	Elimination of river-based ecotourism (boating, fishing, birdwatching); disappearance of recreational landscapes; reputational damage as an ecological disaster zone; collapse of local tourism livelihoods

Table 1. *Cont.*

Crisis-Affected Destination	Types of Environmental Degradation	War-Related Drivers	Ecological Losses	Implications for Sustainable Tourism Systems
Azov Sea Coast (Mariupol–Berdyansk)	Marine pollution, coastal ecosystem degradation, industrial contamination	Bombardment of industrial facilities, port destruction, oil and chemical spills	Decline of fish stocks, beach contamination, destruction of coastal and marine habitats	Collapse of seaside tourism; long-term health-risk perception; inability to brand the coast as clean or safe; exclusion from international sustainable tourism markets
Donbas Natural Parks and Steppe Reserves	Landscape fragmentation, wildfires, soil and water contamination, biodiversity loss	Artillery shelling, military vehicles, landmines, uncontrolled fires	Destruction of steppe ecosystems, loss of protected species, soil toxicity	Inaccessibility of protected areas; loss of hiking, educational and conservation tourism; high insurance and safety costs; breakdown of park-based tourism governance
Chornobyl Exclusion Zone	Wildfire-driven radioactive redistribution, forest degradation	Military occupation, fires, disruption of environmental monitoring	Secondary radioactive contamination, damage to forest ecosystems	Suspension of scientific, educational, and dark tourism; collapse of controlled ecotourism; renewed reputational risks related to radiation safety
Carpathian Eco-tourism Regions	Forest degradation, waste accumulation, water pollution, trail erosion	Influx of internally displaced populations, infrastructure overload, illegal logging	Degradation of mountain ecosystems, river pollution, biodiversity stress	Overuse of fragile ecosystems; shift from sustainability-oriented tourism to survival-driven mass visitation; governance overload and loss of ecological carrying capacity

Source: Compiled by the authors based on United Nations Environment Programme [10], Zoï Environment Network [18], Grygaski [19], Hernández Matorel [20].

For Ukraine, the environmental problem is multiplicative and systemic. As is well known, the country has one of the richest and most diverse ecological landscapes in Europe, which underpins its ecotourism potential. Located at the intersection of Eastern Europe, the Black Sea basin, and the Carpathian mountain system, the country encompasses a wide range of natural, climatic, and biogeographic zones, creating exceptional conditions for nature and conservation tourism, as well as sustainable recreation. However, due to military operations, ecological degradation has become a key factor disrupting the functioning of sustainable tourism systems in Ukrainian territories. Large-scale damage to river systems, forests, reserves, agro-landscapes, and coastal ecosystems not only narrows the material base of ecotourism but also undermines the sustainability narrative on which international partnerships, donor programs, and responsible tourism are based. The diversity of degradation is particularly striking: from the hydro-ecological collapse of the Lower Dnieper to the radiation-related risks of the Chernobyl zone and the overload of the Carpathian ecosystems. Despite this diversity, all cases are characterized by a common logic: the transition from a sustainable management regime to a crisis-survival regime. Under such conditions, the tools of classical sustainable tourism (capacity planning, environmental certification, long-term development strategies) lose their effectiveness or become impossible to implement. The interpreted data in **Table 1** also reveal the spatial asymmetry of the war's impacts: even regions that have not experienced direct hostilities (in particular, the Carpathian region) are affected by environmental degradation due to population displacement, strain on infrastructure, and weakened environmental controls. This means that the environmental consequences of the war for tourism are national, not local. Therefore, in a context of environmental instability and limited data verification, sustainable tourism loses its status as a "reliable brand" and becomes a sphere of greater risk. And war acts as a multiplier of environmental risks, in which the physical destruction of infrastructure, military pollution, and disruption of management mechanisms mutually reinforce one another.

Given the systemic and spatially asymmetric nature of environmental degradation in Ukraine, there is a need for an empirical generalization of the key mechanisms of its impact on the functioning of sustainable tourism. To deepen the analysis and move from the description of individual manifestations of degradation to a systemic understanding of its consequences, an expert survey was conducted, the results of which allow us to assess the degree of consistency of professional positions regarding the role of environmental, management, and information factors in the destabilization of tourism systems. **Table 2** presents generalized expert

assessments that reflect how environmental degradation is transformed from a local environmental problem into a multidimensional destabilizing factor that simultaneously affects the ecological basis of tourism, institutional management mechanisms, and tourist trust. The presented generalization allows us to interpret the environmental crisis not as a set of isolated losses, but as a national challenge for sustainable tourism development systems.

Table 2. Generalized expert perspectives on institutional and informational degradation in crisis tourism destinations.

Analytical Dimension	Generalized Expert Perspective (Representative Quotes)	Level of Perceived Impact	Degree of Expert Consensus
Role of institutional and information infrastructure in stable conditions	"Without reliable data and monitoring systems, sustainable tourism practically does not exist—all planning is based on predictability"	Very high	Strong consensus
Destruction of environmental and spatial data	"We often don't know what the actual condition of the territory is, and this paralyzes any management decisions"	High	Strong consensus
Formation of management and environmental "blind spots"	"There are areas where decisions have to be made almost blindly—without relevant environmental information"	High	Strong consensus
Impact of information degradation on recovery planning	"Planning without data becomes a crisis response, not a development strategy"	Moderate to high	Moderate consensus
Safety communication and tourist trust	"Uncertainty scares tourists more than the risks themselves—they want clear and proven signals"	High	Strong consensus
Crisis of knowledge and management (summary)	"The war destroyed not only nature, but also the knowledge system on which tourism was based"	High	Strong consensus

Source: Developed by the authors based on the results of semi-structured interviews.

The generalized expert perspectives indicate a consistently high perceived impact of institutional and informational degradation on tourism systems. Experts emphasized that fragmentation of environmental data, disruption of monitoring systems, and limited access to reliable information create significant management "blind spots," where evidence-based planning becomes severely constrained. Across stakeholder groups, there is a strong convergence of views that the crisis represents not only ecological loss but also a systemic disruption of knowledge and governance structures underpinning sustainable tourism. Therefore, ecological degradation in crisis destinations functions not as an isolated or temporary ecological challenge, but as a systemic destabilizing factor that simultaneously destroys the natural basis of tourism, institutional management mechanisms, and information infrastructure necessary for evidence-based planning.

In conclusion, environmental degradation in Ukraine is not a background factor in tourism activity, but rather a new structural reality in which tourist destinations are forced to operate in a constant state of environmental and security uncertainty. Under such conditions, sustainable tourism loses the opportunity to rely on classical tools of physical resource conservation, capacity planning, and long-term forecasting. It switches to a crisis-response and adaptation mode. This directly confirms the study's hypothesis about the need to rethink traditional approaches to tourism recovery in crisis destinations, in which, along with ecological restoration, strategic communication, digital support for management, preservation of tourist memory, and active participation of local communities become key. In this sense, environmental degradation appears not only as a limitation for sustainable tourism but also as a catalyst for the transition to adaptive, digitally supported, and crisis-oriented models of tourism development.

3.2. Loss of Natural Heritage and Eco-Attractions in Crisis-Affected Destinations

Natural heritage and ecological attractions are not just a resource base for sustainable tourism, but a structural element of tourism systems, around which the spatial and economic logic of destinations is built. Biosphere reserves, national natural parks, coastal and river landscapes, mountain ecosys-

tems and unique biotopes play the role of key ecological and symbolic "anchors" that shape the routing of tourist flows, seasonal specialization of territories and the image of place in the global tourism discourse [5, 17]. In stable conditions, it is these objects that ensure the long-term competitiveness of destinations, integrating natural value with local economies and cultural practices. However, in conditions of war and post-conflict crises, natural heritage suffers not only physical damage, but also functional depreciation as a tourism asset. Fighting, mining, pollution, fires and destruction of infrastructure transform ecologically valuable areas from spaces of recreation and knowledge into spaces of risk, prohibition or limited access. Even in the absence of complete physical destruction, natural objects lose their ability to serve as tourist attractions, as their safety, accessibility and symbolic appeal become questionable.

Let us examine the types of losses of natural heritage and eco-attractions in crisis destinations (**Table 3**).

Table 3. Types of losses of natural heritage and eco-attractions in crisis destinations and their consequences for tourism.

Type of Loss of Natural Heritage and Eco-Attractions	Nature of Manifestation in Crisis Destinations	Main Tourism Impacts	Compensatory and Adaptive Mechanisms
Physical destruction or damage to natural objects	Destruction of landscapes, forests, aquatic ecosystems, protected areas due to hostilities, mining and man-made pollution	Complete or prolonged loss of tourist attractions; reduction of tourist routes; disappearance of specialized types of ecotourism	Long-term ecological restoration; recording losses in digital registers; using digital archives as a tool for tourist memory
Functional inaccessibility of natural heritage	Access restrictions due to security risks, infrastructure destruction, lack of monitoring	Temporary exclusion of objects from tourist circulation; fragmentation of routes; reduction of attractiveness of destinations	Digital risk maps; online communication of access restrictions; virtual tours and remote interpretation formats
Degradation of ecosystems without complete destruction	Soil and water pollution, biodiversity loss, ecosystem overload	Declining quality of tourism experience; ethical risks of ecotourism; loss of sustainability certifications	Digital environmental monitoring; updating sustainability standards; public communication of the state of the environment
Symbolic and narrative loss of eco-attractions	Perpetuation of the image of territories as dangerous or destroyed in the media and digital space	Long-term reputational damage; reduced international tourist interest	Strategic communication; digital narratives of recovery; state and local digital heritage platforms
Loss of tourist memory and interpretation of nature	Disappearance of routes, guides, local knowledge and interpretations of natural heritage	Destruction of tourism identity; reduced community engagement	Digitization of local knowledge; digital archives of natural heritage; community participation in content creation
Institutional loss of natural heritage management	Weakening of environmental control, lack of up-to-date data and plans	Impossibility of evidence-based tourism planning; increasing risks for visitors	State programs for digitizing heritage data; integration of GIS, open registries and tourism platforms

Source: Compiled by the authors based on Hernández Matorel [20], Hoskins [21], Catibog-Sinha [22], Komac et al. [23], Bartolini et al. [24], Romão and Paupério [25].

The data in **Table 3** demonstrate that the loss of natural heritage and eco-attractions in crisis destinations has not only physical (material), but also functional, symbolic, and institutional dimensions. Physical loss means the complete or partial destruction of a natural object or ecosystem resulting from natural disasters, hostilities, or human-caused accidents. This type includes landscape destruction, fires, floods, mining, and pollution of soils and water resources, making it impossible to restore the tourist function without long-term ecological restoration. Functional loss occurs when a natural object is physically preserved but loses its ability to serve a tourist function. This may be due to security risks, insufficient infrastructure, inadequate environmental monitoring, legal restrictions, or the inability to guarantee visitors' safety. In such cases, the eco-attraction falls outside the tourist network, even if its natural potential is formally preserved. In

turn, symbolic loss is associated with a transformation in the collective tourist imagination of natural heritage. It occurs when territories are portrayed in the media, digital spaces, and tourist products as dangerous, destroyed, or environmentally problematic, leading to long-term loss of tourist attractiveness regardless of the environment's actual state. Symbolic loss directly affects tourist memory, the destination brand, and the level of trust from potential visitors. It should be noted that in crisis destinations, these types of losses rarely occur in isolation; rather, they often overlap, creating a cumulative effect that significantly complicates the restoration of sustainable tourism. Particularly indicative is the growth of the role of digital compensatory mechanisms, which partially preserve the tourist value of natural heritage in conditions of limited physical access. In this context, state initiatives to digitize natural and cultural heritage serve not only as preservation tools but also as an important element of anti-crisis tourism management.

Applying the above analytical approaches and typology of physical, functional, and symbolic losses to the assessment of Ukraine's natural heritage affected by military actions in the period 2014–2025, we systematize the key losses of popular eco-attractions and their actual status in crisis conditions (**Table 4**).

Table 4. Popular eco-attractions in Ukraine before the war and their status in crisis conditions.

Eco-Attraction (Before the War)	Location	Characteristics/ Tourist Function (Before the War)	Actual Status in Crisis Conditions	Type of Loss	A Key Role in the Tourism Network	Level of Tourism Function Loss (Qualitative Expert Assessment)	Digital Documentation Available
Biosphere Reserve "Askania-Nova"	Kherson region	Steppe biome, eco-education, fauna observation	Unavailable (occupation/fighting)	Functional + symbolic	High	Critical	Yes
Black Sea Biosphere Reserve	Kherson/Mykolaiv region	Coastal and delta ecosystems, birdwatching	Unavailable/ eco-degradation	Functional	High	Critical	Partial
Dzharylhatsky National Nature Park	Kherson region	Island and coastal ecosystems, beach and conservation tourism	Destroyed/critically damaged and inaccessible	Physical + functional + symbolic	High	Critical	Partial
Oleshkivski sands	Kherson region	Unique sandy landscape, extreme ecotourism	Unavailable (mine hazard/combat)	Functional	High	Severe	Limited
Pink Lake (Syvash)	Kherson region	Natural phenomenon, photo tourism	Unavailable/eco-degradation	Functional + symbolic	Medium	Severe	Yes
Granite-steppe Pobuzhye (Buzky Gard)	Mykolaiv region	Canyons, water and adventure tourism	Eco-degradation/ limited access	Functional	High	Severe	Partial
Carpathian Biosphere Reserve	Transcarpathian region	Mountain ecosystems, hiking, biodiversity	Eco-degradation/ overload	Functional	High	Moderate	Partial
Danube Biosphere Reserve	Odesa region	Wetlands, ecotours	Relatively accessible with limitations	Functional	High	Moderate	Yes
Tuzly Lagoons National Nature Park	Odesa region	Lagoons, bird migration, coastal ecotourism	Relatively affordable/ eco-degradation	Functional	Medium	Moderate	Partial

Table 4. *Cont.*

Eco-Attraction (Before the War)	Location	Characteristics/ Tourist Function (Before the War)	Actual Status in Crisis Conditions	Type of Loss	A Key Role in the Tourism Network	Level of Tourism Function Loss (Qualitative Expert Assessment)	Digital Documentation Available
Synevyr National Nature Park	Transcarpathian region	Landscape tourism, identity of the Carpathians	Relatively affordable	Symbolic	High	Moderate	Yes
Shatsky National Park (Lake Svityaz)	Volyn region	Lake recreational tourism	Relatively affordable	Symbolic (reputational risks)	Medium	Limited	Limited
Podilski Tovtry National Nature Park	Khmelnytskyi region	Geotourism, karst landscapes	Relatively affordable	Symbolic	Medium	Limited	Limited
Chernobyl Exclusion Zone (rewilding)	Kyiv region	Controlled tourism, education, natural restoration	Unavailable/strict restrictions	Functional + symbolic	High	Severe	Yes

Note: The levels of loss are based on qualitative interpretation of expert assessments: Critical—near-total loss of tourism function; Severe—substantial disruption and long-term inaccessibility; Moderate—partial loss with limited functionality; Limited—minor disruption with preserved tourism potential.
Source: Compiled by the authors based on the results of a survey of experts and Harrison et al. [26], Kovalenko [27], Hubareva [28], Zoï Environment Network [29], Query [30].

In interpreting the data in **Table 4**, the level of tourism function loss was assigned based on an expert-informed qualitative assessment combining the frequency, intensity, and co-occurrence of coded analytical categories (physical, functional, and symbolic losses) identified during the inductive coding process.

The results indicate that the most significant tourism losses are concentrated in natural heritage sites that play an important role in tourism networks, especially in regions affected by prolonged occupation or intense hostilities (eastern and southern Ukraine). War acts as a mechanism for the functional deactivation of natural heritage in a tourism context. Landscapes that previously structured tourist routes have become fragmented, while ecosystems that once formed regional tourism identities have turned into sources of environmental and reputational uncertainty. The findings show that the loss of eco-attractions extends beyond physical damage and contributes to the disruption of the semantic architecture of tourist destinations. At the same time, the availability of digital documentation remains an important, albeit limited, mechanism for preserving tourist memory under conditions of physical inaccessibility of natural heritage.

The findings further suggest that ecological degradation in crisis-affected destinations is both systemic and symbolic in nature. Even where natural objects are partially preserved, their tourism value is often significantly diminished due to functional inaccessibility, reputational risks, and disruptions in tourist memory and interpretation. The qualitative expert-based assessment presented in **Table 4** supports the study's hypothesis that sustainable tourism recovery in crisis contexts cannot be reduced to ecological restoration alone. Instead, strategic communication, digital mechanisms for preserving and interpreting natural heritage, and the active involvement of local communities as carriers of knowledge, memory, and identity emerge as critical components of destination recovery. Without the restoration—both physical and symbolic—of natural heritage, the reintegration of crisis-affected territories into sustainable tourism systems remains highly constrained.

3.3. Community-Based Eco-Revitalization as a Pathway to Sustainable Recovery

Modern approaches to sustainable development [31–34] increasingly consider tourist destinations not as separate objects or sets of infrastructure elements, but as complex local ecosystems in which natural resources, economic entities, social practices, and management mechanisms interact. In this sense, the processes of decentralization of power and the expansion of the powers of territorial communities in Ukraine create fundamentally new conditions for the formation and management of such ecosystems at the local level. After

all, the transfer of managerial, planning, and, to some extent, financial powers to communities strengthens their role as key agents in the development of tourist destinations. Territorial communities are allowed to directly influence the use of natural resources, eco-revitalization priorities, the development of tourist infrastructure, and the formation of local narratives. In crisis conditions, this becomes especially important, as it is the local level of management that demonstrates the greatest flexibility and ability to adapt quickly.

In such a communicative model, a tourist destination appears as an ecosystem of stakeholders, in which communities, tourism businesses, public organizations, volunteer networks, and digital initiatives interact not hierarchically but as a network. Each of the stakeholders performs a specific role: communities provide local knowledge, social legitimacy and connection with the territory; tourism business entities—operational activities for organizing and providing tourism services; public and volunteer organizations—mobilization of social capital and environmental sensitivity; digital projects—preservation of memory and communication of changes, influencers—work as mediators of trust in conditions of crisis reputation, etc. (**Table 5**).

Table 5. Stakeholders in community-based eco-revitalization of tourism destinations.

Stakeholder Group	Key Characteristics/ Role in the Ecosystem	Main Areas of Cooperation	Financing/ Co-Financing Mechanisms	Social and Environmental Responsibility
Territorial communities (local authorities)	Core governance actors; holders of planning and land-use powers; custodians of local natural and cultural resources	Strategic planning of tourism development; prioritization of eco-revitalization projects; coordination of local stakeholders	Local budgets; co-financing with state and donor programs; public–private partnerships	Inclusive decision-making; protection of natural heritage; long-term community wellbeing
Tourism businesses (accommodation, tour operators, services)	Operational actors; providers of tourism products and services; market-oriented stakeholders	Development of sustainable tourism products; integration of eco-revitalized sites into tourist routes; destination marketing	Private investment; co-financing of infrastructure and community projects; Corporate Social Responsibility (CSR) budgets	Responsible business practices; environmental standards; local employment
Community-based initiatives and NGOs	Mobilizers of social capital; facilitators of participation and advocacy	Volunteer programs; environmental restoration; eco-education and awareness	Grants; donations; co-financing with communities and businesses	Environmental stewardship; social inclusion; transparency
Volunteer networks and local residents	Carriers of local knowledge; hands-on participants in eco-revitalization	Landscape clean-up; maintenance of eco-routes; heritage preservation	In-kind contributions; micro-grants; community fundraising	Social cohesion; care for local environments
Digital and creative actors (IT, media, cultural projects)	Providers of digital tools and narratives; facilitators of visibility and memory	Digital mapping; virtual eco-attractions; storytelling and communication	Project-based funding; partnerships; donor support	Ethical digital representation; preservation of digital heritage
Influencers and content creators	Communication intermediaries; trust brokers between destinations and audiences	Promotion of responsible tourism; storytelling about eco-revitalization; visibility of community initiatives	Paid partnerships; barter cooperation; co-financed campaigns with tourism businesses and communities	Ethical communication; avoidance of greenwashing; responsible representation of crisis-affected destinations

Table 5. *Cont.*

Stakeholder Group	Key Characteristics/ Role in the Ecosystem	Main Areas of Cooperation	Financing/ Co-Financing Mechanisms	Social and Environmental Responsibility
State and donor institutions	Enablers of large-scale recovery frameworks; providers of regulatory and financial support	Funding of eco-revitalization and tourism recovery; capacity building	State budgets; international donor funding; co-financing schemes	Sustainability standards; monitoring and evaluation

Source: Compiled by the authors based on Piriou [35], Slivar [36], Brščić et al. [37], Agbaba and Jurdana [38], Nurjanah et al. [39].

The effectiveness of such an ecosystem must be determined not by the dominance of a single stakeholder, but by the quality of interaction between them and with the territorial community. It is through partnerships, joint planning, and coordinated actions that an environment is created in which eco-revitalization, economic activity, and social cohesion mutually reinforce one another. This allows us to consider a community-oriented approach not as an auxiliary element of recovery, but as a structural basis for sustainable tourism development in crisis destinations. It is worth noting that influencers and content creators play a separate role in shaping the recovery ecosystem, serving as communication intermediaries between communities, tourism businesses, and potential tourists. Provided they interact ethically and responsibly, they can contribute to restoring trust in crisis destinations and support community-oriented eco-revitalization.

Thus, in crisis destinations, communities play a key role in shaping alternative trajectories for the restoration of sustainable tourism. This is evidenced by numerous scientific studies [20, 40]. In the context of the loss of natural heritage and eco-attractions, communities act not only as affected parties but also as active carriers of ecological memory and sustainable use practices of territories. It is at the local level that knowledge of natural landscapes, traditional routes, seasonal practices, and cultural relationships with the environment is preserved, often outside the attention of formal restoration programs. This allows communities to initiate micro-projects of eco-revitalization aimed not so much at the reproduction of lost objects, but at rethinking the interaction between nature, tourism, and the local economy.

Taking the above into account, it is advisable to consider further the key areas of cooperation between local communities and tourism business entities, which form a functional ecosystem of eco-revitalization and serve as pathways for the sustainable restoration of tourist destinations (**Figure 2**).

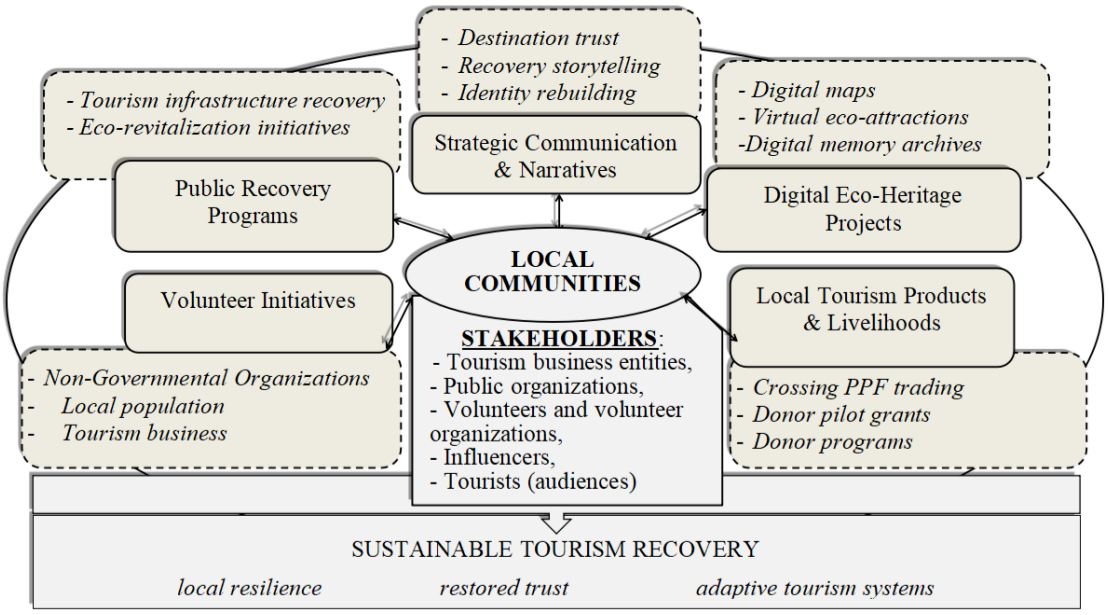

Figure 2. A conceptual model of community-based eco-regeneration destinations for the restoration of sustainable tourism.

Source: Own development.

Figure 2 presents a conceptual model of community-led eco-revitalization of tourism destinations, illustrating key areas of collaboration between local communities and key tourism stakeholders. The model places local communities at the centre of the tourism ecosystem, grounded in stakeholder engagement. Interrelated areas of engagement are formed around them, including community regeneration and eco-revitalization programs, volunteer and community initiatives, digital ecological heritage projects, the development of local tourism products and sustainable livelihoods, and strategic communications and the creation of recovery narratives. In this ecosystem, non-governmental organizations (NGOs) play an important role, including environmental NGOs, cultural and heritage initiatives, local public associations, charitable foundations, and community platforms for territorial development. These entities often act as catalysts for eco-revitalization, initiating volunteer projects, preparing grant applications, and facilitating collaboration among communities, tourism businesses, and donor organizations. An important tool for supporting such initiatives is donor pilot projects and grants aimed at restoring natural areas, developing community-based tourism, preserving digital ecological heritage, and implementing local community initiatives. Stakeholders also include influencers and content creators who integrate as communication intermediaries between communities, tourism entities, and external audiences. Their activities increase the visibility of community-oriented initiatives, build trust in crisis destinations, and maintain digital memory of eco-attractions.

Conceptually, the model is based on the idea of expanding development opportunities through cooperation, which can be interpreted through the prism of the Production Possibility Frontier (PPF). This production possibilities curve reflects the maximum benefits that can be produced by an economy, community, or system with available resources. In this context, a partnership among communities, businesses, public organizations, and donors enables us to go beyond individual resource limitations, fostering synergies and laying the groundwork for sustainable tourism recovery.

Thus, unlike infrastructure or centralized reconstruction models that require significant financial and time resources, community-based eco-revitalization is based on local knowledge, social capital, and communities' ability to adapt to prolonged uncertainty.

In addition, the main goal of the cooperation has been identified: the promotion of sustainable tourism recovery. In crisis conditions, it is communities that are the first to adapt tourism practices to new realities and lay the foundation for local resilience in tourist destinations through the development of small-scale nature-based tourism, eco-educational initiatives, volunteer programs for landscape restoration, and alternative visitor interaction formats. Such initiatives not only support minimal tourist activity but also help restore trust in the destination as a socially responsible space.

It is also important to note that community-based eco-revitalization forms the basis for sustainable livelihoods in post-crisis areas. Involving residents in the processes of caring for natural areas, creating ecological routes, and developing local tourist products and services allows diversifying sources of income and reducing dependence on large tourist flows. In this way, tourism is transformed from a vulnerable industry into a tool for socio-ecological stabilization. To empirically confirm the conceptual model of community-based eco-revitalization and test the research hypothesis, semi-structured interviews were conducted with representatives of local communities, tourism businesses, public organizations, and the expert community. The generalized interview results are systematized into key thematic blocks that correspond to the elements of the model (**Figure 2**) and are presented in **Table 6**. This approach allows combining the conceptual level of analysis with participants' practical observations and experience in the processes of restoring tourist destinations.

Table 6. Empirical results of semi-structured interviews on the eco-regeneration model at the community level.

Analytical Measurement (According to Figure 2)	Key Takeaways from the Interview	Involved Stakeholder Groups	Consistency Level of Respondents' Answers	Importance for Sustainable Tourism Recovery
The role of local communities	Communities are perceived as the main initiators of eco-revitalization processes and adaptation of tourism practices in crisis conditions.	Territorial communities, local government bodies	High: the position is consistently confirmed by representatives of all groups	Strengthening local resilience and adaptive capacity of destinations

Table 6. *Cont.*

Analytical Measurement (According to Figure 2)	Key Takeaways from the Interview	Involved Stakeholder Groups	Consistency Level of Respondents' Answers	Importance for Sustainable Tourism Recovery
Community regeneration and eco-revitalization programs	The effectiveness of programs increases if they are combined with local priorities and community participation.	Communities, authorities, donors	Medium-high: general support with variations in implementation mechanisms	Increasing the relevance and long-term sustainability of recovery initiatives
Volunteer and community initiatives	Volunteering is seen as a key mechanism for supporting tourism and restoring landscapes under limited resources.	Non-governmental organizations (NGOs), local residents, tourism businesses	High: consensus between communities, NGOs and businesses	Preservation of social capital and continuity of tourism functions
Digital eco-heritage and ecological memory	Digital formats allow eco-attractions to remain present in the tourism discourse even when they are physically inaccessible.	Communities, NGOs, digital and creative actors	Medium: supported by the majority, but with varying levels of readiness for implementation	Maintaining destination visibility and visitor trust
Strategic communication and influencers	Influencers are recognized as effective intermediaries when communicating ethically and responsibly.	Tourism business, communities, influencers	Medium: general support with caveats about risks	Reputation restoration and building trust in destinations
Diversification of economic activities and livelihoods	Small-scale forms of ecotourism and community-based tourism are seen as viable alternatives to mass models.	Communities, tourism Small and Medium Enterprises (SMEs)	Medium-high: high support among communities, moderate among businesses	Creating sustainable livelihoods
Partnerships and donor pilot projects	Donor pilot projects act as catalysts for testing and scaling new models of cooperation.	Donors, NGOs, communities, businesses	High: shared vision of the role of pilot grants	Expanding collective capabilities and going beyond individual resource constraints (PPF)

Source: Compiled by the authors based on **Figure 2** and the results of a survey of experts.

The results confirm the conceptual model of community-based eco-revitalization presented in **Figure 1** and demonstrate that cooperation among communities, tourism businesses, civil society organizations, donors, and communication actors forms the basis for sustainable tourism recovery in crisis destinations. The effectiveness of community-based approaches largely depends on high-quality communication between communities and tourism actors. Jointly forming a strategic vision for recovery, incorporating local stories and natural contexts into tourism communication, contributes to the restoration of the symbolic value of destinations even in the face of partial loss of material heritage. Thus, communities become not only performers of eco-revitalization practices, but also co-creators of a new destination identity.

The thematic patterns identified in **Table 6** provide the empirical basis for structuring the proposed recovery framework. Specifically, the recurring emphasis on community leadership, digital memory practices, strategic communication, and stakeholder collaboration informed the development of the conceptual model (**Figure 2**) and the staged recovery roadmap (**Table 7**).

Table 7. Roadmap for the development of the eco-sustainability of tourist destinations in crisis and post-crisis conditions.

Development Stage	Key Stakeholders	Main Areas of Action	Types of Cooperation	Communication and Engagement Channels	Expected Result
1. Diagnostics and basic security	Local communities; state institutions; tourism business	Inventory of eco-attractions and risk areas; determination of accessibility levels; informing visitors	Coordination; regulatory; advisory	Official community websites; GIS maps; community social networks; tourism platforms	Reducing uncertainty; basic security of the tourist space

Table 7. *Cont.*

Development Stage	Key Stakeholders	Main Areas of Action	Types of Cooperation	Communication and Engagement Channels	Expected Result
2. Community eco-revitalization	Local communities; NGOs; eco-communities; volunteers; tourism business	Landscape restoration; volunteer actions; micro-projects for route development	Partnership; volunteer; co-financing	Social networks; local media; crowdfunding platforms; public forums	Restoration of tourism connectivity; growth of local resilience
3. Digital eco-heritage and memory	Local communities; NGOs; digital and creative businesses; eco-communities	Digitization of eco-attractions; storytelling; creation of digital routes	Project-based; creative; intersectoral	Social media; web platforms; virtual tours; digital archives	Maintaining the destination's presence in the tourism discourse
4. Strategic communication and trust	Tourism business; local communities; influencers; media	Shaping ethical narratives; promoting responsible tourism; reputational restoration	Communication; marketing (ethical); partnership	Social networks; blog platforms; social media; podcasts; PR campaigns	Restoring trust and destination awareness
5. Funding and piloting	Donors/investors; NGOs; local communities; tourism business	Donor pilot projects; grants; impact investing; model testing	Financial; project; co-investment	Grant platforms; crowdfunding; pitching; professional networks	Expanding capabilities beyond resource constraints
6. Institutionalization and sustainable livelihoods	Local communities; state institutions; tourism business	Integration into development strategies; formalization of partnerships; employment support	Institutional; long-term partnership	Strategic documents; public consultations; industry platforms	Formation of sustainable tourism ecosystems and sustainable livelihoods

Source: Own development.

At the same time, the effectiveness of the proposed model of community-based eco-revitalization depends on the presence of minimal institutional capacity of communities, a basic level of social cohesion, and access to communication and digital resources. In situations of deep social fragmentation or the absence of basic security and stability, implementing such approaches may require additional external facilitators or adaptation to local conditions.

Thus, the findings further reinforce the study's hypothesis that restoring sustainable tourism in crisis destinations requires a rethink of traditional approaches. Instead of an exclusive focus on the physical reconstruction of infrastructure, strategic communication, the preservation of the digital memory of natural heritage, and the active participation of local communities become key. Taken together, these mechanisms form adaptive tourism ecosystems that can function in conditions of prolonged uncertainty and limited resources.

3.4. Rethinking Sustainability: From Physical Preservation to Adaptive Eco-Resilience

The above results show that in crisis and post-crisis situations, the mechanisms of classical approaches cease to operate: ecosystems lose stability and become unpredictable in terms of anthropogenic load and the physical preservation of natural resources. As a result, the ecological, social, and institutional conditions for the functioning of tourist destinations undergo radical and often irreversible changes. Sustainability ceases to be a static state and becomes a dynamic process of continuous adaptation. Therefore, there is a need to rethink the traditional understanding of tourism sustainability in crisis destinations. Not only does the protection or restoration of material natural objects become key, but also the ability of tourism systems to adapt to losses, uncertainty, and limited access to environmental attractions.

In line with the logic of the confirmations of the hypothesis, practical directions for the restoration of sustainable tourism in crisis destinations should be structured as a roadmap for the development of eco-sustainable tourism systems. Within the framework of this roadmap, eco-sustainability is understood as a destination's ability to maintain the viability of tourism functions under conditions of environmental losses, uncertainty, and limited access, combining ecological restoration with communication, digital, and community mechanisms of restoration.

Building upon the empirical findings derived from semi-structured interviews, the proposed roadmap (**Table 7**) synthesizes the key thematic dimensions identified in **Table 6** into a structured sequence of recovery stages. Each stage reflects a cluster of practices and mechanisms consistently highlighted by experts, translating qualitative insights into an analytically grounded framework for sustainable tourism recovery in crisis conditions.

The proposed roadmap for the development of eco-resilience in tourist destinations demonstrates that the restoration of sustainable tourism in crisis conditions cannot be considered a linear, purely infrastructural process. Instead, it appears as a multi-level, phased transformation of the tourism ecosystem, within which environmental, social, economic, and communication components interact in a constant state of adaptation. **Table 7** illustrates that the key factor in such transformation is not the volume of resources involved per se, but the ability of different stakeholder groups to coordinate actions, combine formal and informal mechanisms of cooperation, and gradually increase the collective capacity of the destination. The stages of diagnostics and ensuring basic security create the basis for trust between local communities, businesses, and visitors, without which further investments in eco-revitalization or tourism products remain fragmented and ineffective. In this context, state institutions serve as a stabilizing force, while local communities develop eco-revitalization projects, tourism, and adaptive strategies for sustainable development.

The subsequent stages of the roadmap demonstrate that eco-revitalization is most effective when implemented as a community practice rather than as an externally imposed project. The involvement of NGOs, eco-communities, and volunteer networks enables the restoration of natural areas to become a tool for social mobilization, the restoration of local identity, and the formation of new forms of interaction with tourists. In this way, ecological restoration is integrated into the destination's tourism network and ceases to be an isolated conservation activity.

From a financial and institutional perspective, the roadmap emphasizes the role of donor and investment pilot projects in testing and scaling new models of cooperation. It is at this stage that the logic of going beyond individual resource constraints (PPF) manifests itself, when the combination of local initiatives, business interests, and external financing creates a synergistic effect and expands the possibilities for destination development. It is important to note that, in the event of partial or complete loss of physical eco-attractions, digital tools and strategic communication play a key role in supporting destinations' tourism functions. Digital eco-heritage, storytelling, and the involvement of influencers as communication intermediaries allow the destination to maintain its presence in the tourism discourse, compensating for spatial fragmentation and reducing reputational risks. This confirms the need to include communication strategies at the core of sustainable tourism planning, rather than considering them as an auxiliary marketing tool.

Overall, the analytical logic of the roadmap indicates the need to formulate a strategy for the development of sustainable tourism and the restoration of the eco-sustainability of tourist destinations as an integral part of the socio-economic policy of territorial communities. It should begin with the formation of a common understanding of the risks, limitations, and permissible limits of tourist activity.

Therefore, we will focus on key aspects of strategizing eco-sustainable tourist destinations that can support basic tourist functions, social cohesion, and environmental responsibility (**Figure 3**).

Figure 3 presents the algorithm for developing sustainable tourism and restoring the ecological sustainability of territories, which is important in post-crisis periods, including the post-war period in Ukraine. The first strategic direction is community-oriented management and local capacity, which involves actively involving local communities in planning, implementing, and monitoring tourism recovery. In this sense, territorial communities act not only as recipients of investments and startups but also as co-creators of the tourism ecosystem, using local knowledge, social capital, and adaptive practices, and forming territorial budgets (financial resources).

The second direction is eco-revitalization and ecological adaptation of tourist areas as the basis for tourist attractiveness, in which the restoration of natural areas, routes, and small recreational facilities is integrated into the structure of tourist products. After all, ecological restoration cannot be separated from tourism, since the state of the environment determines the safety, attractiveness, and legitimacy of tourist activities. Accordingly, a sustainable tourism strategy should include eco-revitalization as a basic, not an auxiliary

component.

The third strategic direction is the diversification of tourism models and products, in particular, the development of national identity and new areas of natural, cultural, and educational tourism that require fewer resources and ensure tourist safety. In crisis conditions, such models allow maintaining tourism activity at a minimum viable level and reducing economic risks for local communities.

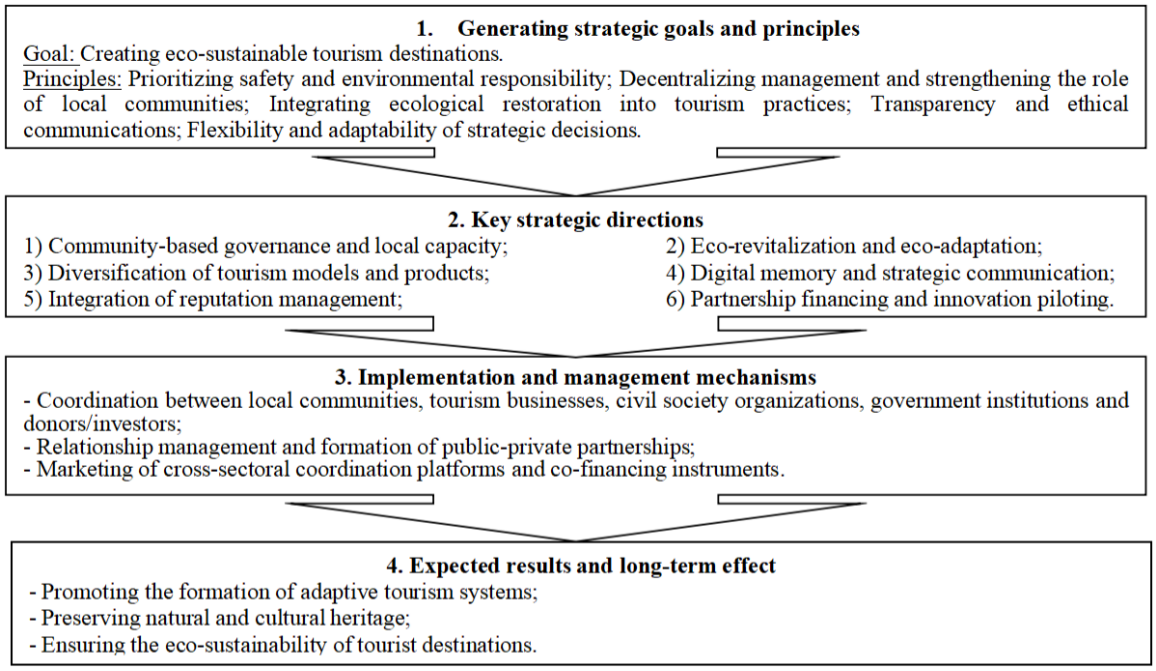

Figure 3. Algorithm for forming a strategy for the development of sustainable tourism and restoring the eco-sustainability of tourist destinations.

Source: Own development.

The fourth direction focuses on digital memory and strategic communication, ensuring the continued presence of destinations in the tourist and public discourse, even when individual eco-attractions are physically inaccessible. Digital platforms, storytelling, and the involvement of influencers as communication intermediaries become tools for restoring trust and forming responsible tourism demand.

The fifth direction is reputation management. It is worth noting its importance given the long-term reputational effects, when the image of danger or destruction persists much longer than the actual environmental or security threats. In this sense, communication in the international tourism space ceases to be a mere promotional tool. It becomes a mechanism for restoring trust and legitimacy, and for enhancing the attractiveness of a tourist destination.

Regarding the sixth strategic direction—partner financing and the piloting of innovations—based on a combination of donor grants, investment mechanisms, and local initiatives. In particular, donor and investment pilot projects serve to test new models of cooperation and to scale up successful practices, expanding the boundaries of individual resource capabilities of destinations.

Finally, an important strategic direction is the partnership and multi-level nature of governance, combining the efforts of local communities, tourism businesses, public organizations, state institutions, and donors/investors. Its role is focused on network models of cooperation that can compensate for individual actors' limited resources and expand collective development opportunities within the tourist destination.

The above-mentioned main strategic directions require appropriate mechanisms for implementing and managing relations among local communities, tourism businesses, and stakeholders. Public-private partnerships, intersectoral coordination platforms, and joint financing instruments that allow for the combination of formal and informal governance mechanisms play an important role in this.

The result is a long-term impact, manifested in the

formation of an adaptive tourism system capable of responding to environmental and social shocks, supporting sustainable livelihoods, and preserving natural and cultural heritage. Thus, sustainable tourism is transformed from a vulnerable sector into a strategic tool for restoring territories and enhancing the eco-resilience of tourist destinations. At the same time, the formed adaptive tourism system is not homogeneous in its manifestations and implementation tools. Depending on the degree of crisis impact, environmental losses, the level of physical access to territories, and the institutional capacity of local communities, strategic approaches to the sustainable development of tourist destinations may differ significantly. In this sense, it is appropriate to consider the typification of sustainable tourism development strategies, presented on the academic plane (**Figure 4**). This typification provides an analytical basis for selecting appropriate strategic solutions and enables integrating adaptive tourism approaches into general strategies for the development of territorial communities and urban spaces. The proposed typology should be interpreted as an analytical framework reflecting patterns identified in expert narratives, rather than a definitive classification applicable at the national level.

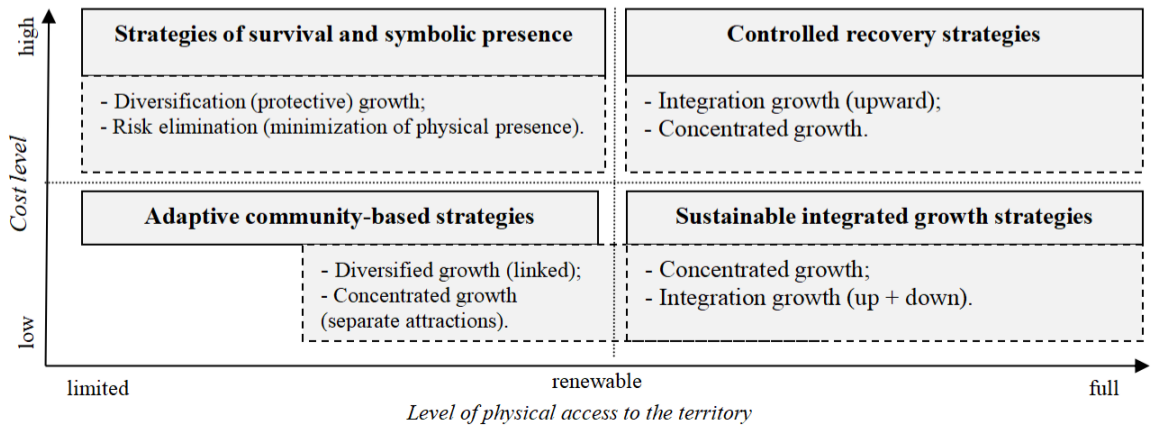

Figure 4. Typology of sustainable tourism development strategies in crisis-affected destinations.

Source: Systematized by Sonuç [16], Hoskins [21], Damiasih [32].

Figure 4 presents a typology of sustainable tourism development strategies in crisis-affected destinations, based on the levels of environmental, financial, and social losses, as well as the physical accessibility of the territories. The proposed matrix illustrates that the choice of a strategic approach is not universal, but is determined by a combination of spatial, environmental, and institutional conditions of the functioning of tourist destinations.

Thus, in the quadrant with high losses and limited physical access, a strategy of survival and symbolic presence is emerging, based on diversification (protective) growth and the elimination of physical risks. The main tools of this strategy are digital memory, virtual tours, memorial and educational tourism formats, and strategic communication without the physical presence of visitors. Examples include digital ecological and cultural heritage projects in areas with complete or prolonged inaccessibility.

In conditions of high losses but renewable access, an adaptive, community-oriented strategy prevails, combining related diversification and concentrated growth. Here, local communities, volunteer initiatives, pilot tourist routes, eco-revitalization programs, and donor projects supporting community-based tourism play a key role. At the same time, diversification growth in sustainable tourism involves expanding the destination's tourism functions through activities that build on existing natural, cultural, and social resources. This approach allows preserving the territory's tourist identity while adapting tourist products to new conditions and constraints.

In the quadrant with relatively low losses and limited or controlled access, a controlled recovery strategy is implemented, which is based mainly on integrated growth "upwards" and concentrated development. In particular, integrated growth "upwards" in sustainable tourism strategies involves greater control over the development of the tourism product and the destination's resource base. This approach includes the management of natural areas, route planning, determination of permissible tourist load, and the establishment

of environmental responsibility standards. In crisis conditions, integration "upwards" helps avoid chaotic tourism recovery, reduce environmental risks, and ensure the consistency of tourism activities with the goals of territory recovery. The tools of the controlled recovery strategy are the phased opening of territories, regulation of tourist load, access management, scientific and educational tourism, and enhanced environmental monitoring. This approach helps you avoid premature commercialization and preserve the destination's ecological balance.

Finally, in the low-loss and full physical access quadrant, a sustainable integrated growth strategy is being developed that combines concentrated and integrated growth (both "up" and "down"). In this case, it is possible to implement integrated destination development strategies, vertically integrate tourism value chains, develop sustainable tourism products, and institutionalize partnerships between communities, businesses, and government institutions.

Thus, the proposed typology of sustainable tourism development strategies provides a conceptual framework for selecting appropriate recovery models in crisis-affected destinations. At the same time, its practical application requires spatial specification that takes into account Ukraine's tourist zoning, the differing scales of environmental losses, and the functional roles of individual territories. Therefore, the next step is to analyze the directions of post-war recovery for eco-destinations in Ukraine by tourist region. **Table 8** systematizes the key environmental challenges, strategic recovery priorities, and generalized expert recommendations for individual crisis-affected destinations, enabling the integration of conceptual strategies with practical solutions at the regional and territorial community levels.

Table 8. Directions for the post-war restoration of eco-destinations of Ukraine according to tourist regions.

Tourist Region	Crisis-Affected Destination	Major Environmental Losses	Dominant Type of Strategy	Key Areas of Post-War Recovery	Generalized Expert Recommendations
Dnipro–Dnister	Kakhovka Reservoir & Lower Dnipro Region	Loss of reservoir, degradation of aquatic and coastal ecosystems	Survival strategy and symbolic presence	Formation of new natural landscapes; eco-educational and memorial formats; digital heritage	Abandon business as usual; develop digital and educational formats to restore security
Azov–Black Sea	Azov Sea Coast (Mariupol–Berdyansk)	Coastal destruction, pollution of marine ecosystems	Adaptive community-based strategy	Community-based coastal projects; eco-rehabilitation; pilot tourist zones	Start with small local initiatives; avoid mass tourism in the early stages
Eastern (Donbas)	Donbas Natural Parks and Steppe Reserves	Mining, fires, fragmentation of protected areas	Controlled recovery strategy	Demining; scientific and educational tourism; access control	Tourism is only possible after environmental and safety certification
Northern (Polissia)	Chornobyl Exclusion Zone	Radiation contamination, restricted access	Survival strategy and symbolic presence	Memorial and scientific tourism; digital interpretations	Limit commercialization; strengthen educational and symbolic function
Carpathian	Carpathian Eco-tourism Regions	Local environmental losses, climate risks	Sustainable integrated growth strategy	Ecotourism; load shedding; community support	Use the Carpathians as a model of eco-sustainable tourism for other regions

Source: Compiled by the authors based on **Figure 4** and the results of a survey of experts.

Spatial differences in tourism regions, the scale of ecological losses, the level of physical access, and the institutional capacity of local communities shape distinct recovery trajectories and determine the appropriateness of applying individual strategic models. The analysis shows that in regions with high levels of ecological degradation and long-term access restrictions, survival and symbolic presence strategies dominate, in which tourism primarily serves educational, memorial, and communication functions. In such cases, digital tools, virtual formats, and the preservation of ecological

memory become key mechanisms for supporting destinations' tourist identity in the absence of visitors' physical presence.

At the same time, areas with renewable access and significant but not critical losses are characterized by the development of adaptive community-based strategies that combine eco-revitalization, volunteer initiatives, and pilot tourism products. It is these regions that demonstrate the highest potential for building local resilience and sustainable livelihoods through small, flexible, and socially embedded forms of tourism.

Regions with relatively intact ecosystems but with a need for access control are focusing on controlled restoration strategies based on integrative growth "upwards", regulation of tourist flows, and gradual opening of territories. Such approaches help avoid premature commercialization and maintain a balance between ecological security and tourist development.

Overall, the results of **Table 8** support the research hypothesis that restoring sustainable tourism in crisis-affected destinations requires rethinking traditional development models and shifting the emphasis from infrastructure growth to strategic communication, community participation, and digital support for tourism identity. Thus, tourism in post-crisis regions is transformed from an industry of space consumption into a tool for socio-ecological stabilization and long-term restoration of territories.

Overall, the analytical framework presented above in **Figures 2** and **3**, as well as in **Tables 7** and **8**, provides a vector for further development of scenarios and for integrating tourism strategies into broader strategies for the restoration of territorial communities and urban spaces.

We will model possible trajectories of tourism destination development in the post-war period under conditions of high uncertainty (**Table 9**).

Table 9. Scenarios for the restoration of sustainable tourism in crisis-affected destinations in Ukraine.

Scenario	Key Assumptions (Experts)	Dominant Strategies (According to Figure 4)	Priority Regions/Destinations	Main Implementation Tools	Tourism Function
Optimistic scenario	End of the active phase of the war; stabilization of security; restoration of access to the territories within 2–3 years (according to expert estimates)	Sustainable integrated growth strategy; controlled recovery strategy	All tourist regions, including the southern and eastern ones after de-occupation	Integrated spatial planning; top-down and bottom-up integration; public-private partnerships; congestion management	Tourism as a driver of socio-economic development and eco-sustainability
Compromise scenario	Prolonged instability; local "windows of security"; uneven recovery of territories	Adaptive community-based strategy; controlled recovery strategy	Part of the southern and eastern regions; renewable destinations; local communities	Community-based eco-revitalization; related diversification; hybrid (online–offline) formats; donor pilot projects	Tourism as a tool for local sustainability, social cohesion and livelihood support
Pessimistic scenario	Prolonged war; high security risks; limited access to significant areas	Survival strategy and symbolic presence	Carpathian tourist region; Central urban-cultural region; part of the Polesie region (excluding border regions)	Defensive diversification; domestic tourism; digital memory; virtual and memorial formats	Tourism as a socio-psychological, symbolic and communication function

Source: Compiled by the authors based on **Figure 4**, **Table 8** and the results of a survey of experts.

At the same time, the proposed scenarios should be considered not as forecasts but as analytical constructs that reflect alternative combinations of security, environmental, institutional, and social factors affecting the restoration of sustainable tourism in Ukraine. These scenarios are exploratory and interpretive in nature and should be understood as analytically informed propositions derived from expert insights, rather than generalizable national-level predictions.

The scenarios presented in **Table 9** reflect possible trajectories for the recovery of sustainable tourism in crisis-affected destinations in Ukraine, depending on the duration of hostilities, the level of security risks, and the pace of ecological and institutional recovery. They are based on a combination of conceptual strategies, spatial analysis results, and generalized expert assessments obtained through semi-structured interviews.

Thus, the optimistic scenario assumes the end of the war's active phase in the short and medium term and the creation of conditions for the gradual restoration of access to most tourist areas. According to experts, if the security situation stabilizes and targeted state and donor support is provided, the basic ecological and tourist recovery of the crisis-affected regions can be achieved within 2–3 years. This scenario is dominated by a strategy of sustainable integrated growth, supplemented by mechanisms of controlled recovery. Tourism gradually returns to its economic function, is integrated into the general development strategies of territorial communities, and acts as a tool for long-term socio-ecological recovery.

The pessimistic scenario is based on the assumption of prolonged military instability and the continued high risk across a significant part of the territories. In this case, the priority remains measures to demine, eliminate the consequences of missile and drone attacks, restore basic infrastructure, and minimize environmental threats. Tourism activity in this scenario is limited to relatively safe regions, in particular the Carpathian tourist region, the Central urban-cultural tourist region, and parts of the Northern (Polish) tourist region, except for border areas with a higher risk. The strategy of survival and symbolic presence becomes dominant, in which tourism primarily serves social, psychological, and communication functions, supporting domestic tourism and preserving the country's tourist identity.

The compromise scenario, which experts consider the most likely, combines elements of limited access, uneven territorial recovery, and a high role for local communities in supporting tourism activity. In this scenario, the war may continue in the form of protracted instability, but with local "windows of safety" that allow the launch of pilot recovery projects. Tourism develops through adaptive, community-oriented strategies, the diversification of tourism products, and hybrid formats (a combination of physical and digital presence). The main emphasis is not on rapid economic growth, but on building local resilience, supporting sustainable livelihoods, and gradually restoring trust in destinations.

Thus, the scenario analysis shows that sustainable tourism in post-war conditions can perform different functions: from an economic driver of recovery to a tool for socio-ecological stabilization and symbolic support of identity. The transition between scenarios is dynamic and depends on external factors, which emphasizes the need for flexible strategies and adaptive management of tourist destinations.

Overall, the study confirms the further development of the discussion field and identifies the need for adaptive, multi-level sustainable tourism strategies integrated into broader strategies for the restoration of territorial communities and urban spaces.

4. Discussion

The interpretation of the results obtained in this work is based on an interdisciplinary combination of scientific approaches to sustainable tourism, heritage research as a practice of creating the future, concepts of ecological degradation as a global risk, theories of stakeholder crisis communication, as well as community-based management and co-creation. Such a theoretical synthesis allows us to consider sustainable tourism in crisis-affected destinations not as an industry that recovers linearly, but as a complex socio-ecological system in which material, symbolic, and communicative processes are interconnected.

The findings of this study can be further interpreted within broader theoretical frameworks of tourism geography, destination resilience, and heritage management. From a tourism geography perspective, the results illustrate processes of spatial disruption, fragmentation of tourism networks, and the emergence of "inaccessible" or "symbolically altered" destinations. In terms of destination resilience, the study highlights the shift from recovery as restoration to recovery as adaptation, where tourism systems reorganize under conditions of uncertainty rather than return to pre-crisis states. From a heritage management perspective, the findings emphasize that both natural and cultural heritage function not only as physical assets but also as carriers of meaning, identity, and collective memory, which require preservation through both material and digital mechanisms in crisis contexts.

The role of digital memory identified in this study can also be interpreted as an adaptive mechanism that emerges in response to the threat of physical heritage loss in crisis-affected destinations. In contexts where environmental degradation, destruction of infrastructure, and security constraints limit the possibility of physical conservation, digital memory

practices provide an alternative pathway for preserving and communicating the value of natural and cultural heritage.

This perspective aligns with contemporary approaches in cultural heritage management [20, 35–40], which emphasize the integration of physical, natural, and geological heritage into broader processes of local development and circular economy. Within such frameworks, heritage is not treated solely as a static object of preservation, but as a dynamic resource that can be reinterpreted, digitized, and reintegrated into socio-economic systems.

In situations where the balance between use and preservation of heritage cannot be maintained due to crisis conditions, digital memory offers an alternative axis of conservation and utilization. It enables destinations to sustain their symbolic presence, maintain continuity of identity, and support tourism functions even in the absence of physical accessibility. Thus, digital memory should be understood not as a supplementary tool, but as a core component of adaptive and resilience-oriented tourism strategies.

Additionally, the results can be interpreted through the lens of adaptive governance and socio-ecological resilience. From this perspective, tourism destinations in crisis contexts function as complex adaptive systems, where recovery depends not only on restoring physical resources but also on the capacity to reorganize governance structures, reconfigure stakeholder interactions, and adapt communication practices. This aligns with resilience-oriented approaches in tourism studies, which emphasize flexibility, learning, and multi-level coordination as key conditions for sustainable recovery [40].

The findings also highlight that the effectiveness of sustainable tourism recovery in crisis-affected destinations critically depends on the level of coordination among key stakeholder groups, including public authorities, private-sector actors, local communities, and civil society organizations. Insufficient coordination among these actors can substantially undermine recovery processes, leading to fragmented initiatives, duplication of efforts, and inefficient use of limited resources. This finding is consistent with destination management literature, which emphasizes the importance of integrated governance and multi-stakeholder collaboration as core conditions for sustainability.

In crisis contexts, this coordination challenge becomes even more pronounced, as tourism systems operate under conditions of uncertainty, resource scarcity, and institutional disruption. Weak alignment between local communities, public institutions, and knowledge actors (including academic and knowledge institutions) limits the capacity to design and implement coherent recovery strategies. This reinforces the need for participatory governance models, where stakeholders are actively involved in spatial planning, decision-making, and the co-creation of recovery pathways.

In the context of globalization and increasing exposure to multiple forms of crisis affecting the sustainable development of tourist destinations, there is a need to rethink classical approaches to management. Thus, classical approaches to sustainable tourism emphasize the balance between economic, environmental, and social development goals [9, 14, 41]. However, the literature [17, 42] and the results of this study indicate that, in conditions of large-scale environmental degradation and infrastructure disruption, these basic assumptions need to be expanded. Environmental degradation is not only a local problem of individual destinations but also a manifestation of global risk that simultaneously affects security, management capabilities, and the symbolic representation of territories. In this sense, sustainable tourism ceases to be exclusively a development tool and is transformed into a mechanism of systemic adaptation to prolonged uncertainty—and this, among other things, is confirmed by scientific sources [26, 29, 40].

An important element in interpreting the hypothesis is the approach to heritage as a dynamic practice of future-making, rather than merely an object of preservation. This perspective extends the discussion on the limitations of purely technological approaches in sustainable tourism. While virtual tools can support tourist presence during crises, they cannot fully substitute for embodied interaction with natural and cultural landscapes. This aligns with critical perspectives in the literature that caution against excessive digitalization of heritage in the absence of parallel ecological and social recovery [9, 11, 20]. At the same time, through digital memory, virtual reconstructions, and narrative practices, heritage retains its capacity to shape destination image and sustain its presence in tourism discourse, in line with contemporary approaches to heritage futures [21, 25]. Cultural heritage preservation also operates as a socio-symbolic recovery mechanism, reinforcing identity continuity and collective memory in communities affected by displacement

and environmental trauma. International heritage protection principles further emphasize that safeguarding cultural assets contributes to rebuilding social cohesion and restoring collective belonging in post-conflict societies. In this sense, digital memory in sustainable tourism should be understood as a complementary, rather than autonomous, recovery mechanism.

In this context, digital memory should not be reduced to a set of technological tools (e.g., virtual tours or digital archives), but rather conceptualized as a socio-cultural and communicative process through which meanings, identities, and narratives of place are preserved, reconstructed, and strategically communicated under conditions of disruption. Digital memory operates as a mechanism of symbolic continuity, enabling destinations to maintain their presence in collective perception even when physical access is restricted or impossible. It supports the reconstruction of destination identity, mediates between past and present representations of place, and contributes to restoring trust through communication practices. Thus, digital memory becomes an integral component of destination recovery, linking ecological restoration with narrative reconstruction, stakeholder communication, and the reconfiguration of destination meaning.

In this regard, the role of stakeholders as communicators in crisis contexts becomes particularly important. The results of the study confirm that local communities, public organizations, local authorities, and tourism businesses perform not only managerial and economic functions but also key communicative roles in crisis and recovery processes. They shape narratives of safety, responsibility, and future development, which are critical for maintaining trust in destinations during periods of limited access. This interpretation is consistent with approaches that consider stakeholders as central actors in disaster communication [36–39]. Within this study, decentralized stakeholder functions ensure the continuity of tourism communication under conditions of disruption, combining environmental responsibility, local identity, and ethical principles of recovery. This extends classical stakeholder management models by integrating them into the frameworks of crisis and strategic tourism communication. This perspective is consistent with established crisis communication frameworks, which emphasize transparency, trust-building, and stakeholder engagement as central components of effective communication in situations of uncertainty and risk.

It should be noted that the recovery roadmaps proposed in this study can also be interpreted in light of recent developments in tourism crisis research. Recent studies [18, 20, 33, 42] emphasize that tourism destinations affected by systemic shocks need to move from reactive approaches to crisis management to more proactive and adaptive management models. Rather than focusing exclusively on short-term recovery and restoration, such approaches prioritize proactive planning, flexibility, and the ability to respond to ongoing uncertainty.

In this context, the findings of this study support the view that sustainable tourism recovery requires not only rebuilding physical assets but also reconfiguring governance structures, stakeholder interactions, and strategic planning processes. The proposed recovery pathways reflect a shift toward adaptive and resilience-oriented models, where destinations continuously adjust to changing conditions rather than attempt to return to pre-crisis states. This perspective aligns with recent literature on crisis tourism and contributes to a deeper conceptual understanding of post-crisis destination transformation.

Finally, the study's results highlight the importance of community-based governance and co-creation as key mechanisms for sustainable tourism recovery. Unlike centralized reconstruction models that often ignore local context and social connections, community-based approaches integrate ecological recovery with local resilience building, livelihood support, and tourism identity [12, 34, 35, 43]. It is in this synergy of strategic communication, digital memory, and community participation that the research hypothesis finds its conceptual validation. This allows for a rethinking of community-based tourism not only as a model for local development, but also as a mechanism for the survival of tourism systems in periods of prolonged uncertainty.

In summary, the study's results not only confirm previous scientific work but also offer an expanded interpretation of sustainable tourism for crisis-affected destinations. They demonstrate that sustainability in such conditions is achieved through a combination of ecological restoration, community-based management, and strategic communication, enabling a departure from classical models of tourism destination development.

Although the study's results allowed us to conceptualize the mechanisms of sustainable tourism recovery in

crisis-affected destinations and to propose a typology of development strategies and scenarios, the work has several limitations that must be taken into account when interpreting the findings. First of all, the study is based on a qualitative design and semi-structured interviews with experts, which provide depth of analysis and contextual understanding of recovery processes but limit the possibility of quantitative verification and statistical generalization of the results. In this sense, the conclusions of the work should be analytically extrapolated to crisis destinations with similar characteristics, rather than being universal for all tourism systems.

An additional research limitation is the dynamism and variability of Ukraine's crisis environment, where uncertainty affects the timeline of the war and the unpredictability of further damage. Thus, the security situation, accessibility of territories, the state of ecosystems, as well as institutional and financial possibilities for recovery, change faster than they can be recorded within a single empirical section. In this regard, the proposed recovery scenarios should not be interpreted as prognostic models but rather as analytical frameworks that help us understand possible trajectories of sustainable tourism development under conditions of uncertainty. At the same time, this instability underscores the relevance of adaptive strategies and the scenario approach, which have become central to the study. Another significant limitation is the fragmentation and limited availability of environmental data on pollution levels, the consequences of artificial destruction, mine risk, and the degradation of natural areas in several regions of Ukraine. This creates informational "blind spots" and complicates the accurate quantitative assessment of ecological losses and recovery rates. Accordingly, in the work, ecological degradation is primarily considered a systemic factor in disrupting tourism ecosystems and management processes. In contrast, a detailed ecological assessment requires additional interdisciplinary research, including ecological monitoring and spatial analysis.

Accordingly, the proposed typologies and scenarios should be interpreted as context-sensitive analytical constructs rather than universally generalizable models.

In addition, the empirical part of the study focuses mainly on the expert level, including representatives of government, tourism businesses, public organizations, and initiatives. This focus allowed us to analyze the strategic and managerial aspects of recovery, but, to a lesser extent, it also reflected the perspectives of broader groups of residents and tourists. This limits the possibility of a complete reconstruction of visitors' risk perceptions, trust, and motivations, especially in the context of reputational shocks and information uncertainty. At the same time, the choice of an expert approach was justified by the fact that these actors play a key role in shaping strategies, directions, and mechanisms for the recovery of sustainable tourism.

Given these limitations, directions for future research are outlined. The use of mixed methods that combine qualitative interviews with quantitative surveys of tourists and residents, as well as the analysis of digital traces in social media and tourism platforms to measure trust, reputational effects, and changes in tourism demand, is promising. It is advisable to pay special attention to comparative international studies of crisis and post-conflict destinations, which will allow us to test the transferability of the proposed conceptual framework and expand its application beyond the Ukrainian context. Further research is also needed on the role of digital memory and virtual reconstruction as components of tourism recovery infrastructure, particularly to assess the effectiveness of various digital formats in supporting tourism identity, building trust, and attracting investment and donor resources. In addition, an important direction is the analysis of mechanisms of multi-level governance and public-private partnership in the restoration of sustainable tourism, including issues of transparency, co-financing, and participation of local communities in strategic decision-making.

Overall, these limitations do not diminish the significance of the research findings but rather highlight the complexity and multidimensionality of sustainable tourism recovery in crisis conditions. The proposed approaches, scenarios, and conceptual framework can serve as the basis for further empirically expanded and interdisciplinary research aimed at developing adaptive tourism systems in crisis and post-crisis environments.

5. Conclusions

The modern world demonstrates fragility, nonlinearity, unpredictability, and cruelty in socio-economic, political, and environmental spheres. In such conditions, the concept of sustainable development loses its meaning as a stable

formula capable of ensuring balanced viability of systems. The situation is further aggravated by artificial accidents, destruction of hydraulic and energy infrastructures, loss of biodiversity, pollution of soils and water resources (sometimes non-renewable), degradation of landscapes, and loss of nature conservation and tourist areas caused by armed conflicts.

Thus, the philosophy of sustainable tourism, as a system based on the balanced use of natural resources, the preservation of ecosystems and the long-term ability of tourist destinations to maintain economic, social and environmental balance, the creation of a safe and predictable space for the formation of tourist experience, requires a fundamental rethinking in terms of understanding its essence and the ability to analyze, assess, neutralize and predict the impact of challenges and crisis phenomena, respond and adapt to risks.

The authors prove that ecological degradation in crisis destinations acts as a systemic destabilizing factor, acquires the effect of a constant threat, acts not only as a physical barrier, but also as a reputational shock, which necessitates a rethinking of approaches to the sustainable development of tourist destinations—from an orientation towards preserving stable ecosystems to models capable of functioning in conditions of prolonged environmental uncertainty and limited physical access, and a loss of trust in safety for many years.

Having assessed the scale and consequences of the impact of military actions on crisis tourist destinations, the authors propose interpreting the eco-degradation of Ukraine not as a local problem but as a national structural transformation of tourism systems, with a multiplicative and systemic nature in time and space.

In addition to ecosystem destruction, the authors focus on institutional and informational degradation in crisis tourist destinations, recognizing them as the most critical yet least visible consequences of the ecological crisis. Thus, it is proven that tourist destinations are forced to function in a mode of constant ecological and security uncertainty. In this sense, ecological degradation appears not only as a limitation to sustainable tourism but also as a catalyst for the transition to adaptive, digitally supported, and risk-oriented models of tourism development in crisis-survival mode.

The article examines the types of losses of natural heritage and eco-attractions in crisis destinations, which are grouped into: a) physical losses (complete or partial destruction of a natural object or ecosystem) in the form of landscape destruction, fire, flood, mining of territories, contamination of soils and water resources, which make it impossible to restore the tourist function without long-term ecological restoration; b) functional losses (a natural object is physically preserved, but loses the ability to perform a tourist function) in the form of access restrictions due to security risks, lack of infrastructure, lack of environmental monitoring, legal restrictions or the inability to guarantee the safety of visitors; c) symbolic losses (affecting tourist memory, the destination brand and the level of trust on the part of potential visitors) associated with the transformation of the perception of natural heritage in the collective tourist imagination.

It has been proven that different types of losses in eco-attractions cumulatively affect the functioning of sustainable tourism, and that recovery in crisis destinations cannot be limited solely to the ecological restoration of natural resources. Strategic communication and the involvement of local communities as carriers of destinations' knowledge, memory, and identity are of key importance. In this context, state initiatives to digitize natural and cultural heritage serve not only as preservation tools but also as an important element of anti-crisis tourism management.

The article substantiates the importance of high-quality interaction between stakeholders (territorial communities, tourism business entities, public and volunteer organizations, digital projects, influencers and content creators, donor and grant projects) in the framework of the formation of a communicative ecosystem in crisis destinations.

The results confirm that the developed conceptual model of community-oriented eco-revitalization of tourist destinations is a system-forming element of sustainable tourism development, providing a connection between ecological recovery, social cohesion, and economic viability, and is grounded in local knowledge, social capital, and communities' ability to adapt to prolonged uncertainty. Thus, such a model lays the groundwork for transitioning from reactive anti-crisis measures to long-term models of sustainable tourism recovery.

The analysis of empirical materials and the conceptual model shows that in crisis conditions, sustainable tourism is increasingly transforming from a physical conservation model to an adaptive eco-resilience model, which assumes

the ability of a destination to maintain the viability of tourism functions in conditions of environmental loss, uncertainty, and limited access, combining ecological restoration with communication, digital and community mechanisms of recovery. In this logic, the key is not only the protection or restoration of material natural objects, but also the ability of tourism systems to adapt to losses, uncertainty, and limited access to ecological attractions.

The proposed roadmap for the development of eco-sustainability in tourist destinations demonstrates that the restoration of sustainable tourism in crisis conditions is a multi-level, phased transformation of the tourism ecosystem, in which ecological, social, economic, and communication components interact in a mode of constant adaptation. Eco-revitalization has the greatest effect when implemented as a community practice rather than an externally imposed project, since such narratives lay the foundation for trust among local communities, businesses, and visitors. In this context, state institutions serve as a stabilizing force, while local communities develop eco-revitalization projects in tourism and adaptive strategies for sustainable development.

The proposed algorithm for forming a strategy for the development of sustainable tourism and the restoration of eco-sustainability of tourist destinations provides for the following strategic directions: 1) community-oriented management as social capital; 2) ecological adaptation as the basis of tourist safety; 3) diversification of tourist models and products as the basis of tourist attractiveness; 4) digital memory and strategic communication as tools for restoring trust and forming responsible tourist demand; 5) partner financing and piloting innovations as the basis of the resource capabilities of destinations; 6) reputation management as a mechanism for restoring trust, legitimacy and targeting the attractiveness of a tourist destination; 7) partner and multi-level governance as the basis of network models of cooperation and development opportunities. Thus, sustainable tourism is transformed from a vulnerable industry into a strategic tool for restoring territories and strengthening the eco-sustainability of tourist destinations.

The above-mentioned main strategic directions require appropriate mechanisms for implementing and managing relations among local communities, tourism businesses, and stakeholders. Public-private partnerships, intersectoral coordination platforms, and joint financing instruments that allow the combination of formal and informal governance mechanisms play an important role in this.

The proposed matrix for typifying sustainable tourism development strategies creates a conceptual framework for selecting adequate recovery models in crisis-affected destinations depending on the level of environmental, financial and social losses, as well as the physical accessibility of territories, illustrates that the choice of a strategic approach is not universal, but is determined by a combination of spatial, environmental and institutional conditions for the functioning of tourist destinations, and also offers an appropriate set of tools for their implementation.

Based on the systematization of key environmental challenges, strategic recovery priorities, and generalized expert recommendations for individual crisis-affected destinations in Ukraine, trajectories of post-war recovery for eco-destinations were proposed, along with a recommended set of individual strategic models that allow combining conceptual strategies with practical solutions at the regional and territorial community levels. Thus, tourism in post-crisis regions is transformed from an industry of space consumption into a tool for socio-ecological stabilization and long-term recovery of territories.

Ukraine's ecological assets form a holistic and strategically important system for sustainable tourism, biodiversity protection, and post-crisis green growth. In this regard, the authors modeled possible scenarios (optimistic, compromise, pessimistic) for the development of tourist destinations in the post-war period under conditions of high uncertainty, depending on the duration of hostilities, the level of security risks, and the pace of ecological and institutional recovery.

The proposed model not only explains the mechanisms of the current recovery of tourism destinations but also lays the groundwork for further research into adaptive, community-oriented strategies for diversifying tourism products and hybrid formats (a combination of physical and digital presence) that can operate in conditions of prolonged environmental and social uncertainty. The proposed scenarios are not considered forecasts, but rather analytical constructs that reflect alternative combinations of security, environmental, institutional, and social factors, integrated into broader strategies for the recovery of territorial communities and urban spaces that affect the recovery of sustainable

tourism.

Author Contributions

Conceptualization, L.B. and A.R.; methodology, L.B.; formal analysis, L.B. and L.H.; investigation, L.B.; data curation, L.B.; writing—original draft preparation, L.B.; writing—review and editing, A.R. and L.H.; visualization, A.R.; supervision, L.B. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

Ethical review and approval were waived for this study, as it involved non-invasive qualitative research based on voluntary expert interviews, did not include vulnerable populations, personal identifiers, or sensitive personal data, and posed no foreseeable risk to participants. The data were anonymized and analyzed in accordance with ethical standards for social science research.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are not publicly available due to ethical and privacy considerations. Anonymized qualitative data supporting the findings of this study may be made available from the corresponding author upon reasonable request.

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Conflicts of Interest

The authors declare no conflict of interest.

AI Use Statement

During the preparation of this manuscript, the authors used ChatGPT (OpenAI) for language refinement and structural organization of the text. Grammarly was used for grammar checking and stylistic editing. No AI tools were used for data analysis, interpretation, or generation of scientific content. All outputs were critically reviewed and edited by the authors. The authors take full responsibility for the integrity and accuracy of the work.

References

[1] United Nations Educational, Scientific and Cultural Organization (UNESCO), 1954. Convention for the Protection of Cultural Property in the Event of Armed Conflict with Regulations for the Execution of the Convention. UNESCO: The Hague, The Netherlands. Available from: https://www.unesco.org/en/legal-affairs/convention-protection-cultural-property-event-armed-conflict-regulations-execution-convention

[2] Creswell, J.W., Poth, C.N., 2018. Qualitative Inquiry and Research Design: Choosing among Five Approaches, 4th ed. SAGE Publications: Thousand Oaks, CA, USA.

[3] Patton, M.Q., 2020. Qualitative Research and Evaluation Methods, 5th ed. SAGE Publications: Thousand Oaks, CA, USA.

[4] Lungu, M., 2022. Book Review: Saldaña (2021) The Coding Manual for Qualitative Researchers. American Journal of Qualitative Research. 6(1), 232–237. DOI: https://doi.org/10.29333/ajqr/12085

[5] Braun, V., Clarke, V., 2006. Using Thematic Analysis in Psychology. Qualitative Research in Psychology. 3(2), 77–101.

[6] Faulkner, B., 2013. Towards a Framework for Tourism Disaster Management. In: Wilks, J., Page, S.J. (Eds.). Managing Tourist Health and Safety in the New Millennium: Advances in Tourism Research. Pergamon: Elmsford, NY, USA. pp. 155–176. DOI: https://doi.org/10.1016/B978-0-08-044000-2.50016-X

[7] Lincoln, Y.S., Guba, E.G., 1985. Naturalistic Inquiry. SAGE: Thousand Oaks, CA, USA. pp. 289–331.

[8] Ait Zamzami, H., Elaanzouli, M., Zahrani, A., et al., 2025. Sustainable Water Management in Eco-Tourism: Addressing Water Scarcity in Morocco's Northern Piedmont of the Western High Atlas. Eco-Tourism and Sustainable Development. 1(2), 1–15. DOI: https:

//doi.org/10.63385/etsd.v1i2.174

[9] World Tourism Organization (UNWTO), 2018. Tourism for Development—Volume I: Key Areas for Action. UNWTO: Madrid, Spain. DOI: https://doi.org/10.18111/9789284419722

[10] United Nations Environment Programme (UNEP), 2025. Environmental Impact of the Escalation of Conflict in the Gaza Strip. UNEP: Nairobi, Kenya. Available from: https://www.un.org/unispal/document/unep-environmental-impact-of-the-escalation-of-conflict-in-the-gaza-strip/

[11] Geneva Environment Network, 2025. Protecting the Environment in Armed Conflict. Available from: https://www.genevaenvironmentnetwork.org/resources/updates/protecting-the-environment-in-armed-conflict/ (cited 16 February 2026).

[12] Hall, C.M., Prayag, G., Amore, A., 2018. Tourism and Resilience: Individual, Organisational and Destination Perspectives. Multilingual Matters & Channel View Publications: Bristol, UK.

[13] Timothy, D.J., Boyd, S.W., 2006. Heritage Tourism in the 21st Century: Valued Traditions and New Perspectives. Journal of Heritage Tourism. 1(1), 1–16. DOI: https://doi.org/10.1080/17438730608668462

[14] Inchausti-Sintes, F., 2023. Modelling the Economics of Sustainable Tourism. Journal of Sustainable Tourism. 31(9), 2136–2149. DOI: https://doi.org/10.1080/09669582.2021.2002344

[15] Gérard, T., Domtchouang Guylène Audrey, N., 2025. Digital Infrastructure Investments and Tourism Development in Cameroon: Evidence from an ARDL Approach. Eco-Tourism and Sustainable Development. 1(2), 52–69. DOI: https://doi.org/10.63385/etsd.v1i2.186

[16] Sonuç, N., 2023. Sustainable Tourism (Sustainable Development of Tourism, Sustainable Tourism Management). In: Idowu, S.O., Schmidpeter, R., Capaldi, N., et al. (Eds.). Encyclopedia of Sustainable Management. Springer: Cham, Switzerland. pp. 3613–3620. DOI: https://doi.org/10.1007/978-3-031-25984-5_454

[17] Yao, Y., Zhang, D., Nan, Y., et al., 2024. Environmental Degradation in the Korean Peninsula: Evidence from the Environmental Degradation Index. Ecological Indicators. 158, 111503. DOI: https://doi.org/10.1016/j.ecolind.2023.111503

[18] Zoï Environment Network, 2024. The Environmental Consequences of the War against Ukraine: Preliminary Twelve-Month Assessment (February 2022–February 2023). Summary and Recommendations. Available from: https://zoinet.org/product/osce-ukraine-one-year/ (cited 16 February 2026).

[19] Grygaski, T., 2023. Comprehensive Report: Ukraine Environmental Damage Assessments. Available from: https://unece.org/sites/default/files/2024-02/Comprehensive%20Report_Ukr%20Env%20Damage%20Assessments_IACG_Dec.%202023.pdf (cited 16 February 2026).

[20] Hernández Matorel, M.D., 2025. Reimagining Tourism: A Creative Model for Destinations Facing Negative Impacts. Eco-Tourism and Sustainable Development. 1(1), 27–41. DOI: https://doi.org/10.63385/etsd.v1i1.117

[21] Hoskins, A. (Ed.), 2018. Digital Memory Studies: Media Pasts in Transition. Routledge: New York, NY, USA.

[22] Catibog-Sinha, C., 2010. Biodiversity Conservation and Sustainable Tourism: Philippine Initiatives. Journal of Heritage Tourism. 5(4), 297–309. DOI: https://doi.org/10.1080/1743873X.2010.517841

[23] Komac, B., Zorn, M., Erhartič, B., 2011. Loss of Natural Heritage from the Geomorphological Perspective—Do Geomorphic Processes Shape or Destroy the Natural Heritage? Acta Geographica Slovenica. 51, 407–417. DOI: https://doi.org/10.3986/ags51306

[24] Bartolini, N., DeSilvey, C., Harrison, R., et al., 2020. Transforming loss: Third cross-theme knowledge-exchange workshop, October 2018, Woodbridge/Orford, Suffolk, UK. In: Harrison, R., DeSilvey, C., Holtorf, C., et al. (Eds.). Heritage Futures: Comparative Approaches to Natural and Cultural Heritage Practices. UCL Press: London, UK. pp. 347–356. DOI: https://doi.org/10.2307/j.ctv13xps9m.29

[25] Romão, X., Paupério, E., 2023. Disasters and Heritage Loss. In: Rouhani, B., Romão, X. (Eds.). Managing Disaster Risks to Cultural Heritage: From Risk Preparedness to Recovery for Immovable Heritage. Routledge: London, UK. pp. 33–52. DOI: https://doi.org/10.4324/9781003263647-3

[26] Harrison, R., DeSilvey, C., Holtorf, C., et al., 2020. Heritage as Future-Making Practices. In Heritage Futures: Comparative Approaches to Natural and Cultural Heritage Practices. UCL Press: London, UK. pp. 20–50. DOI: https://doi.org/10.2307/j.ctv13xps9m.8

[27] Kovalenko, I., 2025. Ukraine's Nature: One More Battlefield of Russia's War. Available from: https://ukraineworld.org/en/articles/analysis/ukraines-nature-one-more-battlefield (cited 16 February 2026).

[28] Hubareva, V., 2024. Wartime Challenges for Ukraine's Protected Areas. Available from: https://uwecworkgroup.info/wartime-challenges-for-ukraines-protected-areas (cited 16 February 2026).

[29] Zoï Environment Network, 2024. Ukraine Conflict Environmental Briefing: Nature. Available from: https://ceobs.org/ukraine-conflict-environmental-briefing-nature (cited 16 February 2026).

[30] Query, A., 2025. How Russia Continues Committing Ecocide in Ukraine, from Chornobyl to Today. Available from: https://united24media.com/war-in-ukraine/how-russia-continues-committing-ecocide-in-ukraine-from-chornobyl-to-today-4586 (cited 16 February 2026).

[31] Dewi, N.K.C., Trisyani, N.P.N., Yuliani, N.M.D., et al., 2025. Sustainable Tourism: Concept and Implementation for Sustainable Tourism Development. Journal of Management and Hospitality. 2(2), 31–35. DOI: https://doi.org/10.61857/jmh.v2i2.179

[32] Damiasih, D., 2025. Innovative Marketing Strategies for Sustainable Tourism Development. Golden Ratio of Marketing and Applied Psychology of Business. 5(1), 246–257. DOI: https://doi.org/10.52970/grmapb.v5i1.875

[33] Mensah, I., 2021. Marketing Emerging Tourist Destinations during Crisis and Pandemics. In: Mensah, I., Balasubramanian, K., Jamaluddin, M.R., et al. (Eds.). Marketing Tourist Destinations in Emerging Economies. Palgrave Macmillan: Cham, Switzerland. pp. 275–298. DOI: https://doi.org/10.1007/978-3-030-83711-2_13

[34] Piriou, J., 2019. Tourist Places, with Their Foundations in the Tourist Region. In The Tourist Region, Volume 1. Wiley: Hoboken, NJ, USA. pp. 5–21. DOI: https://doi.org/10.1002/9781119618300.ch1

[35] Piriou, J., 2019. Investors and Their Structuring of Regional Tourist Territories. In The Tourist Region, Volume 1. Wiley: Hoboken, NJ, USA. pp. 89–106. DOI: https://doi.org/10.1002/9781119618300.ch5

[36] Slivar, I., 2018. Stakeholders in a Tourist Destination—Matrix of Possible Relationships towards Sustainability. Open Journal for Research in Economics. 1(1), 1–10. DOI: https://doi.org/10.32591/coas.ojre.0101.01001s

[37] Brščić, K., Lovrečić, K., Šugar, T., 2021. Impact of Cycle Tourism Development on Tourist Destination—Attitudes of Local Stakeholders. Tourism in Southern and Eastern Europe. 6, 137–154. DOI: https://doi.org/10.20867/tosee.06.10

[38] Agbaba, R., Jurdana, D.S., 2025. Crisis Situations in Tourism and Cooperation with External Stakeholders—Tourist Organization Managers' Perception. WSEAS Transactions on Business and Economics. 22, 1663–1679. DOI: https://doi.org/10.37394/23207.2025.22.133

[39] Nurjanah, A., Prawoto, N., Apriliani, R., et al., 2023. The Role of Stakeholders as Disaster Communicators at Disaster-Prone Tourist Attraction Objects. Komunikator. 15(2), 247–258. DOI: https://doi.org/10.18196/jkm.20158

[40] Bramwell, B., Lane, B., 2011. Crises, Sustainable Tourism and Achieving Critical Understanding. Journal of Sustainable Tourism. 19(1), 1–3. DOI: https://doi.org/10.1080/09669582.2010.535743

[41] Coghlan, A., 2019. Introduction. In An Introduction to Sustainable Tourism. Goodfellow Publishers: Oxford, UK. pp. 2–29.

[42] Dávid, L.D., 2024. Ecological Degradation as a Global Risk. Ecological Risk and Security Research. 2(1), 6364. DOI: https://doi.org/10.59429/ersr.v2i1.6364

[43] Coghlan, A., 2019. Governance and Partnerships. In An Introduction to Sustainable Tourism. Goodfellow Publishers: Oxford, UK. pp. 118–139.