



THE GREEN BOOK OF ZAPORIZHZHIA RECOVERY

'24



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In this document experts and scientists analyze the main challenges and priority activities for the green post-war recovery of the Zaporizhzhia city territorial hromada. The paper presents structural and logical recovery schemes as a roadmap for the most vulnerable sectors that were significantly damaged during the full-scale war and are the main for sustainable urban development.

The document will be useful for representatives* of local self-government bodies, territorial hromadas, international organizations and foundations, civil society organizations, and everybody interested in participating in the post-war recovery of the Zaporizhzhia region and Ukraine.

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ABOUT ZAPORIZHZHIA

The city of Zaporizhzhia is the administrative center of the Zaporizhzhia region, which until March 2022 and the full-scale invasion of Ukraine by Russian armed forces was one of the most important industrial, energy, logistics and cultural center of the south-eastern part of Ukraine. The city is home for machine-building, energy and metallurgical complexes of national importance, which the Russians tried to seize. The industrial potential of the city includes 17 large enterprises, 317 medium-sized enterprises and 8.4 thousand small ones. Located on the banks of the Dnipro River, the city was an important water and transportation hub before the war. In terms of population, Zaporizhzhia ranked sixth among the largest cities in Ukraine, with 710 thousand inhabitants (as of January 01, 2022).

During the full-scale Russian-Ukrainian war, Zaporizhzhia has been heroically fighting against Russian attackers and has not been occupied, although the Russian Federation managed to capture 72% of the Zaporizhzhia region in February-March 2022. The Zaporizhzhia region remains an area of active hostilities and is one of the most affected by daily rocket and artillery shelling, which has led to massive population displacement to the city.

Already in the first months of the war, Zaporizhzhia became a powerful logistics hub for the military and tens of thousands of internally displaced persons from the occupied territories of Mariupol, Kherson, Mykolaiv, or the area of active hostilities. Zaporizhzhia has become a new home for 233,000 citizens (as of December 01, 2023), while about a third of the city's residents have moved to safer areas. Zaporizhzhia suffers from daily long-lasting air raid alerts and shelling by Russian invaders, which negatively affects the economy, environment and infrastructure.

Some industrial enterprises have suspended their operations, others have relocated to other, safer regions, but a sufficient number of companies continue to work in these conditions. However, even during a full-scale war, Zaporizhzhia continues to be an important industrial centre of Ukraine with developed sectors of machine building, ferrous and non-ferrous metallurgy, construction, chemical, food and light industry. Thus, Zaporizhzhia remains a city with high levels of air pollution from industrial enterprises

and vehicles. Compared to other cities in Ukraine, the air in Zaporizhzhia agglomeration does not correspond environmental safety standards. Additionally, the destruction of the Kakhovka reservoir has created new areas of dust emission near the agglomeration.

Zaporizhzhia is located in a continental climate zone in the southern climate region, characterised by aridity and a large number of sunny days. It is vulnerable to drought and heat waves. Active hostilities in the region led to the destruction of forest belts and the Kakhovka Reservoir, which caused the Dnipro River to shrink dramatically and changed the microclimate towards more heat and drought.

Following the regular rocket and artillery attacks, the city's utilities are working to restore the energy and transport infrastructure, damaged housing and communication systems to ensure that life continues as normal.

Eight higher education institutions of the III-IV accreditation level, 17 vocational schools and 123 secondary schools of the I-III levels continue to operate in Zaporizhzhia, although a significant number of teachers and children have been evacuated and classes are held online, which causes psychological and social challenges for children and youth to adapt to society.

The residents of Zaporizhzhia continue to show extraordinary strength and determination in the fight for their independence and territorial integrity.



METHODOLOGY FOR SELECTING PRIORITY AREAS OF ZAPORIZHZHIA RECOVERY

The work on The Green Book of Zaporizhzhia Recovery was carried out in three stages:

Stage 1. Sociological research of public opinion about the impact of the war and the needs and priorities for recovery through mass surveys, focus groups and public discussions.

Stage 2. Analysis of the results of the sociological survey by scientists, selection of the most vulnerable areas prioritised for recovery from the point of view of the population.

Stage 3. Expert analysis of the problems and challenges facing the region, regulations, cross-sectoral relations, international experience and development of activities and recommendations for recovery and creation of logical and structural recovery schemes.

At **Stage 1**, to identify the needs and vision of the post-war recovery of the general population of Zaporizhzhia and the region and involve them in the recovery process, the Zaporizhzhia Recovery Committee conducted a sociological study on the consequences of the war for the region, challenges and priorities for recovery, risks and opportunities for involving the population in the post-war recovery of the Zaporizhzhia region.

The survey and focus group research was conducted in the city of Zaporizhzhia in July-August 2023 by the Info Sapiens TOV sociological agency at the request of the Ecosense NGO as part of the project «Recovery Committee as a Tool for Public Involvement in the Green Recovery of Ukraine to Achieve Sustainability and Democracy», with financial support from the UK Government.

Geography of the survey: Zaporizhzhia city and the non-occupied part of the Zaporizhzhia region (where no hostilities are taking place).

Quantitative research was conducted using the method of Computer-Assisted Telephone Interviewing (CATI). Mobile numbers were randomly selected for the survey from the database for the last 5-7 years in the Zaporizhzhia region.

In total, 1013 residents of Zaporizhzhia and the region (non-occupied part) aged 18 and older were interviewed. The sample is representative of the pre-war population of the Zaporizhzhia region in terms of gender, age, and type of settlement [1].

The marginal theoretical sampling error is +/-3.1%.

The sample was divided into the following categories:

826

residents of
Zaporizhzhia
(city)

166

residents of the
Zaporizhzhia
region

21

IDPs from
other regions

Fig. 1. Distribution of respondents by type of settlement

**Male
44%**



**Female
56%**

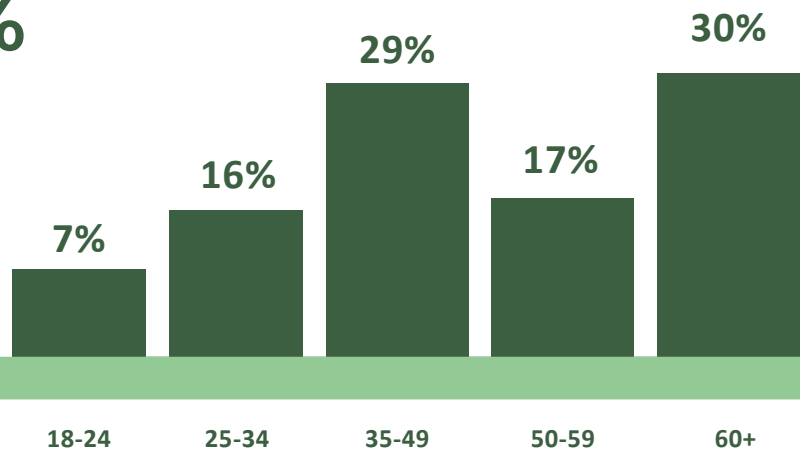


Fig. 2. Distribution of respondents by age and gender

Qualitative research methodology

In August 2023, seven offline focus group discussions (FGDs) were held in Zaporizhzhia. Each of the FGDs was attended by representatives of different target categories:

- ▶ young people (18-30 years old);
- ▶ elderly people (60+ years old);
- ▶ IDPs (from the Zaporizhzhia and Kherson regions);
- ▶ people with disabilities and parents of children with disabilities;
- ▶ heads of condominiums;
- ▶ entrepreneurs;
- ▶ representatives of cultural and religious communities.

The various FGDs were also attended by military personnel, including the wounded, family members of military personnel, parents with many children, volunteers, and representatives of civil society organisations (CSOs). Each FGD involved 5-10 respondents, and a total of 58 respondents took part in the study.

Additionally, in August-October 2023, three public discussions were held to identify challenges and priorities for recovery with representatives of youth, civil society organisations from Zaporizhzhia and the region, and representatives of three business associations. About 30 representatives of the target groups took part in each event. The opinions and statements expressed by the participants and the resolutions prepared were analysed by experts.

At **Stage 2**, experts of the Zaporizhzhia Recovery Committee analysed the results of sociological researches, surveys, and discussions and identified nine areas of Zaporizhzhia's recovery that were most vulnerable to military challenges and will be key to achieving the city's sustainable development. The Green Deal and the UN Sustainable Development Goals were set as benchmarks for the development of Zaporizhzhia as an integral part of Ukraine, a future member of the European Union. Therefore, environmental and human-centred values, inclusiveness and participatory involvement of residents in decision-making are cross-cutting for the green recovery of Zaporizhzhia. At the same time, the experts tried to take into account the risks, challenges and opportunities of global megatrends, such as growing demand for natural resources, climate change, biodiversity loss, rapid urbanisation, digitalisation, military conflicts and pandemics. Economic

recovery and post-war reconstruction were viewed through the prism of a fair transition to decarbonisation, including equitable social change, especially for vulnerable groups.

After that, the experts listed the issues and challenges and identified recovery and development activities for the Zaporizhzhia hromada, taking into account local regional and state documents and programmes, European and international strategic documents and directives.

At **Stage 3**, experts from the Zaporizhzhia Recovery Committee and scientists from Zaporizhzhia National University listed issues and challenges of recovery and defined recovery and development activities for the Zaporizhzhia hromada, taking into account local regional and state documents and programmes, European and international strategic documents and directives. The created logical and structural diagrams with a list of issues on the way to achieving the goals and the developed mechanisms and activities to solve them can become a roadmap for the recovery of Zaporizhzhia not only after the war, but can also be used today by stakeholders to adapt to the new realities of strategic planning in times of war and uncertainty.



RESULTS OF A SURVEY OF THE POPULATION OF ZAPORIZHZHIA AND THE REGION ON RECOVERY PRIORITIES

The results of a sociological survey conducted in Zaporizhzhia in July and August 2023 by the Info Sapiens TOV sociological agency at the request of the Ecosense NGO as part of the project «Recovery Committee as a Tool for Public Involvement in the Green Recovery of Ukraine to Achieve Sustainability and Democracy, with financial support from the UK Government, provided an evidence base for understanding the impact of the full-scale russian-Ukrainian war on the population and assessing the needs, challenges, and priorities for recovery, risks and opportunities for public involvement. Therefore, we will provide a brief overview of the research findings based on the results of a mass survey of the population [1].

Assessment of the current situation

Only 4% of respondents indicated that they had not experienced any consequences of the war due to russian aggression. The rest of the respondents mentioned psychological, security, socio-economic and environmental consequences (see Fig. 3).

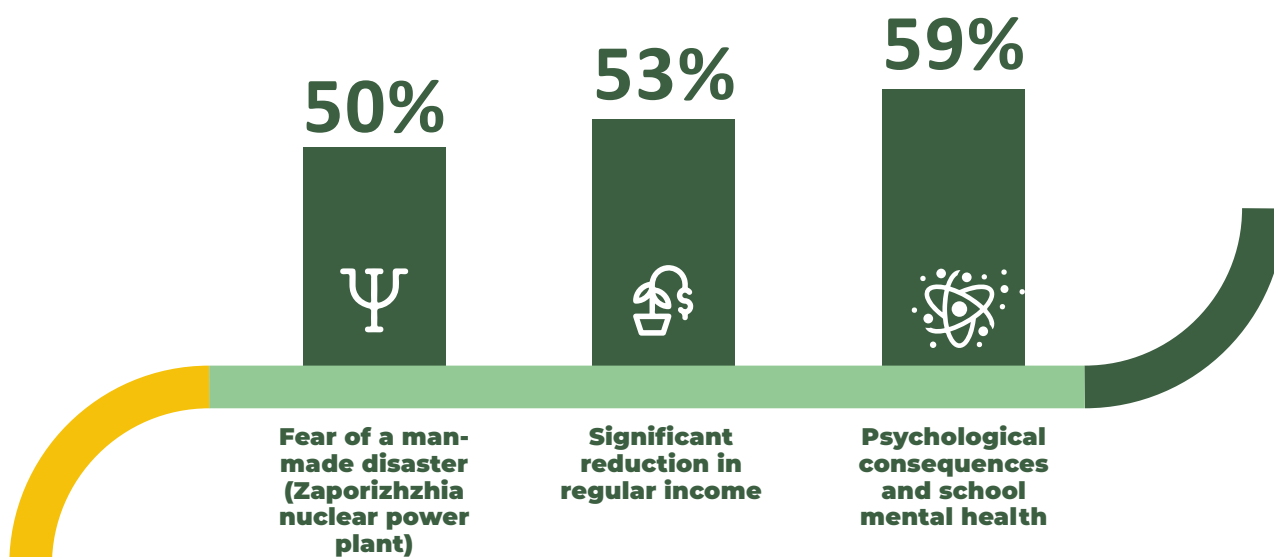
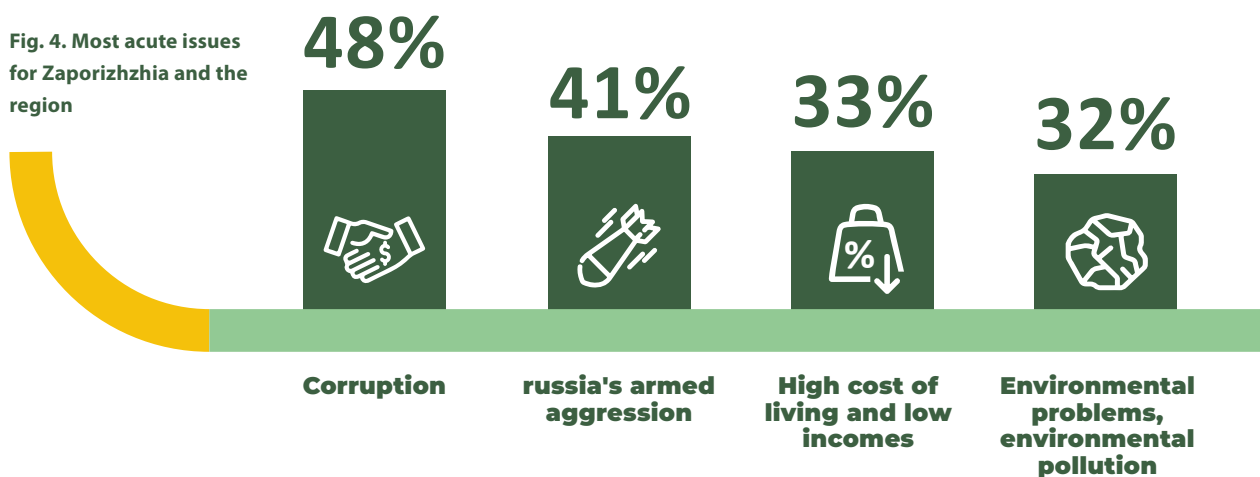


Fig. 3. Consequences of the war for residents (according to more than 50% of respondents)

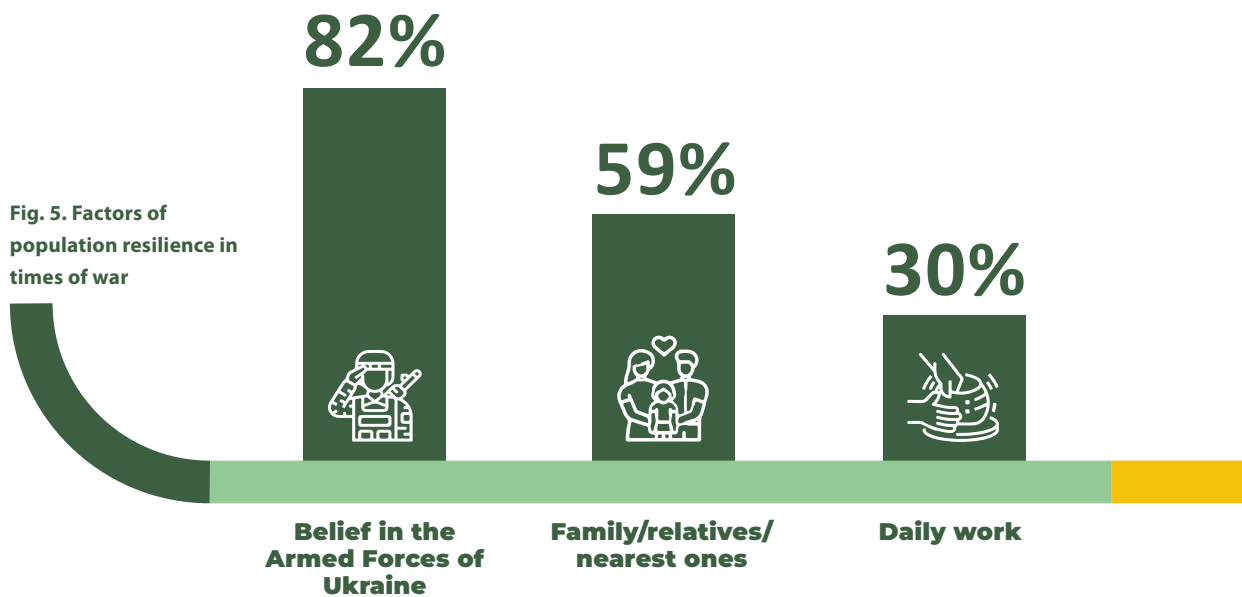
The survey revealed the range of the most acute issues for the residents of Zaporizhzhia and the region and the factors that ensured their resilience during the war (see Fig. 4-5).

According to the respondents, the topical issues are caused by both external (russian aggression) and internal factors that were relevant even before the large-scale russian invasion. The most pressing problems are corruption, russia's armed aggression, high cost of living and low incomes, environmental problems and pollution:

Fig. 4. Most acute issues for Zaporizhzhia and the region



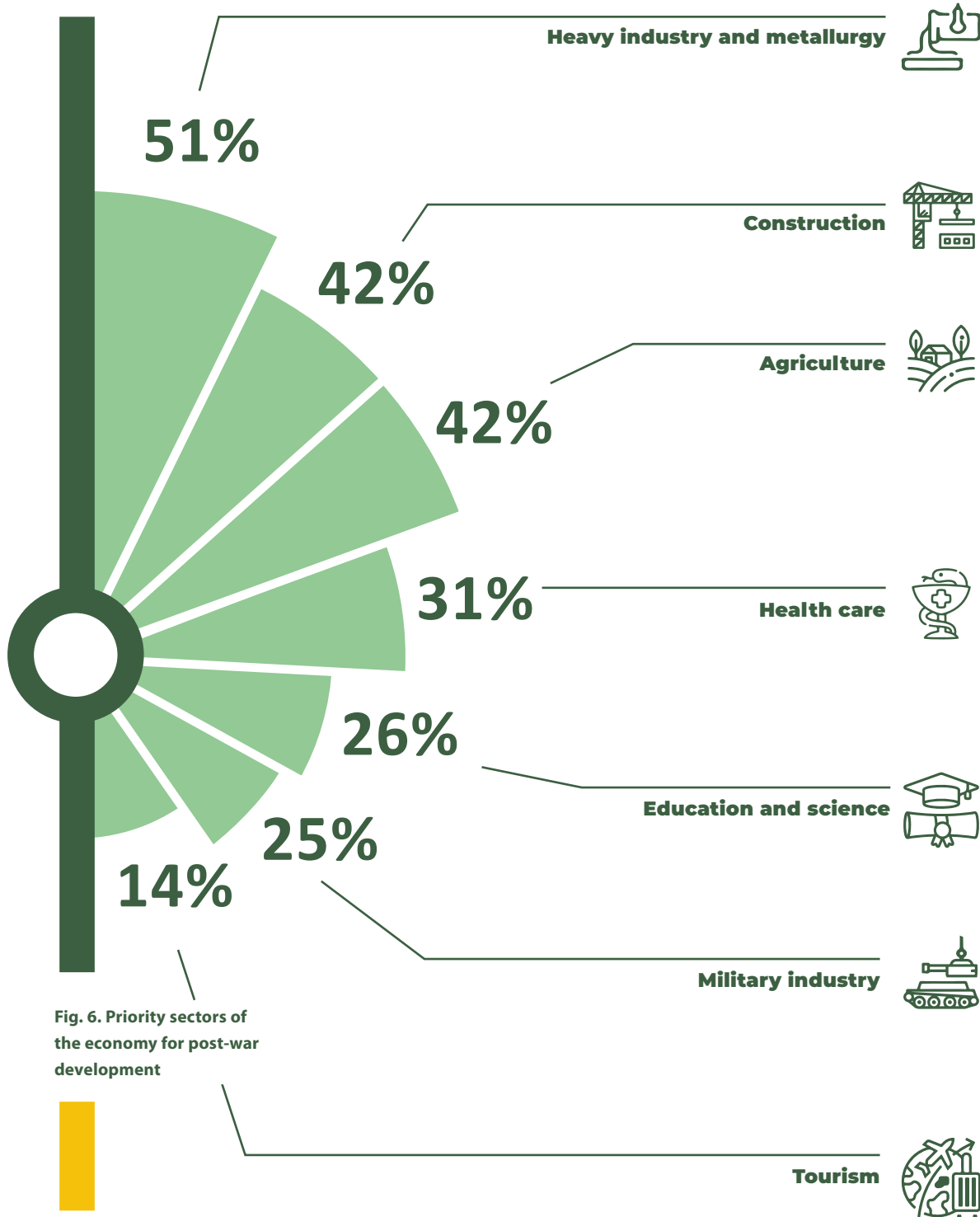
The most significant factor in maintaining resilience in times of war is faith in the Armed Forces of Ukraine. The top three resilience factors also includes family/relatives/friends and daily work:



During the FGDs, representatives of each group spoke about their experience of the war and how their lives had changed in a more detailed way. Expert target groups (entrepreneurs, heads of condominiums, CSO representatives) focused on volunteering and helping the army, IDPs and vulnerable groups. Common residents (in particular people with disabilities, the elderly and IDPs) spoke more about the psychological and social challenges they faced during the war, indicating that they had largely adapted to the stress. At the same time, they mentioned many difficult psychological conditions that they may still experience: fear of environmental disasters, shelling, loss of the friends and jobs. Young people pointed out that at the beginning of the war, there was a strong sense of uncertainty and that values and meanings had changed during the war.

Priority areas for recovery

Residents of Zaporizhzhia and the region outlined a range of priority economic sectors for post-war development (see Fig. 6). It should be noted that in general terms, they reflect the pre-war specifics of the region's economy, as well as the always relevant social sphere (healthcare and education):



Therefore, the population got used to living in the paradigm of an «industrial city» and, unlike entrepreneurs, does not understand the possibilities of flexible and eco-friendly operation of small and medium-sized enterprises that create technological products with high added value.

Young people believe that the city should not only be restored, but rebuilt with modern industry and infrastructure, and become a European and civilised city.

For economic recovery, young people consider that support programmes for small and medium-sized businesses, business development grants and social projects, including for the military, the creation of a free economic zone, and the use of AI, should be prioritised.

The respondents provided a list of areas where recovery is needed now:

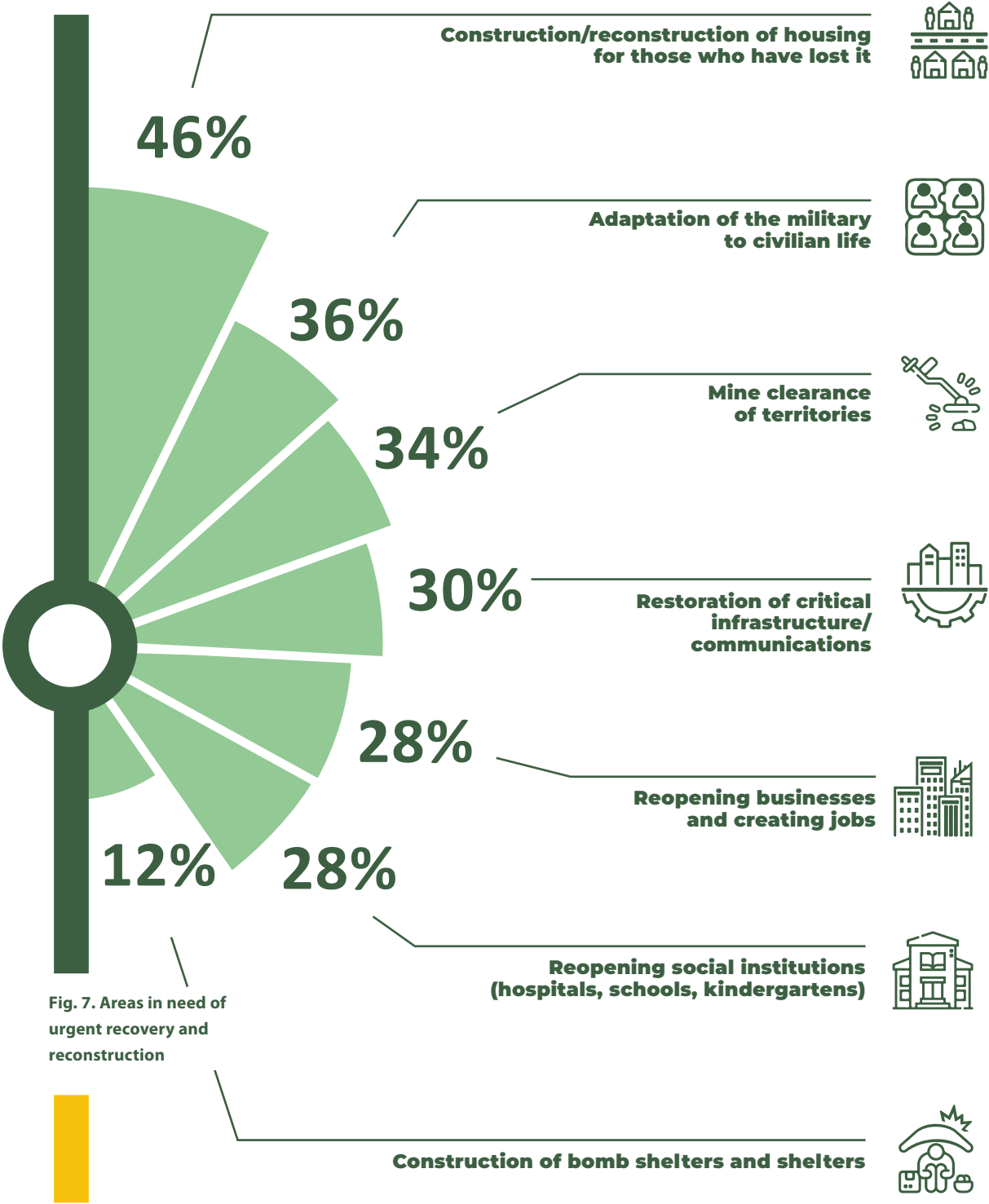


Fig. 7. Areas in need of urgent recovery and reconstruction

Residents of Zaporizhzhia and the region are committed to rebuilding on the principle of «Build Back Better». Eighty-seven percent of respondents would choose this principle of reconstruction, while only 13% would choose the option of «Build As It Was».

Drivers of recovery

Respondents see local and foreign institutions and organisations, NGOs and individual hromada members, local and foreign businesses, and the expert community as the drivers of recovery in the Zaporizhzhia region:

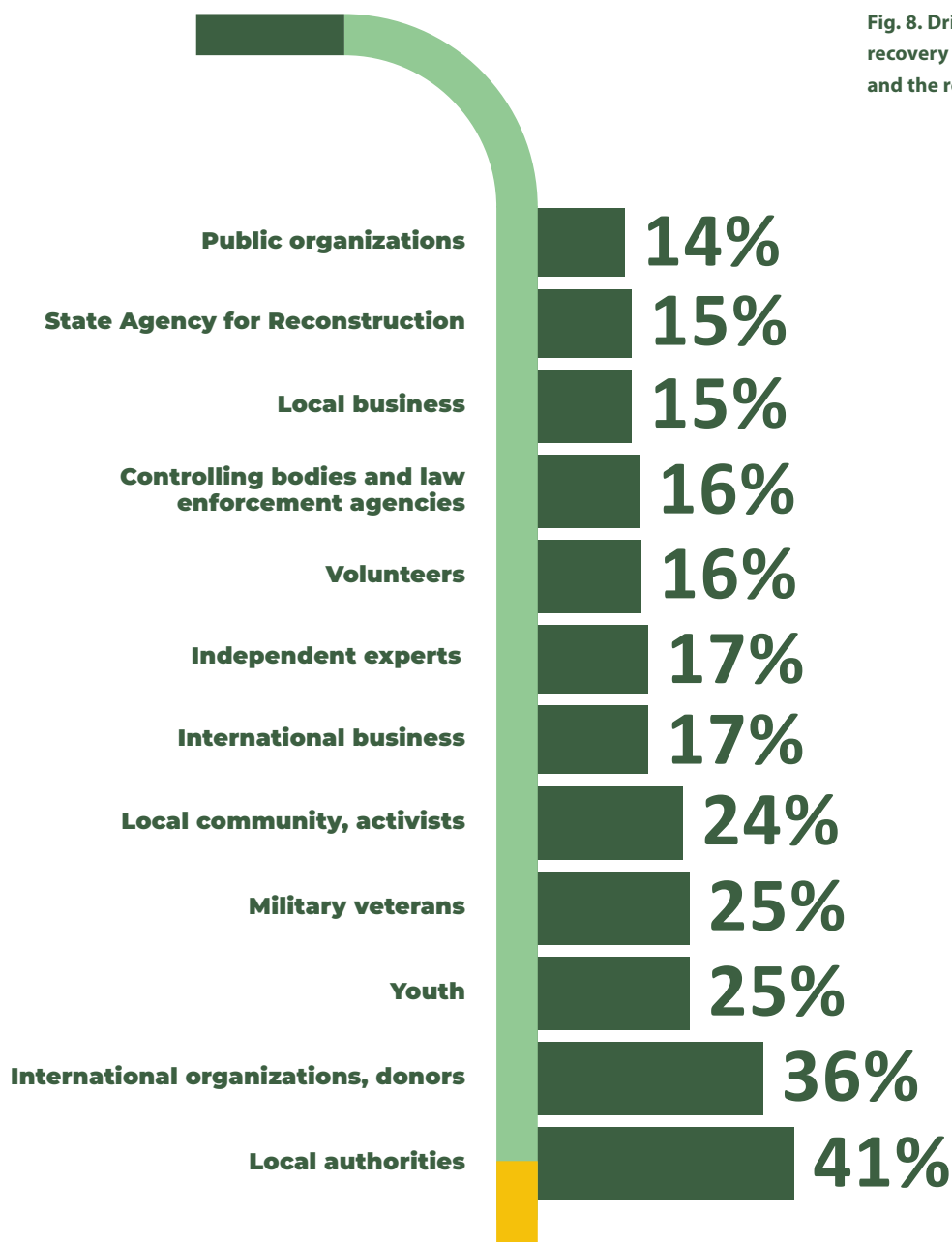


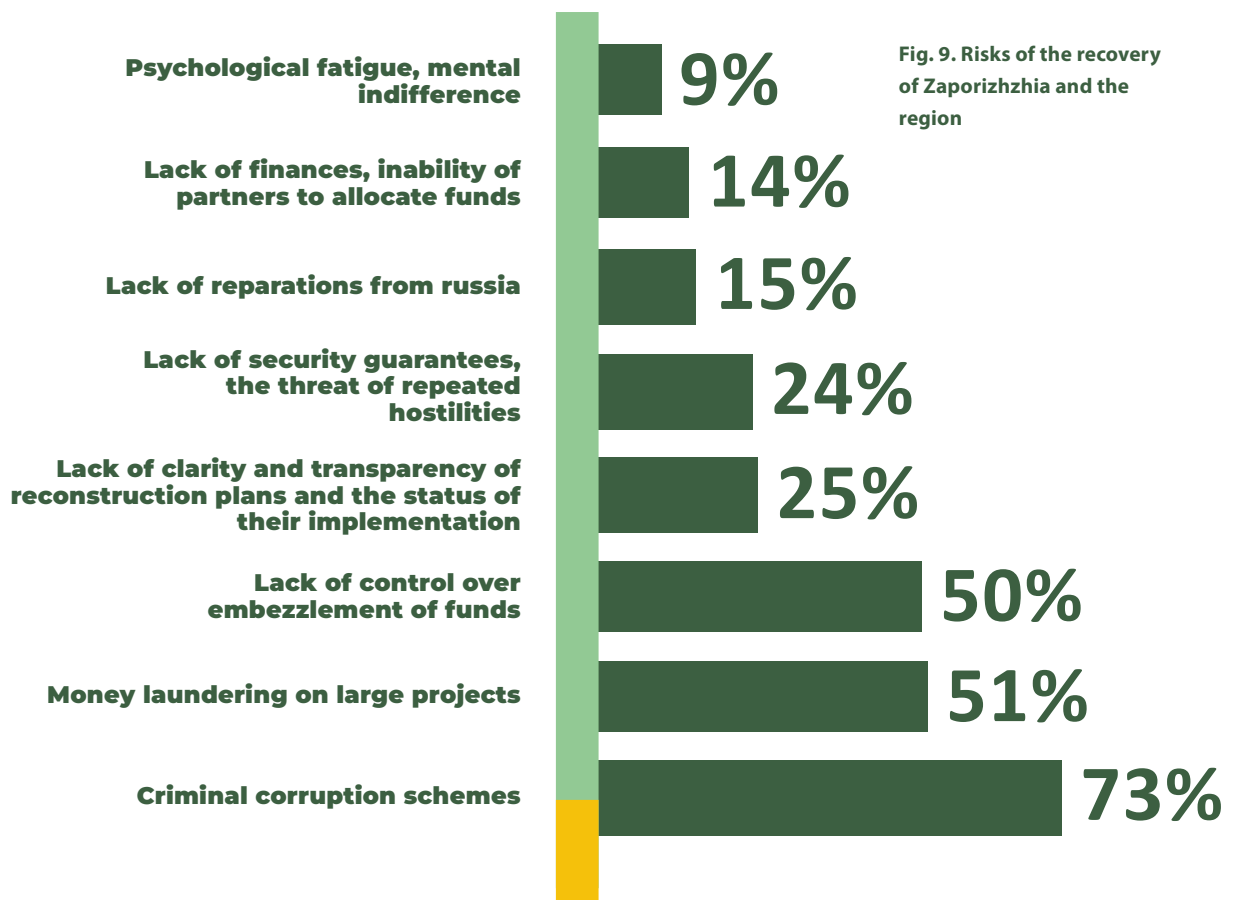
Fig. 8. Drivers of the recovery of Zaporizhzhia and the region

In entrepreneurs and young people's opinion, the broader public must be involved in the recovery, not just the authorities. The public sector, including business organisations, is a key stakeholder in the recovery process, which can influence on the government, control its actions and shape the recovery agenda. It is also necessary to take into account and study the opinions of specialists and scientists who can make a thorough analysis of the situation, forecasts, strategies, etc.

Risks of restoration

In the course of the survey, respondents identified numerous risks to restoration (see Fig. 9). Quantitative data on restoration risks indicate that various factors (organisational, financial, economic, criminal, political, technical, psychological, etc.) may threaten the proper implementation of recovery plans.

According to the residents of Zaporizhzhia and the region, the biggest threats are criminal, namely corrupt money laundering schemes on large projects (71%) and lack of control/embezzlement of funds (50%):



Principles of recovery

Respondents emphasised the importance of democratic principles of governance, openness, transparency and accountability of local authorities to the public, which are the foundation of reconstruction. They also noted that to implement these principles and approaches, a formed and effective civil society is needed.

This calls for courses at universities and non-formal civic education.

It should be noted that the respondents had no information and no formed understanding of the concepts of «green recovery» and «sustainable development». Quantitative data indicate that residents of Zaporizhzhia and the region are not sufficiently aware of green recovery: more than half of the respondents know nothing about it/hear it for the first time (54%), another 42% have heard something but do not know the details, and only 5% of respondents know in detail about green recovery.

During the survey respondents were asked to choose the areas of «green recovery» that are most relevant to their settlements/hromadas out of the main ones (see Fig. 10). In terms of the relevance of implementation the green recovery areas are ranked as follows:

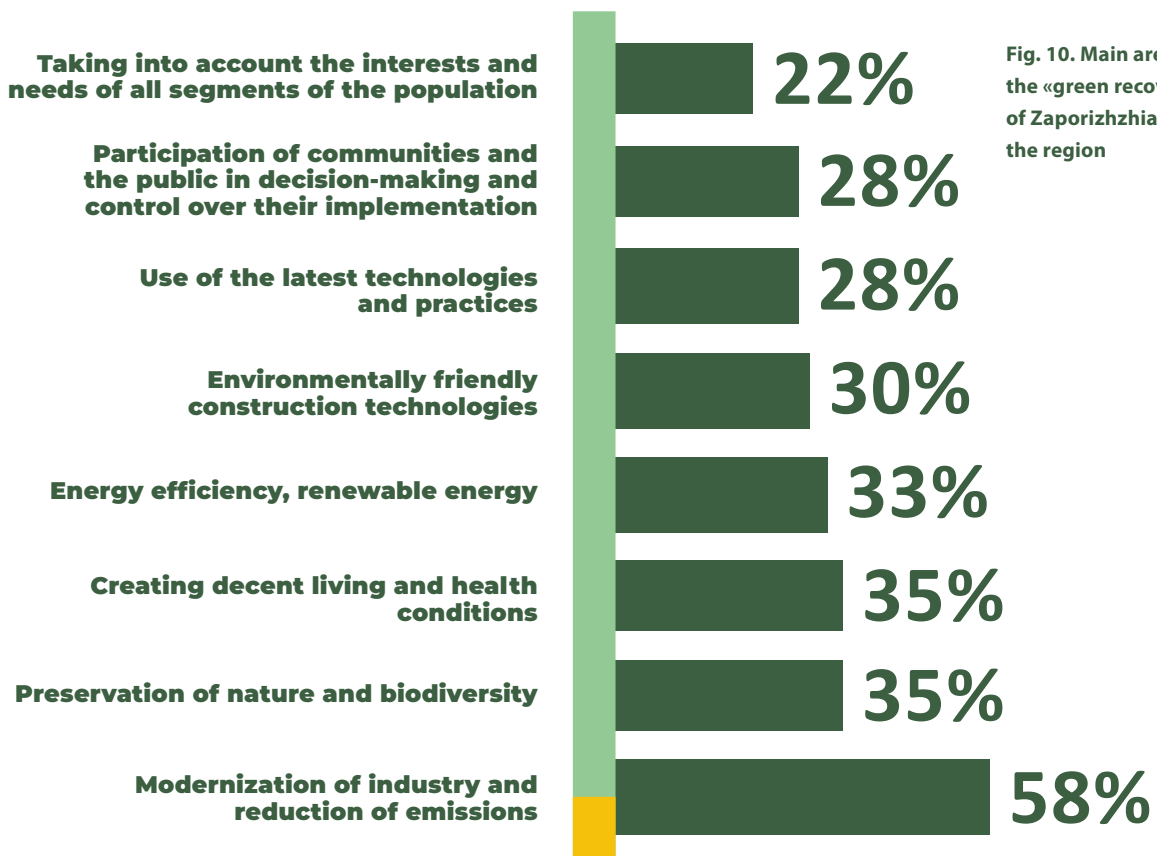
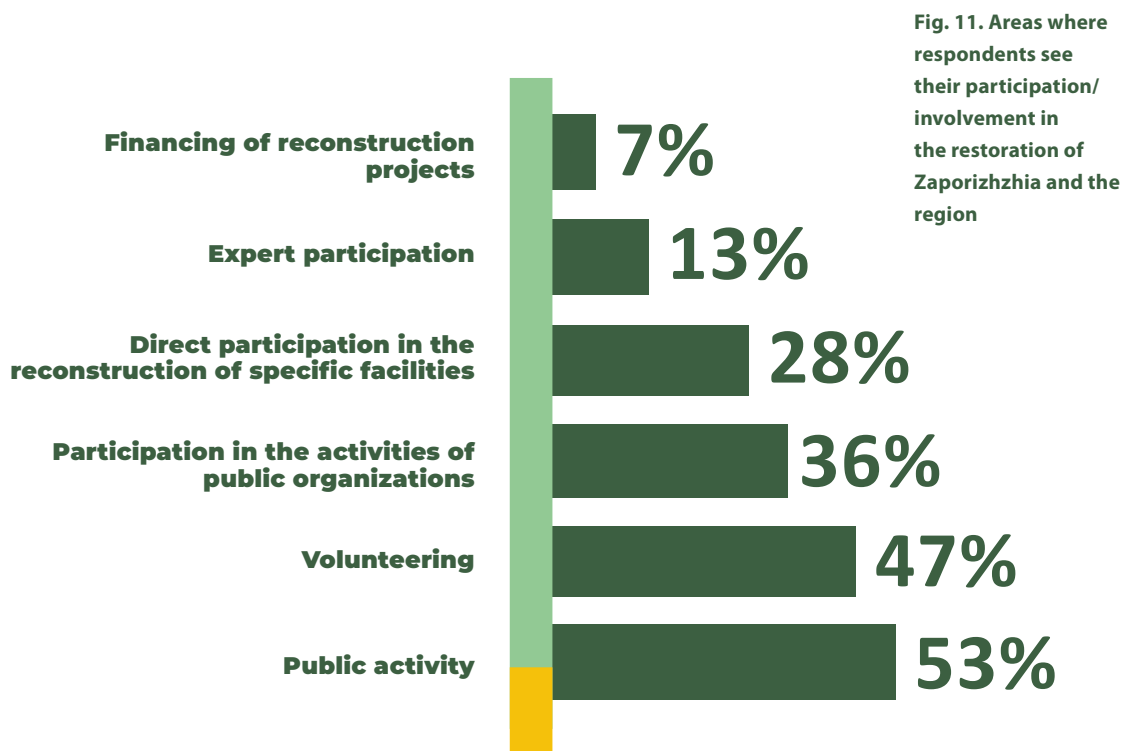


Fig. 10. Main areas for the «green recovery» of Zaporizhzhia and the region

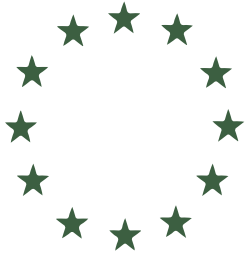
Mechanisms for involvement in recovery

The overwhelming majority of respondents are ready to be involved in solving important issues for their settlement in the Zaporizhzhia region in the future (86%), while only 13% of respondents are not ready to do so.

The respondents have a certain vision of their participation/involvement in the restoration processes in the Zaporizhzhia region (see Fig. 11). Most often, these niches are various types of civic, public, volunteer, and expert activity, and less often it is direct participation or financing of the reconstruction of specific projects and facilities:



The respondents stated that restoration projects should be monitored by professionals and NGOs with anti-corruption skills. Entrepreneurs and other experts indicated that they would be more likely to monitor the implementation of restoration projects in areas close to their field of activity. All respondents pointed to the importance of transparency, accountability, informing the public on decisions made and public involvement in discussions of decisions.



THE EUROPEAN GREEN DEAL AS A STRATEGY FOR THE RECOVERY OF UKRAINE AND ZAPORIZHZHIA

Despite the ongoing Russian aggression against Ukraine, our country continues to implement reforms aimed at implementing the principles of the European Green Deal (EGD) in national and local policies. The strategic goal of Ukraine's post-war recovery is a clean and safe environment, further progress on the European Green Deal and rebuilding the economy based on the principles of sustainable development.

Among the positive trends in Ukraine's EGD movement, experts [2] identified the following:

1. The European Council's decision to start negotiations on Ukraine's accession to the EU.
2. Development of a new instrument for financing green recovery activities by the EU, the Ukraine Facility, where the final adoption of the relevant EU Regulation is currently pending and activities to develop the Government's Plan for Ukraine.
3. Continued reforms in the energy sector and progress in the development of climate and environmental legislation.
4. Stabilisation of energy markets. In 2023, Ukrenergo became a full member of ENTSO-E.
5. Launching the development of the National Energy and Climate Plan. This year, the EU adopted all acts of the Fit for 55 package, and reached political agreements on reforming the electricity market, decarbonising the gas market, and legislation on the hydrogen market. Ukraine needs to bring its legislation in line with EU requirements.
6. Strengthening the reform of the renewable energy sector and adopting updated legislation that will facilitate the transition to a market model in the future.
7. Energy efficiency activities were continued and new mechanisms were created to finance decarbonisation measures. Ukraine is in the top 3 reformers among the members of the Energy Community, whose important components are solidarity, integration of energy markets and decarbonisation.

The Ministry for Restoration has presented an updated regional development strategy, which has already been developed following the Ukraine Facility and the RDNA framework (Recovery Needs Assessment of Ukraine, developed by the Government jointly with the World Bank, European Commission and the UN).

The priority tasks set out in the Strategy are:

- ▶ creation of security, social and economic conditions for the return of the Ukrainians to the regions and territorial hromadas;
- ▶ restoration and development of infrastructure based on the principle of «Build Back Better»;
- ▶ development of human capital and strengthening the economy based on the internal potential of the territories;
- ▶ continuation of the decentralisation reform, development of the institutional and financial capacity of hromadas and regions and development of multi-level governance;
- ▶ preserving the balance of ecosystems and adapting to climate change;
- ▶ creating a system for coordinating sectoral and state regional policies;
- ▶ increasing the efficiency and transparency of public investment, improving financial instruments to stimulate regional development.

The main goals of the current Zaporizhzhia City Development Strategy until 2028 [3] are restoring the city's environment to be safe for living, increasing the competitiveness of the economy, improving the quality of life of Zaporizhzhia residents by attracting investment and uniting the community around the idea of sustainable development of the city. They have not been achieved and remain relevant during the post-war recovery.

Since 2013, Zaporizhzhia has been a signatory city to the Covenant of Mayors for Climate and Energy-East, a European initiative that brings together local authorities committed to implementing the European Union's climate and energy goals. The city is also a member of the Association of Energy Efficient Cities of Ukraine, as well as the European associations of local governments, namely Energy Cities and Climate Alliance. In recent years, much has been done in Zaporizhzhia in the area of energy saving and implementation of energy efficiency measures. In particular, as part of cooperation with the USAID Municipal Energy Reform in Ukraine project, the Sustainable Energy Development Action Plan for Zaporizhzhia until 2020 was developed, energy surveys of the city's public sector facilities were conducted, 100 energy audits were developed for

kindergartens, schools and hospitals, feasibility studies were prepared for projects that made it possible to participate in programmes of international financial institutions, energy audits were conducted at our city's utilities, etc.

In 2020, the Zaporizhzhia City Council adopted an Action Plan for Adaptation to the Effects of Climate Change in Zaporizhzhia [4]. In March 2023, in pursuance of the Law of Ukraine «On Energy Efficiency», the City Council adopted a decision «On the Introduction of an Energy Management System in the City of Zaporizhzhia» [5]. During the year, cooperation with the USAID Energy Security Project continued, including the purchase of special machinery, equipment and materials for critical infrastructure facilities in the city, and preparations for the development of the Zaporizhzhia Heat Supply Scheme.

In 2023, representatives of the Zaporizhzhia City Council took part in a series of trainings on planning the adaptation of Ukrainian cities to climate change to further develop a high-quality and effective Sustainable Energy and Climate Action Plan (SECAP).

Despite the war, Zaporizhzhia has applied to join the Mission of Climate-Neutral and Smart Cities to further develop the Zaporizhzhia Sustainable Energy and Climate Action Plan for 2030/2050.

Accordingly, one of the main areas of development and post-war recovery of our hromada is to increase energy efficiency and use renewable energy sources.

The Social and Economic Development Programme for Zaporizhzhia City Territorial Hromada for 2024 identifies the following priority areas of development: approval and implementation of the Zaporizhzhia City Territorial Hromada Recovery Plan until 2027; creation of conditions for the return of people; restoration of damaged residential buildings, critical and social infrastructure; ensuring defence and security; implementation of energy-efficient and resource-saving measures; preservation of ecological balance and environmental protection. Green recovery is a process that will not only help nature and the climate but also the economy. It can be the key to creating new, well-paid jobs in five sectors: transport, energy, healthcare, education, and water supply, which is an important argument for the return of the Ukrainian male and female citizens and attracting foreign investment [6].

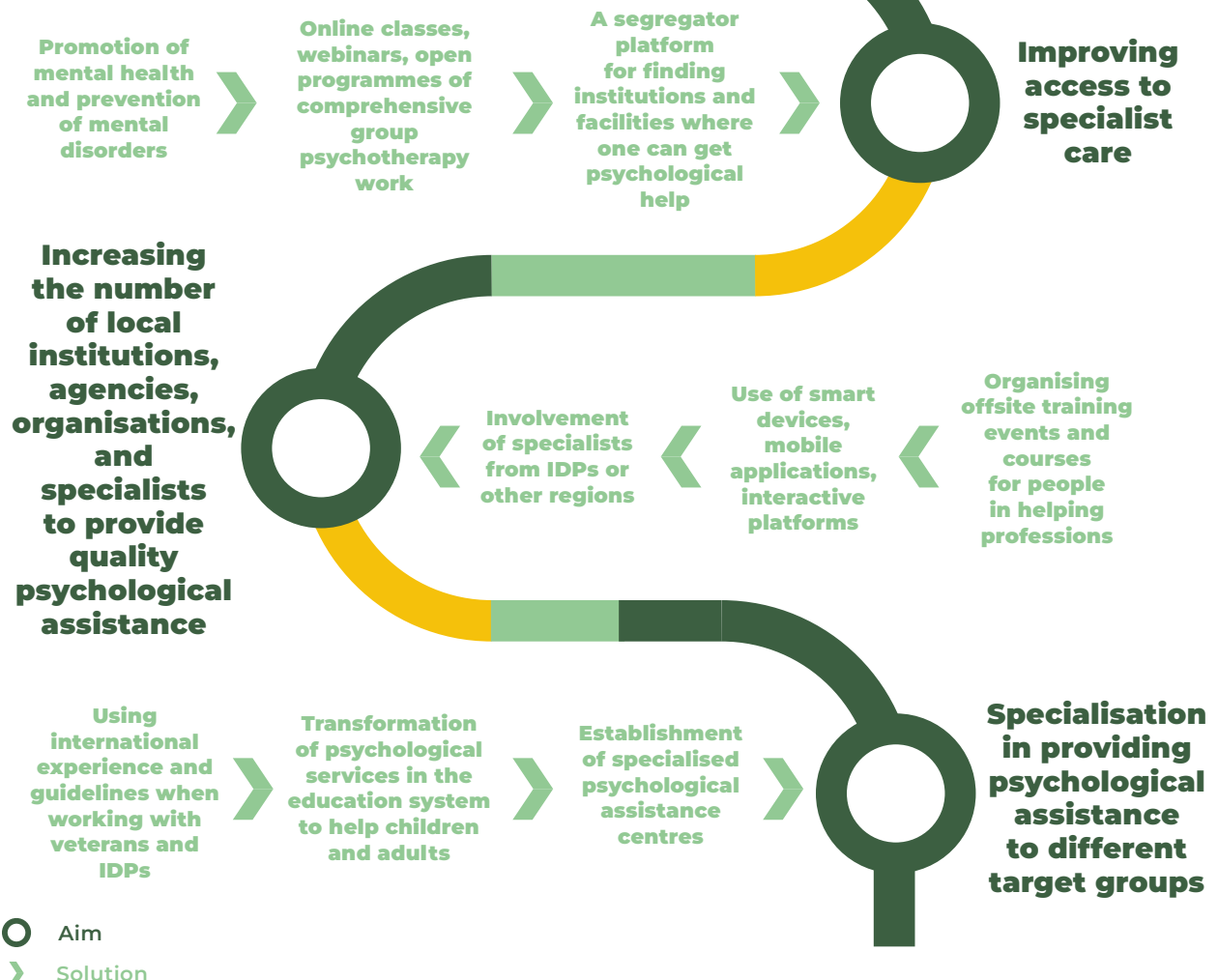
Taking into account the European and national strategic development priorities, the priority areas for Zaporizhzhia's green post-war recovery are human and environmental safety, human capital, energy independence, infrastructure, and entrepreneurship development.



PRIORITY AREAS OF GREEN RECOVERY FOR ZAPORIZHZHIA



RECOVERY OF MENTAL HEALTH



Restoring mental health and stabilising the psychological state of the population is one of the key aspects of the successful recovery of the Zaporizhzhia territorial hromada after the war. A stable psychological state of the population promotes social cooperation and efficiency in various spheres of life, making citizens more open to innovation and ready to actively participate in the city's recovery.

The main factors affecting the psychological state of people in Zaporizhzhia are the ongoing hostilities and their consequences:

- ▶ the population of the region is in a situation of constant physical danger to life;
- ▶ the destruction of the region's economy with a significant deterioration in the material well-being of most families living (permanently or temporarily) in the city;
- ▶ the destruction of information and logistics routes, which makes it impossible to receive timely and professional assistance;
- ▶ the process of reforming the healthcare system in the country is incomplete and unclear to the population;
- ▶ a large percentage of people are forced to stay away from their relatives, sometimes without contact with them—family members may be in the occupied part of Ukraine, or were forced to go abroad to escape the war, or are directly involved in military operations;
- ▶ there are approximately 230,000 internally displaced persons in the city today, some of whom have no hope of returning to their previous lives;
- ▶ a large percentage of the population reports a significant deterioration in their financial situation;
- ▶ uncertainty in the development of the military-political situation leads to personal uncertainty and the inability to make plans for one's own life;
- ▶ a certain percentage of the population is expected to experience PTSD symptoms or they will become noticeable in the coming months.

A significant problem in the Zaporizhzhia region is the lack of local institutions, agencies and organisations that could provide psychological assistance. We now have several regional centres of international projects, most of them are aimed at helping the military and their families and internally displaced persons. There are also several private psychological assistance centres for children and families. In addition, the Communal Institution «City Psychoneurological Dispensary» and health care centres

based in the city and regional hospitals provide outpatient services. Given the constant demand for health care, we can conclude that:

- ▶ there is very little information about these centres and the conditions of assistance there;
- ▶ there are not enough centres compared to the expected number of patients.

The official websites of the City Administration and Zaporizhzhia Regional State Administration do not contain information on existing strategies or programmes to restore the psychological state of the population.

Recommended activities to restore mental health

Challenges/issues	Suggested programmes and projects in line with previously unresolved issues
<p>1 An extraordinary level of adaptation disorders among the population, the development of anxiety or depression, which require the help of various specialists.</p>	<p>1. Implementation of the Action Plan for the implementation of the Concept of Mental Health Care Development in Ukraine for the period up to 2030 [8]:</p> <ul style="list-style-type: none"> • increasing the level of mental health promotion and prevention of mental disorders; • use of smart applications to ensure access to various resources in the field of mental health services; • strengthening social and legal protection of persons with persistent intellectual and/or mental disabilities who require care; • improving the level of mental health services and ensuring the prevention of mental disorders in children and adolescents; • ensuring the prevention of mental disorders, suicide and self-harm in adults. <p>2. Usage and promotion of the IOM Handbook on Community-Based Mental Health and Psychosocial Support in Emergencies and Displacement [9].</p> <p>3. Conducting a series of online classes, webinars, etc. on improving adaptive mechanisms and self-help to stabilise the psychological state of the population.</p> <p>4. Launching and supporting long-term open programmes of comprehensive group psychotherapeutic work on psychoeducation, stabilisation of the psychological state and self-support.</p>
<p>2 Lack of information about opportunities and conditions for receiving psychological assistance.</p>	<p>1. Creating a segregator platform / an interactive map with detailed and up-to-date information on institutions and facilities where psychological assistance can be obtained.</p> <p>2. Providing up-to-date information on institutions and facilities where psychological assistance can be obtained.</p> <p>3. Wide information campaigns for the population about the opportunities to receive psychological assistance.</p>

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- 3 Insufficient number of local institutions, establishments, organisations and specialists in Zaporizhzhia that could provide psychological assistance.**
1. Involving IDPs or local residents who have lost their jobs in providing psychological assistance, in specialised centres.
 2. Involving specialists from other regions to provide online assistance.
 3. Organising field trainings, psychological assistance schools, camps and retreats for people in helping professions and vulnerable groups in other regions.
-
- 4 The need for specialised professional assistance to vulnerable target groups (IDPs; combatants and their families; veterans; children; children and adults with special educational needs; people with disabilities; the elderly).**
1. Analysis of international experience and use of the most appropriate international guidelines for providing psychological assistance in the work of professionals, taking into account local specifics.
 2. Creating didactic materials and advanced training courses based on the experience of professionals who are in constant contact with the population.
 3. Systematic collection and analysis of feedback on the practical experience of using didactic materials for further improvement.
-
- 5 Health disorders of children and adolescents.**
1. Introducing psychological resilience skills at all levels of education – from pre-school to higher education, as well as transforming the psychological service in the education system [10].
 2. Providing psychological support services for adults, children, and adolescents through the «SpivDiia» platform [11].
 3. Establishing and supporting programmes/centres for providing psychological assistance to volunteers, teachers and civil servants to prevent burnout syndrome.
-
- 6 Establishing work with veterans: providing everyone with medical care (including psychiatric care and psychotherapy), providing psychological support in of adaptation and restoration of social skills and integration into society under new conditions.**
1. Training of a «veteran's assistant». Using a mobile application created by the Ministry of Veterans to support defenders and their families in their return to civilian life [7].
 2. Participation in the project of the Ministry of Defence «Creation of RECOVERY system for psychological restoration of the Armed Forces of Ukraine personnel», in particular through the creation of specialised centres.
 3. The Ministry of Internal Affairs creates an algorithm for providing psychological assistance and psychosocial support.



RESTORATION OF ECOLOGICAL SAFETY IN THE CITY OF ZAPORIZHZHIA

Fulfillment of environmental obligations of industrial enterprises under the Memorandum of Joint Action with the Zaporizhzhia City Council



Development of an automated system for monitoring and accounting for emissions at pollution sources



Plan for phased reduction of emissions in the Zaporizhzhia agglomeration



To reduce atmospheric air pollution

Improving the ecological condition of small rivers and the Dnipro River



Restoring and maintaining a favourable hydrological regime and sanitary condition of the city's water bodies



Control over the quality and quantity of wastewater discharged into water bodies



Coastal fortification through planting

Unified city system for automated notification of the population about air pollution, unfavourable meteorological conditions and radiation hazards



Continuous exchange of information on environmental monitoring between enterprises and various services and agencies



Systematic public awareness-raising campaigns on various issues of eco-lifestyle



Environmental monitoring and informing the public

○ Aim

➤ Solution

The city of Zaporizhzhia is a large agglomeration of Ukraine with significant sources of industrial pollution of all environmental components: atmospheric air, water, soil, natural areas and human potential.

State observations and independent studies show that Zaporizhzhia is one of the cities with the highest anthropogenic pollution. The war has led to a reduction in production, partially shutting down large enterprises in the city, but despite a significant decrease in actual emissions from stationary sources in the agglomeration, the city's Air Pollution Index remains high. Compared to other cities in Ukraine, the air in the Zaporizhzhia agglomeration does not meet environmental safety standards.

Factors influencing the restoration of environmental safety in Zaporizhzhia:

1. Emissions from industry and energy determine the air quality of Zaporizhzhia.
2. The main focus of air quality management in the agglomeration should be on the sources of metallurgy, coke production and large combustion plants.
3. Transboundary transfer of emissions from neighbouring industrial zones and agglomerations, as well as areas of active hostilities.
4. The main steps should be focused on reducing emissions of fine dust and volatile organic compounds.
5. Sustainable and low-carbon transport, alternative energy and other green actions should be complementary steps.
6. The Air Quality Management Plan should take into account the new risks of pollution transfer from the locations and impact zone of the drained Kakhovka Reservoir (newly created dust removal areas on the territory of the former reservoir and its floodplains).

Recommended projects, programmes and activities

Identified SDGs	Activities in line with the current Zaporizhzhia development strategy for the period up to 2028	Suggested projects and programmes
<p>1 Reduction of atmospheric air pollution in the city.</p>	<ol style="list-style-type: none"> 1. Development of an automated system for monitoring and accounting of emissions at pollution sources. 2. Monitoring the implementation of the Memorandum of Joint Action between Zaporizhzhia City Council and industrial enterprises in the field of environmental improvement in Zaporizhzhia. 3. Implementation of greening and industrial symbiosis of industrial enterprises. 4. Reuse of the captured dust from gas cleaning as a raw material for the production of goods. 	<ol style="list-style-type: none"> 1. Development and approval of the Plan for a phased reduction of emissions in the Zaporizhzhia agglomeration (in the conditions of war). 2. Revision of the Agglomeration Air Quality Monitoring Programme in the War and Post-War Recovery Strategy for 2025-2030. 3. Introduction of a quarterly assessment of the pollution and air quality in the Zaporizhzhia agglomeration. 4. Restriction of public access to dried silt deposits in the delta of the Sukha Moskovka River.
<p>2 Safe water supply and sewerage.</p>	<ol style="list-style-type: none"> 1. Reduction of water intake through the implementation of closed cycles. 2. Improvement of water treatment and disinfection technology. 3. Implementation of reuse of washing and drainage water. 4. Installation of additional systems (filters) for water purification in places of water consumption. 5. Reduction of energy consumption in the process of water supply and sewerage. 6. Reducing the area of filtration fields (in particular on Khortytsia island). 7. Reconstruction of the central sewage treatment plants (CTP-1, CTP-2). 	<ol style="list-style-type: none"> 1. Introduction of a permanent information campaign on the economical and rational consumption of water resources by the population (reducing the load on treatment facilities). 2. Assessment of the condition and efficiency of the treatment facilities of the central aeration station in Zaporizhzhia. 3. Creation of a unified map of non-centralised water supply points (alternative water supply sources) in an emergency.
<p>3 Improving the ecological condition of small rivers and the Dnipro River.</p>	<ol style="list-style-type: none"> 1. Organisation of control over the quality and quantity of wastewater discharged into water bodies through the city's stormwater drainage outlets. 2. Development of activities to improve the ecological state of the Dnipro River within the city. 3. Restoration and maintenance of favourable hydrological regimes and sanitary conditions of the city's water bodies. 4. Implementation of public monitoring of the state of water protection zones and protective strips. 	<ol style="list-style-type: none"> 1. Implementation of public monitoring of the state and quality of water of small rivers (streams and watercourses) within the Zaporizhzhia agglomeration. 2. Mapping of small rivers and watercourses (streams, springs, etc.) in the Zaporizhzhia agglomeration, mapping of water protection zones of small rivers in the city.

4 Environmental monitoring and reporting.

1. Establishing and developing an open system of environmental monitoring, in particular, of atmospheric air, water and soil.
2. Establishing a mechanism for all institutions in the city to exchange information on environmental monitoring between the services of the automated system of accounting and control of the main pollutants in the city.
3. Implementation of a system for informing the population about the state of the environment.

1. Implementation of a unified city system of automated notification of the population about air pollution, unfavourable meteorological conditions, radiation hazards and other environmental monitoring results (in cooperation with well-known and existing chatbots).
2. Installation of five stations for automated indicative radiation monitoring of air.

5 Systematic implementation of pro-environmental technologies in business.

1. Replacement of equipment and implementation of eco-friendly technologies at polluting enterprises.
2. Implementation of modern technologies in heat production by municipal enterprises.
3. Development of environmental services.
4. Formation and development of energy efficiency clusters.
5. Creation of conditions for environmental certification of products in cooperation with the Zaporizhzhia Research and Production Centre for Standardisation, Metrology and Certification.

1. Creation of a single map of low-potential (cold and hot) organised emission sources of the catering and service sector.
2. Analysis and verification of compliance by business entities of the third group with the requirements of the Law of Ukraine «On Protection of Atmospheric Air...» in terms of declaring emissions and paying environmental tax for emissions of pollutants into the atmosphere.

6 Systematic communication between the authorities and the public.

1. Expanding communication through local media and Public communication centres.
2. Implementation of mechanisms for involving the public in administrative decision-making.
3. Systematic environmental reporting to the city residents.
4. Monitoring the use of environmental tax.
5. Creating conditions for citywide public discussions.
6. Creating an «Environment» section on the City Council website.
7. Events to promote environmental protection.

1. Implementation of a unified city system of automated notification of the population about air pollution, unfavourable meteorological conditions, radiation hazards, and other environmental monitoring results (in cooperation with well-known and existing chatbots).

7 Dissemination of socially relevant information.

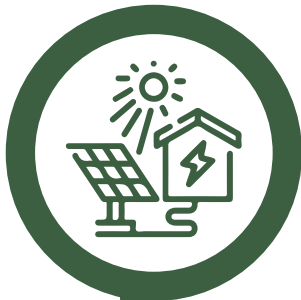
1. Conducting a systematic public awareness-raising campaign on the need for waste sorting.
2. Implementation of programmes for reporting on energy-saving issues.
3. Informing on issues of public participation in city management.

1. Implementation of programmes for public reporting on radiation safety.
2. Daily informing the population about the state and quality of atmospheric air.

8 Open city: electronic resources for city residents and a system to support their use.

1. Development of an electronic map of the powers of the city council departments.
2. Development of online offices for Zaporizhzhia residents.

1. Implementation of a unified city system of automated notification of the population about air pollution, unfavourable meteorological conditions, radiation hazards, and other environmental monitoring results (in cooperation with well-known and existing chatbots).



GREEN RECOVERY OF ENERGY INFRASTRUCTURE IN ZAPORIZHZHIA CITY

Performing an up-to-date calculation of the solar, wind and biofuel potential of the Zaporizhzhia city hromada and hromadas of the Zaporizhzhia region

Initiating the accession of Zaporizhzhia city hromada to the European Alliance of Cities and Regions for the Reconstruction of Ukraine

Updating the municipal energy plan

Formation of an intersectoral working group on decarbonisation and green energy transition under the mayor's office

Conducting a series of training sessions on facilitation management for energy managers of municipalities

Initiating energy efficiency and recovery projects

Promoting local energy policy interests and joint project activities with EU cities and institutions

Development of standard feasibility studies for the purchase of autonomous and backup power supply systems for condominiums, utilities and budgetary organisations

Optimisation of electricity consumption costs in public utilities and the multi-apartment housing sector

Rational management of organic waste

Launch of a revolving fund to finance projects

Implementation of local circular economy projects

- Problem
- > Solution

The restoration of the energy infrastructure in Zaporizhzhia should take into account the challenges posed by Russia's armed aggression against Ukraine, the city's strategic hromada documents and the current energy legislation of Ukraine, as well as the EU regulatory framework on climate change adaptation and decarbonisation goals.

Recommended activities and projects

Challenges for resilience and restoration of energy infrastructure in Zaporizhzhia	Activities for the green recovery of energy infrastructure in Zaporizhzhia
<p>1 Lack of professional technical expertise and consulting to develop project concepts and implement them effectively.</p>	<p>Cooperation with The National Renewable Energy Laboratory (NREL) – The National Renewable Energy Laboratory is a national laboratory of the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, managed by Alliance for Sustainable Energy LLC.</p>
<p>2 Discoordination of activities of various structural units and services of Zaporizhzhia city council, weak interaction with the public sector and the scientific community. Poor communication between representatives of the hromada's intersectoral partnership.</p>	<p>Formation of a working group on decarbonisation and green energy transition under the mayor's office as a non-staff advisory body with the involvement of representatives of the hromada's cross-sectoral partnership.</p>
<p>3 Fulfilment of commitments of local self-governments to develop municipal energy plans.</p>	<p>Update of the municipal energy plan to ensure sustainable energy development of the Zaporizhzhia city hromada and the Zaporizhzhia region hromadas.</p>
<p>4 Taking into account trends and commitments in the context of the Association Agreement and the European Green Deal.</p>	<p>Adaptation of the 10-step plan for accelerating the thermal transition of Zaporizhzhia to the hromada's energy strategic planning documents.</p>
<p>5 Need to diversify sources of electricity and heat generation. Lack of trends in a combined approach to renewable energy sources.</p>	<p>An up-to-date calculation of the solar, wind and biofuel potential of the Zaporizhzhia city hromada and hromadas of the Zaporizhzhia region.</p>
<p>6 Threat of staff loss and professional incompetence that may affect the efficiency of energy equipment and utilities.</p>	<p>Conducting a series of training sessions on facilitation management for energy managers of municipal institutions – responsible persons for energy saving at the level of institutions, hromada districts and independent subordinate units of the Zaporizhzhia city council.</p>
<p>7 Risks of poor preliminary calculations when initiating energy efficiency and restoration projects while communicating with potential donors and applying for international grant programmes.</p>	<p>A feasibility study is required.</p>

8 Irrational management of organic waste, excessive consumption of energy resources, non-compliance with eco-design and eco-labelling standards.

1. Organising and conducting communication events with Zaporizhzhia's twin cities from the European Union.
2. Use of existing experience in implementing local circular economy projects.
3. Development of regulation on the organisation and procurement of «sustainable food» for school canteens of Zaporizhzhia city territorial hromada as a pilot project of the Zaporizhzhia region moving towards the implementation of the local circular economy.

9 The problem of availability of own or budgetary funding to ensure hromada energy security, lack of a universal standard technical solution to ensure minimum access to energy for hromada residents in case of blackouts and emergency disconnections from the electricity grid.

1. Revising and improving the city's compensation programme «Victory Generators» to include solar panels, inverters, storage tanks and autonomous power sources in the list of equipment.
2. Engaging experts to analyse and provide recommendations on the selection of standard technical and technological solutions for the purchase of autonomous and backup power supply systems for condominiums, municipalities and budgetary organisations.

10 A combined and most systematic approach is needed to attract project financing and diversify sources of obtaining and redistributing funds for the implementation of hromada communal sector projects and facilitate access of public sector institutions to sources of funding at the local level.

Launching a revolving fund for the hromada budget sector based on the analysis of successful practices of similar funds for the housing sector in Ukraine.

11 Risks of budgetary funding for energy efficiency projects, reduced range of extra-budgetary funding instruments for hromadas close to the hostilities.

1. Memorandum with the Regional Office for International Cooperation of the Zaporizhzhia region.
2. Consultations with the Association of Energy Service Companies of Ukraine on the intentions of energy service market participants to initiate relevant projects in the Zaporizhzhia region hromadas and the conditions.

12 The need to have a powerful platform abroad to promote the hromada's activities to have improved access to communication with European organisations and raise the prestige of Zaporizhzhia promoting the interests of local energy policy and joint project activities with EU cities and institutions.

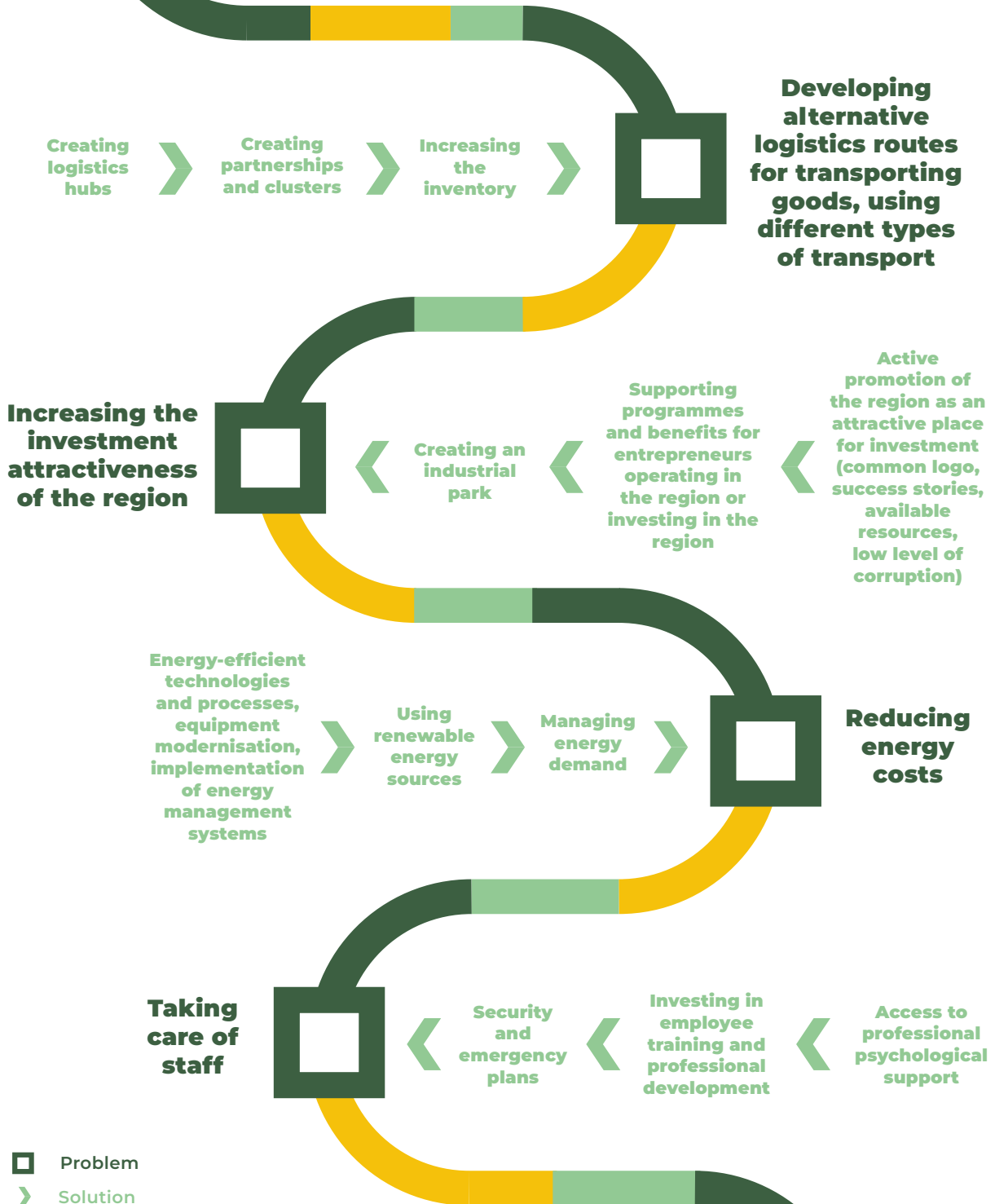
1. Initiating the accession of Zaporizhzhia city hromada to the Local Government Association of the European Union in the field of energy, namely the Energy Cities.
2. Initiating the accession of Zaporizhzhia city hromada to the European Alliance of Cities and Regions for the Reconstruction of Ukraine as an associate partner.

13 Optimisation of electricity consumption costs in municipal institutions and the multi-apartment housing sector.

Taking advantage of the expansion of the state programme for free replacement of incandescent lamps with LED lamps (medical institutions, schools, cultural institutions, social protection institutions and specialised support services for victims of domestic and gender-based violence, physical culture and sports institutions, entities providing services for the management of an apartment building or condominiums).



RESTORING ECONOMIC STABILITY AND DEVELOPING ENTREPRENEURSHIP



Developing new markets



◀ **E-commerce and digital services**

◀ **Innovation and development of new product lines**

Recommended activities and projects

Identified issues of regional entrepreneurs	Activities to restore economic stability and promote entrepreneurship
<p>1 Issues with transportation and logistics.</p>	<ol style="list-style-type: none"> 1. Development of alternative logistics routes (search for new ways to transport goods, use of different types of transport). 2. Creating logistics hubs (stock storage centres in secure locations to manage stocks and provide flexibility in case of interruption of trade routes). 3. Digital integration and tracking (implementation of modern technologies for cargo tracking, route optimisation and real-time management of logistics operations). 4. Cooperation and pooling of resources (formation of consortia or partnerships between companies to share logistics resources). 5. Risk management (assessing the risks associated with supply chain disruptions and developing strategies to minimise them). 6. Increase in inventory (increase in inventory to ensure business continuity in the event of temporary supply disruptions).
<p>2 Decreased investment attractiveness of the region.</p>	<ol style="list-style-type: none"> 1. Financial incentives (development of special programmes that would provide certain benefits, subsidies, or other financial incentives for entrepreneurs working in the region or investing in the region). 2. Transparency and communication (ensuring openness and transparency in procedures and investment projects to increase the confidence of the investors). 3. Promotion and investment marketing (active promotion of the region as an attractive investment destination, including a common logo, success stories, available resources, low corruption, etc.). 4. Infrastructure development (transport, energy, telecommunications). 5. Preparation of a land plot, development of a concept, and launch of an industrial park. 6. Training of qualified personnel (support for educational programmes that train specialists in areas important to investors). 7. International partnership (development of international partnerships to attract foreign investment, joint projects, and international technical assistance).
<p>3 Decreased demand for products and services.</p>	<ol style="list-style-type: none"> 1. Adaptation of the range of products/services (priority to the production of essential goods, medical products, provision of services that meet the needs of the population under martial law). 2. Flexible pricing (development of flexible pricing strategies, discounts, and promotions that can stimulate demand).

3. Development of e-commerce and digital services.
4. Targeted marketing campaigns (campaigns that focus on the specifics of the current situation, emphasizing the importance of products or services for consumers in wartime).
5. Development of new markets (expansion to new markets that are less vulnerable to the impact of martial law, adaptation of products/services to the requirements of new markets).
6. Collaboration and partnerships (forming partnerships with other companies to provide joint offers, packages, resource savings, and market channel sharing).
7. Innovations and product line development (creation of new products or services that can meet the changed needs of consumers in times of crisis).
8. Social responsibility and community involvement (implementation of social responsibility initiatives to support the local community to increase customer loyalty and stimulate demand).

4 Loss of sales market.

1. Diversification of markets (search for new markets in other regions or countries that may be less vulnerable to military operations).
2. Digital transformation (development of e-commerce to sell products or services abroad, use of digital marketing strategies to reach an international audience).
3. International partnerships (development of partnerships with companies in other countries to enter new markets and ensure international distribution).
4. Participation in international fairs and exhibitions (despite the martial law, active participation in international trade missions, fairs, and exhibitions can provide access to new customers and markets).
5. Product adaptation (modification of products to meet the standards, requirements, and preferences of new markets).

5 Increased energy costs.

1. Improving energy efficiency (investing in energy-efficient technologies and processes, modernizing equipment, implementing energy management systems, using energy-efficient lighting, etc.).
2. Use of alternative energy (consideration of the possibility of using renewable energy sources to partially replace traditional energy resources).
3. Audit of energy consumption (identification and elimination of energy leaks or inefficient processes in production).
4. Group purchases of energy (cooperation with other enterprises to organize group purchases of energy, which can help reduce costs).
5. Energy demand management (implementation of energy demand management systems, such as peak load balancing, automated shutdown of unnecessary systems, etc.).
6. Information campaigns and staff training (organizing training sessions for employees on energy saving and introducing a culture of energy efficiency).

6 Increased security risks.

1. Development of a security and emergency plan (including business evacuation).
2. Physical security of facilities (strengthening the physical security of facilities by installing video surveillance systems, burglar alarms, fire systems, protective barriers, and other security equipment).
3. Cybersecurity (ensuring the protection of important information and information systems from hacking and unauthorized access).
4. Personnel training (conducting security, emergency, and first aid training for staff to ensure the correct response to potential threats).
5. Communication channels with the authorities (establishing clear lines of communication with local and national emergency management authorities for up-to-date information and support).

7 Migration and loss of labour force.

1. Ensuring competitive salaries and compensation packages (providing attractive working conditions to reduce the migration of employees seeking better opportunities abroad or in other regions).
2. Flexibility of working hours and working conditions (development and implementation of flexible work schedules, remote or part-time work opportunities, which can help retain employees).
3. Training and development programs (investing in employee training and professional development to increase employee loyalty and job satisfaction).
4. Creating a safe working environment (ensuring physical security in the workplace is critical to retaining the workforce during wartime).
5. Community engagement programs (interaction with the local community and development of corporate social responsibility programs to improve the company's reputation among existing and potential employees).
6. Support for employees' families (implementation of programs that provide childcare, educational opportunities or financial support to employees' families).
7. Development and implementation of infrastructure and recreation area projects.
8. Partnerships with educational institutions (organization of internships and participation in training programs to ensure a constant flow of qualified specialists).

8 Psychological pressure.

1. Providing access to professional psychological support (organizing consultations with psychologists or psychotherapists for entrepreneurs to help them better cope with stress and teach them self-regulation techniques).
2. Formation of support groups (creating networks of support groups among entrepreneurs to discuss common challenges and share strategies for coping with pressure and stress).
3. Stress and time management training (conducting seminars and workshops aimed at developing stress management skills, effective planning, decision-making under pressure, and other key skills necessary to maintain mental health).
4. Strengthening communication with employees and stakeholders (openness and honesty in communication can reduce uncertainty and stress, as well as build trust and morale within the team).
6. Participation in corporate social responsibility networks (engagement in areas that have a positive impact on society to help entrepreneurs regain faith in themselves and their purpose, reducing psychological pressure).
7. Providing regular breaks and vacations (the need for regular breaks to restore strength and mental health).
9. Self-development and education (providing opportunities to learn new things and develop personal competencies, which can serve as a good way to distract from negative thoughts and increase self-worth).

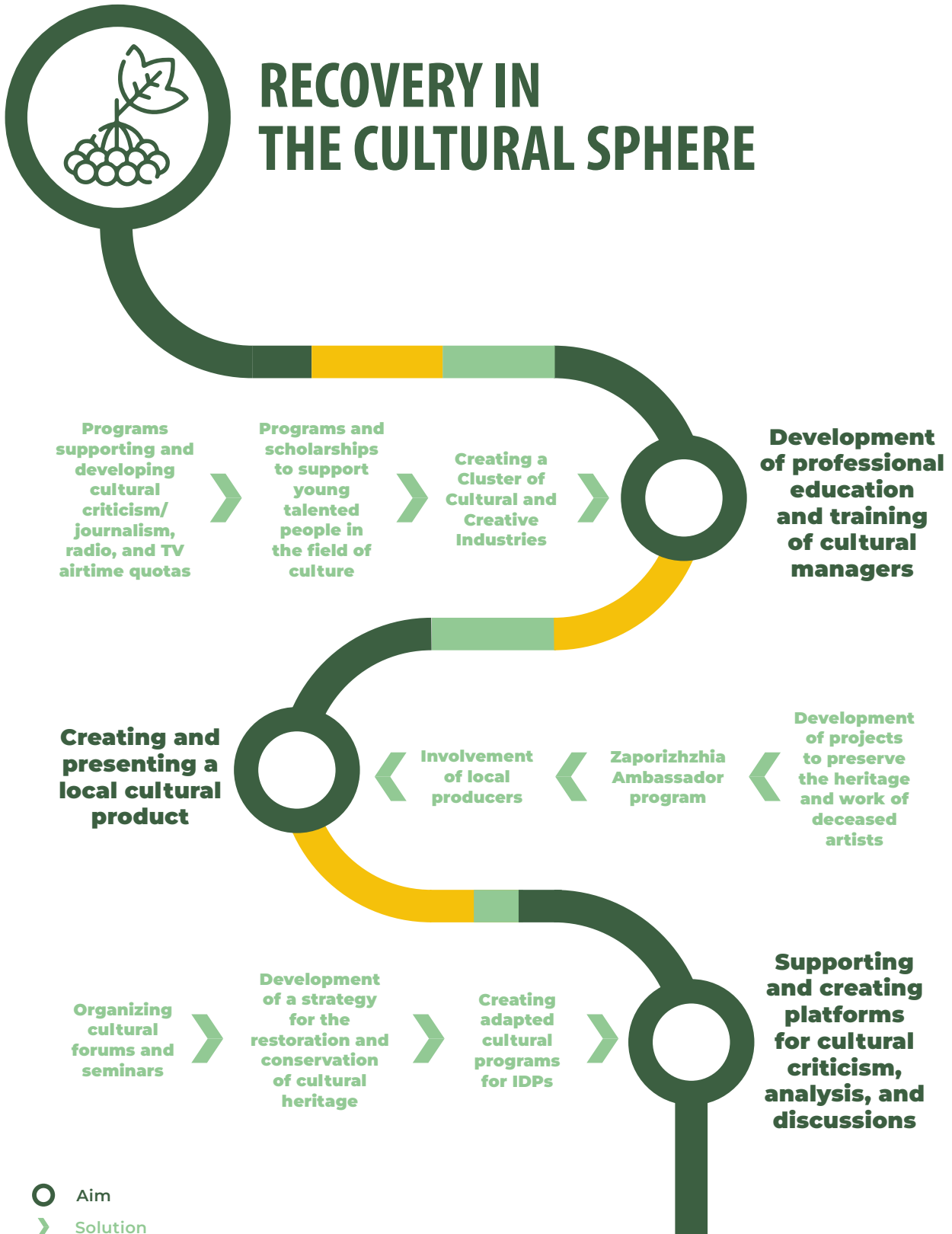
9 Changes in legislation and regulation.

1. Information support (creation of operational centers or online platforms to keep entrepreneurs informed of changes in legislation and regulation, provide explanations of how these changes affect their activities, and provide recommendations on appropriate actions).
2. Legal advice (providing access to free or subsidized legal advice for entrepreneurs so that they could receive qualified assistance in adapting their business to the new environment).
3. Seminars and trainings (organizing training courses, seminars and webinars so that entrepreneurs could understand the new legislative realities and learn how to operate effectively in them).
4. Support from business associations (representing the interests of entrepreneurs before government agencies and influencing the development of business-oriented legislation).

9 Changes in legislation and regulation.

5. Flexibility in requirements (encouraging government agencies to provide more flexible conditions for businesses, such as extending the deadlines for reporting, payments, etc.).

6. Working groups and roundtables (creating working groups to discuss challenges and develop strategies to address issues arising from changes in legislation).



Recommended activities and projects

Unresolved issues	Tasks and activities to solve the problems of post-war recovery in the cultural sphere
<p>1 Development of professional education and training of cultural managers for effective management and development of cultural projects.</p>	<ol style="list-style-type: none"> 1. Financing of the state order. 2. Programs of advanced training. Accreditation of training programs. 3. Introduction of new specialties at educational institutions, including higher education. 4. Organization of courses and master classes for training cultural managers and other professionals in the field of cultural industries. 5. Establishing partnerships with universities to develop relevant training programs for cultural managers (Code 023 and Code 028).
<p>2 Establishing memorial programs and scholarships to support young talented people in the field of culture.</p>	<ol style="list-style-type: none"> 1. Providing grants for artists and cultural initiatives to create new works of art. 2. Developing projects to preserve the heritage and work of deceased artists. 3. Providing opportunities for artists to develop their talent and creativity.
<p>3 Developing a program to support and develop cultural criticism/ journalism, and quota radio and television airtime for the creation and presentation of local cultural products.</p>	<ol style="list-style-type: none"> 1. Creating a local cultural fund to finance and develop local cultural projects. 2. Implementing mechanisms to facilitate the financing of cultural projects from the local budget. 3. Presenting cultural products of the Zaporizhzhia region artists at the national and international levels. 4. Organizing the participation of artists in national and international cultural events and exhibitions. 5. Developing the centers that will act as platforms for the presentation of cultural products of artists. 6. Contributing to the promotion of the works of art via the Internet. 7. Organizing exchanges and cooperation with other countries to present Zaporizhzhia's cultural achievements, developing and supporting the Zaporizhzhia Ambassador program. 8. Providing grants and scholarships for artists and cultural initiatives working on innovative projects. 9. Creating a space for collaboration and creativity where artists can exchange ideas and collaborate on innovative projects.
<p>4 Developing and implementing effective economic strategies to support Cultural and Creative Industries and stimulate their development.</p>	<ol style="list-style-type: none"> 1. Creating a cluster of Cultural and Creative industries for joint development and increasing efficiency. 2. Involving local producers. 3. Developing tourist programs and their promotion based on cultural events and monuments, as well as elements of intangible cultural heritage.

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- 5** **Implementing a monitoring and data collection system to ensure access to information on the market of Cultural and Creative Industries.**
1. Launching the creation of meaningful analytical materials for the field of Cultural and Creative Industries.
 2. Developing a plan for cooperation with the Regional State Statistical Office.
 3. Developing tools to measure the impact of cultural industries on the economy and society.
 4. Interaction with scientific organizations to conduct research in the field of cultural industries.
 5. Cooperation with the Regional State Statistical Office.
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- 6** **Supporting and creating platforms for cultural criticism, analysis, and debate that contribute to the development of the cultural sphere.**
1. Supporting publications that specialize in cultural criticism and analysis.
 2. Organizing cultural forums and seminars: holding events to discuss and analyze cultural issues.
 3. Quotas for radio and television airtime for the creation and presentation of local cultural products.
 4. Developing a program to support and develop cultural criticism/journalism.
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- 7** **Developing mechanisms of cooperation and communication between key players/stakeholders in the cultural sector to ensure coordination and joint work for the benefit of the cultural sector development.**
1. Regular meetings and discussions between regional and local authorities, businesses, and independent cultural actors to ensure common strategy and coordination.
 2. Creation of joint programs and products.
 3. Lobbying for interests at the national and international levels.
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- 8** **Restoration and protection of cultural site remains. Developing a strategy for the restoration and conservation of cultural heritage.**
1. Restoration of cultural sites.
 2. Conducting a detailed audit and assessment of the damage to cultural sites to develop a recovery plan.
 3. Seeking support from international organizations specializing in the restoration of cultural heritage.
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- 9** **Creating a central archive and virtual museum to preserve the city's history and cultural heritage.**
1. Collecting and restoring archives and collections to preserve historical and cultural heritage.
 2. Creating new museums and exhibitions for public viewing and study.
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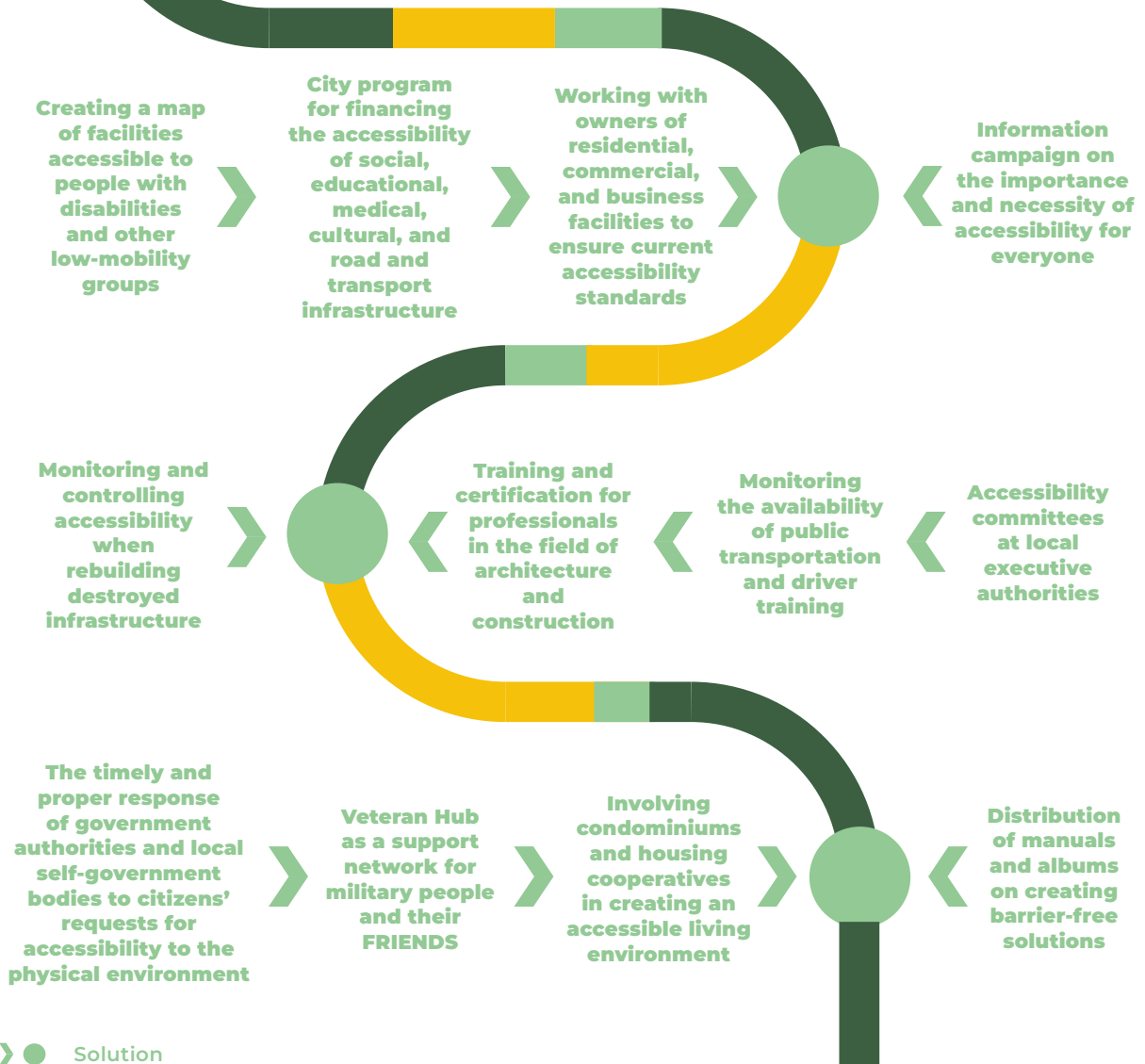
- 10** **Developing grant programs for cultural organizations and projects. Cooperating with the private sector to sponsor cultural initiatives.**
1. Searching for investors and creating investment projects to restore cultural sites and projects.
 2. Developing grant programs to support cultural restoration and development projects.
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- 11** **Providing psychological support, recovery, and therapy for citizens (artists/cultural figures) who have experienced the trauma of war.**
1. Providing psychological support and counseling for citizens who have survived the military conflict.
 2. Organizing cultural events that help restore psychological well-being.
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- 12** **Creating adapted cultural programs for IDPs, refugees, and internally displaced persons and attracting international donors to fund projects aimed at supporting humanitarian groups.**
1. Work with international humanitarian organizations to provide humanitarian assistance.



POST-WAR RESTORATION OF THE INFRASTRUCTURE CONCERNING INCLUSIVITY AND ACCESSIBILITY



Even today, during the war, the reconstruction, repair, and construction of infrastructure facilities require steps to ensure inclusiveness and accessibility of infrastructure. During the war the number of people facing problems due to the lack of accessible infrastructure has increased, and now it is not only vulnerable categories but also the military and IDPs.

According to the Ministry of Social Policy of Ukraine, as of December 2023, more than 40 thousand people with disabilities were registered in the Zaporizhzhia region and received assistance. According to the Department of Social Protection of the Population of Zaporizhzhia Regional State Administration, there are 10.3 thousand IDPs with disabilities in the Zaporizhzhia region (as of December 01, 2023).

Ensuring inclusiveness and accessibility of infrastructure is necessary for:

- ▶ people with permanent or temporary functional disabilities (physical, cognitive), including the wounded and the veterans;
- ▶ people with disabilities, including autism spectrum disorders, partial or complete hearing loss, musculoskeletal disorders, people with prosthetic limbs, people with partial or complete vision loss, etc.;
- ▶ elderly people;
- ▶ people/women with baby carriages and persons taking care of children;
- ▶ cyclists;
- ▶ pregnant women;
- ▶ people with non-standard body sizes.

Let's identify common problems of post-war infrastructure reconstruction concerning inclusiveness and accessibility.

Recommended activities and projects

Problems of post-war infrastructure reconstruction	Activities to ensure inclusiveness and accessibility of infrastructure
<p>1 The vast majority of existing buildings and infrastructure were constructed under the standards in force at the time, which do not meet the principles of universal design, and their owners have no obligation to bring these facilities up to current accessibility standards.</p>	<ol style="list-style-type: none"> 1. Interacting with the Regional Committee for Accessibility of Persons with Disabilities and Other Low-Mobility Groups to Social, Engineering, and Transport Infrastructure Facilities. 2. Disseminating information, engaging and conducting joint communication activities with stakeholders, namely, representatives of the authorities, target audience, CSOs and the media. 3. Creating a list of facilities accessible to persons with disabilities and other low-mobility groups. 4. City program for financing accessibility of social, educational, medical, cultural, and road and transport infrastructure.

5. Involving condominiums and housing cooperatives in creating an accessible living environment.

6. Promoting the already created products:

- «Barrier-Free Handbook» developed under the program «No Barriers». The information posted on the online platform is constantly updated in accordance with today's realities and challenges.
- Educational series «State without Barriers» [39].
- The Dostupno.UA initiative [40].
- Veteran Hub as a support network for the military and their friends.

2 Lack of an effective system of monitoring and control in the area of accessibility, in particular when rebuilding destroyed infrastructure.

1. Collecting and disseminating reliable information on the accessibility of physical environment objects, as well as establishing requirements for public institutions to inform about the existing conditions of accessibility of their buildings and premises.

2. Analyzing the effectiveness of «accessibility committees» as advisory bodies to local executive authorities.

3. Ensuring mandatory public involvement in the decision-making process in terms of creating an unimpeded living environment for persons with disabilities and other low-mobility groups and sustainable mobility on site.

4. Ensuring timely and proper response of public authorities and local self-government bodies to citizens' requests for accessibility of the physical environment.

5. Interagency working groups including the representatives of central and local executive authorities, other state bodies, institutions, and organizations, the Commissioner for Human Rights of the Verkhovna Rada of Ukraine, People's Deputies of Ukraine, representatives of public associations, scientific institutions, and international organizations in Ukraine.

6. Work with owners of residential, commercial, and business facilities to ensure up-to-date accessibility standards.

3 Lack of a certification system for accessibility specialists.

1. Exchanging experience with international partners to create a certification system.

2. Developing and implementing a certification system to confirm knowledge and skills in the field of accessibility for architecture and construction professionals.

3. Developing and implementing a system of voluntary and free certification of members of the public (online).

4 Regulatory documents on accessibility do not always correlate with each other and have differences in decisions [45, 47].

1. Bringing bylaws and decisions of local authorities in the field of public transport in line with the law.

2. Interacting with the Regional Committee for Accessibility of Persons with Disabilities and Other Low-Mobility Groups to Social, Engineering, and Transport Infrastructure Facilities.

5 Lack of a generalized source that clearly explains and illustrates typical accessibility solutions.

Utilizing what has already been created:

1. «Album of Barrier-Free Solutions» (taking into account the martial law), developed under the «No Barriers» program.

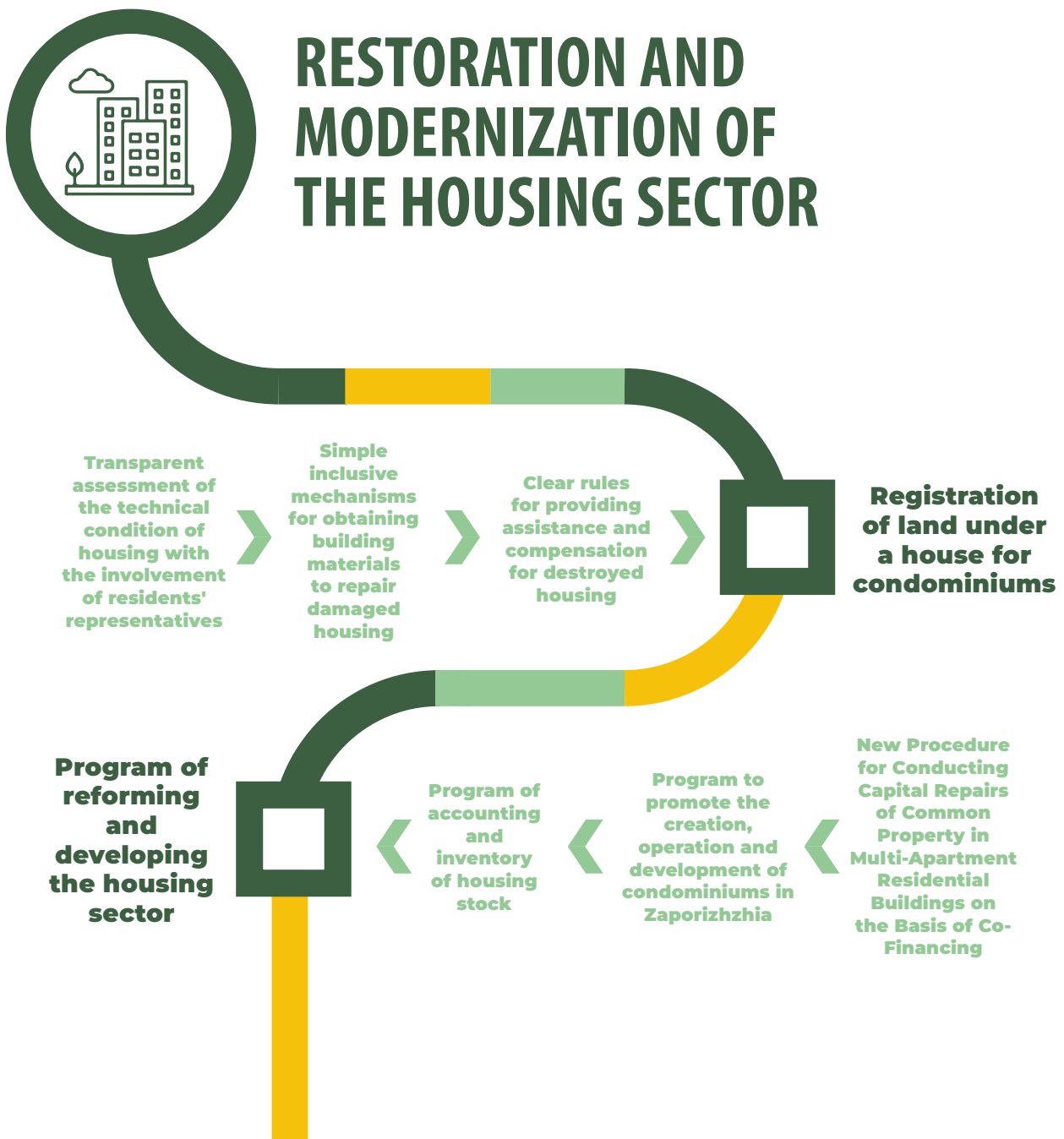
2. A guide to creating an accessible environment for people with disabilities and other low-mobility groups.

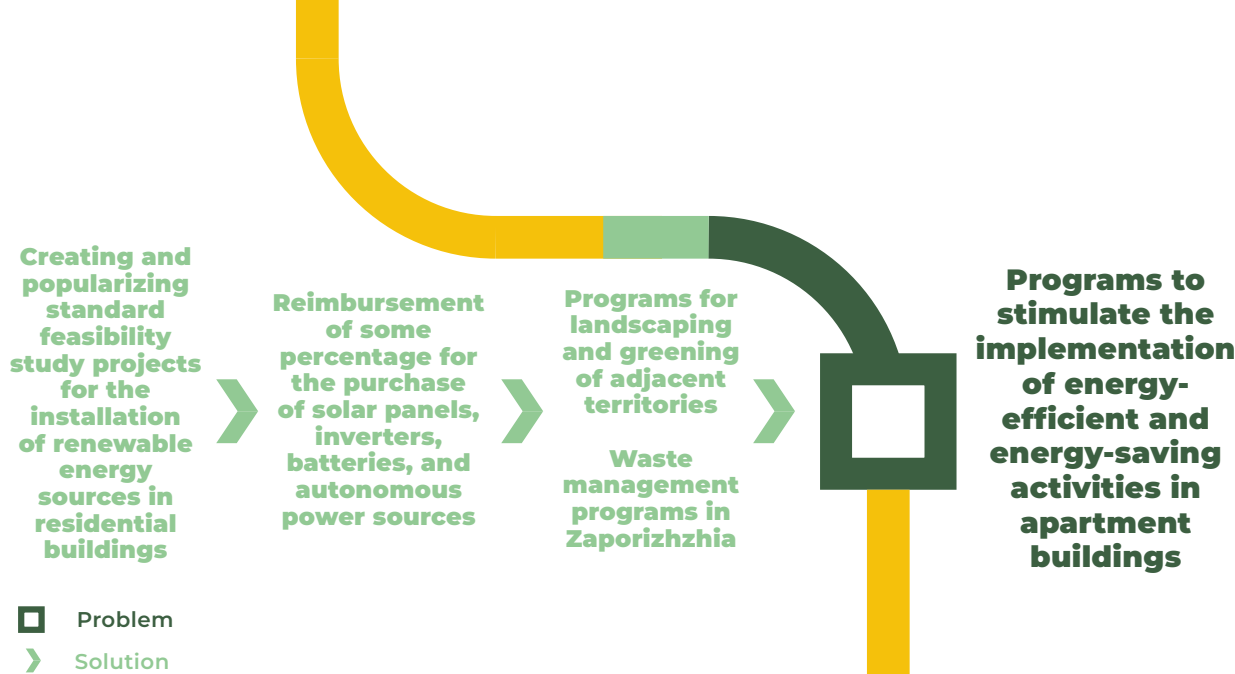
6 The overwhelming majority of people believe that inclusive reconstruction should begin after the war and that only critical infrastructure and destroyed housing should be rebuilt now.

1. Disseminating information about the importance and necessity of creating an accessible space for everyone now.
2. Conducting joint communication events with stakeholders, namely representatives of the authorities, target audience, CSOs, and the media.

7 Lack of understanding of the concept of inclusion and inclusiveness, low level of culture of awareness of the essence and importance of creating a barrier-free space [46].

- Utilizing what has already been created:
1. «Barrier-Free Handbook» developed under the «No Barriers» program.
The information posted on the online platform is constantly updated following current realities and challenges.
 2. The educational course «Barrier-Free Literacy» that can be viewed free of charge on the Diia. Digital Education portal: introduces the basic principles of barrier-free accessibility using everyday life situations as examples [44].
 3. Educational series «State without Barriers».
 4. The Dostupno.UA initiative.





The total housing stock of Zaporizhzhia comprises 4391 apartment buildings and is the second most energy-intensive sector after industry, consuming 20-25% of the city's fuel and energy resources. Heating accounts for 70% of fuel and energy resource consumption in residential buildings.

Most (52%) of the buildings were built between 1950 and 1970 during the Soviet era and have more than 50% wear and tear and are characterised by significant heat losses through the walls and windows.

As a result of Russian aggression (as of November 29, 2023), 13 apartment buildings and 14 private sector buildings were partially destroyed. In addition, 533 apartment buildings and 575 private households sustained significant damage.

Recommended activities and projects

Issues/ challenges	Activities suggested by condominiums
<p>1 The problem is the requirement for state registration of the termination of ownership of destroyed housing as a condition for receiving compensation for its restoration.</p>	<p>1. Removing the linkage of compensation for destroyed housing to the state registration of the termination of ownership.</p> <p>2. Introducing a procedure for registering land for co-owners of an apartment building. To begin with, the law should recognise that the land under the «building spot» is jointly possessed by the co-owners.</p>
<p>2 Excessive restrictions on the use of compensation, including a ban on the sale of housing purchased with compensation.</p>	<p>1. Removing restrictions on the use of compensation. If the state provides compensation in exchange for claims against the Russian Federation, it should not dictate how a person uses their compensation.</p>

2. Establishing clear rules for the provision of assistance, which will require the preparation of a package of interrelated amendments to laws and regulations.

3 Lack of participation in the reconstruction of the housing destroyed and damaged by shelling.

1. Transparent assessment of the technical condition of housing with the involvement of residents' representatives.
2. Providing residents of the affected building with the opportunity to receive a housing certificate or monetary compensation instead of waiting for housing repairs.
3. Promoting the eRestoration state programme.
4. Construction of rental housing for owners of destroyed houses.
5. Creating and promoting simple and inclusive mechanisms for obtaining construction materials to repair damaged housing.

4 Technically outdated housing stock that does not meet modern standards for comfortable living and energy efficiency, accessibility, and inclusiveness.

1. Development of a new Programme for reforming and developing the housing sector in Zaporizhzhia.
2. Development of the Programme of accounting and inventory of the housing stock in Zaporizhzhia.
3. Development of a new Procedure for carrying out overhaul of common property in multi-apartment residential buildings in Zaporizhzhia on the terms of co-financing.
4. Development of a programme for the overhaul and modernisation of the lift facilities.

5 Lack of support for the activities and low level of citizens' involvement in solving housing problems.

1. Developing a programme to support the creation, operation, and development of condominiums in Zaporizhzhia.
2. Amendments to the Programme for Supporting the Activities of the bodies of self-organization of the Zaporizhzhia population.

6 Low energy efficiency in the multi-apartment housing stock, which leads to high heat and electricity losses and greenhouse gas emissions from fuel and energy resources combustion, as well as to higher tariffs and household debt.

1. Closing of the Programme for Reimbursement of Interest Rates on Loans Obtained from Financial Institutions («Warm Loans») provided to Condominiums and Housing Associations for the implementation of Energy Saving and Energy Efficient Projects in the Housing and Utility Sector for 2021-2025.
2. Amendments to the Programme for Reimbursement of Interest Rates on Loans from Financial Institutions to Condominiums for the Implementation of Energodim Projects under the Energy Modernisation Support Programme for Multi-Apartment Buildings for 2020-2024 provided by the Energy Efficiency Fund.
3. Amendments to the Programme of partial reimbursement of the cost of energy-saving activities implemented by condominiums in Zaporizhzhia under Package A «Light» for 2023-2024.
4. Development of a unified support programme for condominiums in Zaporizhzhia to participate in the ENERGODIM programme of the Energy Efficiency Fund.
5. Development of a programme to stimulate the implementation of energy efficiency and energy-saving activities in apartment buildings.
6. Establishment of the Housing Modernisation and Development Fund (revolving fund).

7 High dependence on centralised energy sources.

1. Amending the Programme of partial reimbursement of the cost of renewable energy sources purchased by condominium associations, housing cooperatives, and managers of multi-apartment residential buildings in Zaporizhzhia for 2022-2023 to include solar panels, inverters, storage tanks, and autonomous power sources in the list of equipment.

2. Creating and promoting standard feasibility studies for the installation of renewable energy sources (RES) in residential buildings. Development of a programme to support the introduction of RES in the housing stock of Zaporizhzhia.

8 **Lack of modern planning of adjacent territories as inclusive public spaces.**

1. Developing the Procedure for registration of a land plot of the adjacent territory of an apartment building for permanent use.
2. Developing a programme for the improvement of adjacent territories, including the introduction of public control in landscaping.
3. Promoting the City Code, control over its observance.
4. Resuming the funding for projects for the participation of residents in the development of urban space.

9 **Failure to take into account climate change processes and the need for adaptation in the reconstruction of buildings and adjacent territories and landscaping.**

1. Promoting and implementing nature-based solutions (vertical gardening, hedges, pergolas, natural areas without mowing, rain gardens, eco-parking).
2. Educational work on the role of trees in the city, rules of care, and pruning of trees and shrubs.
3. Implementation and popularization of sustainable landscaping practices for adjacent territories through the District state administration.
4. Cooperation of condominiums/housing cooperatives with NGOs and educational institutions on environmental and climate education.

10 **Outdated waste management system, lack of sorting.**

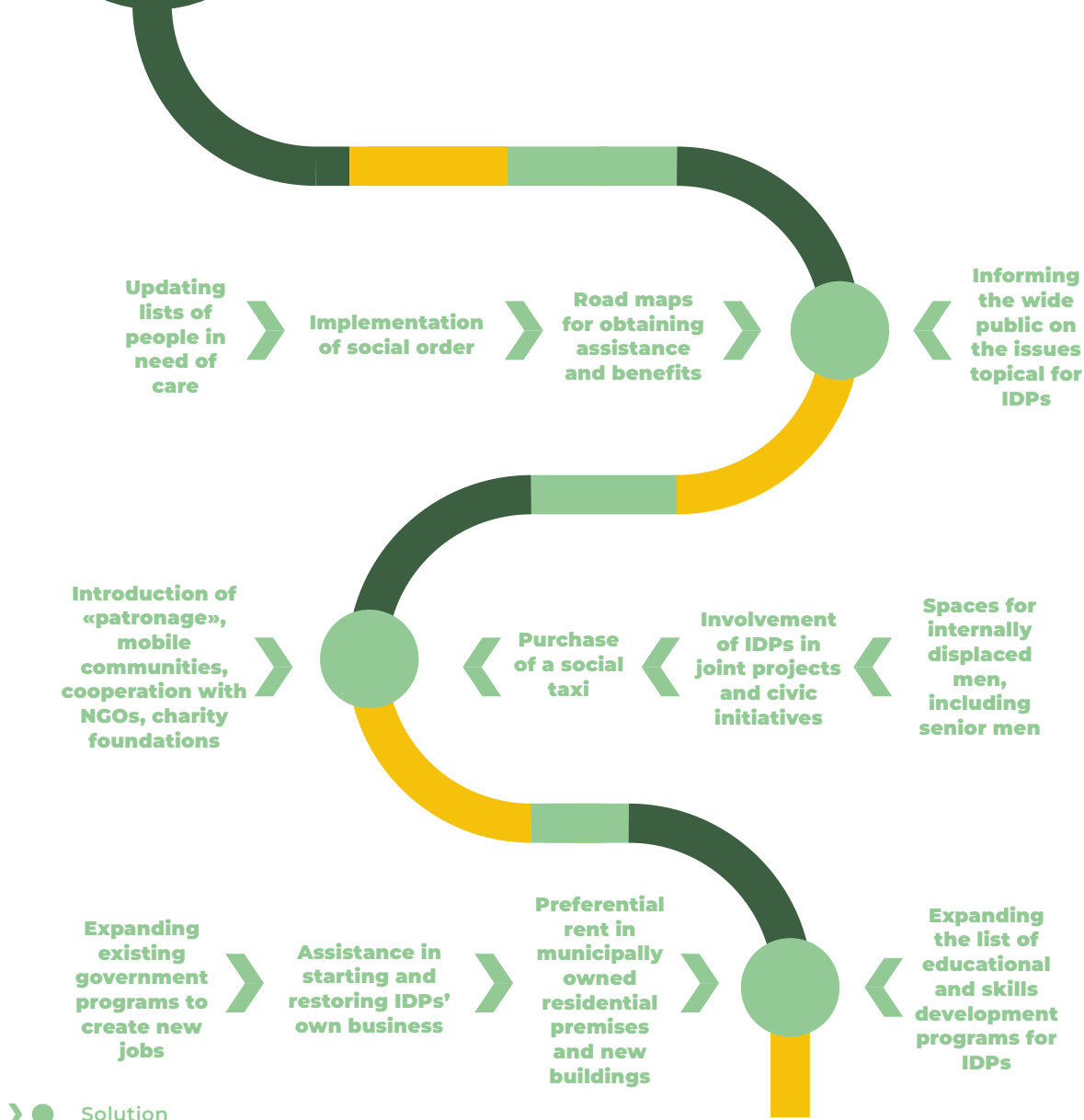
1. Development of the Waste Management Program in Zaporizhzhia.
2. Implementation of sorting and removal of sorted waste at the city level.
3. Introducing the collection and processing of organic waste, including food and vegetable waste, at the city level.
4. Establishment of municipal collection points for hazardous, construction, and bulky waste.
5. Information campaigns for the population on waste management.
6. Involvement of the Municipal Guard in waste management control with the right to impose administrative fines.

11 **Lack of sustainable communications between condominiums / housing cooperatives and local self-governments and the public, scientists, other regions of Ukraine, and international partners in the housing sector.**

1. Establishing a working group on housing development under the relevant deputy mayor as a freelance advisory body with the involvement of representatives of the hromada's intersectoral partnership.
2. Resumption of the work of the Council of Condominiums under the executive committee office of Zaporizhzhia City Council.
3. Development of a program of cooperation with the Municipal Enterprise «City Development Institute» and higher education institutions to prepare projects for obtaining grant funds for condominiums / housing cooperatives and specialized housing utilities.
4. Organizing and holding the First Forum of condominiums in the south-eastern region (territories affected by the occupation and hostilities).
5. Organizing and conducting communication events on housing development and exchange of experience with the twin cities of Zaporizhzhia from the European Union.



INTEGRATION OF IDPS IN THE ZAPORIZHZHIA REGION



The full-scale invasion led to the forced relocation of a large number of people to the Zaporizhzhia region from the combat areas and temporarily occupied territories. According to the Department of Social Protection of the Population of Zaporizhzhia Regional State Administration, as of December 01, 2023, there are 233 thousand IDPs in the Zaporizhzhia region.

Instead of treating them as a burden on the social system, IDPs should be perceived as a labor force resource and human capital. Assistance to IDPs should be redirected towards their long-term full involvement in the life of host hromadas and integration. This should be based on a gender-inclusive, human-centered approach, with the maximum possible involvement of IDPs both at the stage of finding optimal solutions and their implementation.

Recommended activities and projects

Challenges to the effective involvement of IDPs in the life of the host hromada

- 1 Problems with informing the public:**
- 1.1. Exclusion of IDPs from the «official information field»: no appeals.
 - 1.2. Limited channels of information (people who do not have smartphones due to their financial situation or age, or who are visually impaired remain outside the information field).
 - 1.3. Limited available information on existing rights and opportunities for IDPs.

Steps to integrate IDPs into the life of the host hromada

1. Informing people with different vulnerabilities through communication channels available to them (radio, announcements in administrative services centers, hospitals, council and starosta offices, etc.) about possible support and issues relevant to IDPs.
2. Disseminating information to IDPs with different vulnerabilities (printed, electronic, audio formats) about social assistance: benefits in various areas of life for IDPs, including civilians who were in captivity.
3. Providing roadmaps for obtaining assistance and benefits. Information on payments, including from international organizations, should be posted on official websites.
4. Providing information on social services, such as transportation for people with reduced mobility, care for people with disabilities.

2 Provision of social services:

- 2.1. The lack of resources (including human resources) does not solve the problem of providing IDPs with social services in full.
 - 2.2. Displacement of lonely elderly people in need of support to the Zaporizhzhia region.
 - 2.3. Lack of opportunities to transport people with limited mobility to hospitals (social taxis) in the vast majority of hromadas.
 - 2.4. Increase in all types of family violence.
 - 2.5. Low level of training of «mobile brigades».
1. Implementation of social order.
 2. Lists of people in need of care should be updated (evacuees alone in need of care, perhaps caregivers have not left/moved) + those who were registered (check the lists for each hromada).
 3. Introduction of «patronage», cooperation with public organizations, and charitable foundations to help the elderly.
 4. Involvement of senior people in public life (informing them about opportunities to get involved, be useful, organizing meetings for communication).
 5. Including the purchase of a social taxi in the program of social protection of hromadas in the Zaporizhzhia region.
 6. Changing the information policy to a realistic one, explaining and emphasizing the long timeframe for the liberation of the temporarily occupied territories and the withdrawal of russian troops from the demarcation line.
 7. Mine risk education.
 8. Dissemination of information about psychological assistance and hotlines provided by NGOs and social services for people of different categories of vulnerability using appropriate means and methods (offline, telephone, and online formats).

2.6. Lack of established transport links between hromada settlements for access to social services for IDPs living in remote locations from the hromada center.

2.7. Lack of motivation for IDPs to integrate into the hromada due to the hope of returning to their hometowns, which is related to psychological adaptation.

9. Involvement of IDPs in joint projects. Participation of IDPs in the « management » of places of compact residence, identification of IDPs' needs, and involvement in public works.

10. Involvement in the activities of local NGOs or volunteer movements. Dissemination of information on official websites, web pages, in administrative services centres, printed announcements about opportunities to join as volunteers, employees, and not just as visitors to events.

11. Creating spaces for internally displaced men, including senior ones.

12. Systematic dissemination of information, including in official sources of information on types of violence, counteraction, responsibility, hotline numbers.

13. Development of algorithms for the actions of «mobile teams», and advanced training of «mobile teams» employees when working with victims and perpetrators, as well as witnesses.

14. Establishing transport links between hromada settlements to provide access to social services for IDPs living in remote locations by providing tax benefits to rural transporters, partial provision of fuel, etc.

3 Problems of unemployment and creation of new jobs in hromadas:

3.1. Employment of people with no work experience, namely housewives.

3.2. Employment of agricultural workers who moved to the city.

1. Expanding the list of educational and skills development programs for IDPs proposed by the Comprehensive IDP Support Program for 2023-2024 of Zaporizhzhia Regional Military Administration, taking into account professions that can be mastered by women in a short time. Access to short-term vocational training should be a priority.

2. Expanding existing state programs to create new jobs through training and internships to fill vacant positions (junior specialists, assistants) in the same social services and others where there is a staffing problem.

3. Widespread information about vacancies.

4. Informing employers about support programs for employment of IDPs.

5. Conducting information activities on discrimination based on place of residence.

6. Creating day care spaces for children.

7. Provision of short-term lease of land plots for agricultural activities to provide for the family.

4 Lack of conditions for restoring and starting own business:

4.1. Uncertainty of legislative provisions on granting preferences to IDPs for intensification of entrepreneurial activity.

4.2. Lack of financial resources, low opportunities to obtain a loan for business development.

4.3. Lack of understanding of the local context of doing business, and lack of partners.

1. Facilitating the opening and restoration of IDPs' businesses.

2. Local programs on preferential conditions for starting a business during the war with certain conditions, such as the number of employees, and occupation of vacant niches in the provision of services or goods.

3. Activation of social enterprises.

4. Co-financing under local programs.

5. Dissemination of information about grant opportunities for business launch and recovery.

6. Establishment of project offices that will help, among other things, to prepare grant applications for starting and restoring a business.

7. Small and micro-business development activities for both local and IDPs with maximum dissemination of information and involvement of both officially registered unemployed IDPs and those who are not registered with the Employment Service to familiarize them with employment opportunities/search for employees and promote goods and services provided in the hromada/region.

4.4. Lack of initiatives to promote IDPs' entrepreneurial activities at the local level.

8. Organizing events to establish contacts and interactions between local businesses and IDPs who intend to restore or start their businesses.

9. Dissemination of analytics on unemployed but in-demand business areas.

10. Providing premises for rent on preferential terms for both local and IDP businesses that fill «free» niches.

11. Increasing awareness of grant programs to support IDPs' business activities, popularizing positive cases to build trust in the mechanism.

5 Problems of providing IDPs with housing.

1. Assisting in the form of building materials for repairs and assistance in the decorating of houses. Possible implementation through IDP support programs and with donor funds.

2. Introduction of technologies for rapid housing construction (cottage towns, etc.), including in sparsely populated villages.

3. Construction of new houses, where a certain percentage of housing will be transferred to a long-term lease to IDPs without the right to buy (in fact, communal housing).

4. Preferential rent in municipally owned housing with the right to purchase housing at an affordable price.

5. Conducting an inventory of « escheat », ownerless housing with subsequent transfer to communal ownership.

6. Developing a system of affordable mortgage lending to provide housing for IDPs (primarily those who intend to stay in the host hromada), including the development of long-term regional programs for targeted lending, including mortgage construction or purchase of housing for IDPs, in cooperation with state banking institutions and with the involvement of international humanitarian assistance.

7. Ensuring the targeted allocation of land plots for IDPs by community and territorial development plans for the construction of permanent housing, taking into account the needs of IDPs.

8. Identifying municipal buildings in hromadas for conversion into social housing.

9. Reconsidering the concept of « service housing » to the « communal property » for long-term residence.

10. Purchasing of residential premises from banks for unpaid loans to replenish the communal property fund. Or banks and insurance companies themselves lease them out on a long-term basis.

6 Financial inability to treat and purchase medicines for chronic diseases and age-related illnesses.

1. Providing financial/medical assistance programs for vulnerable groups.

2. Improving information on opportunities for IDPs in terms of medical care, treatment, available benefits available to different vulnerable groups of the population in the available ways.

7 Restrictions on access to education due to lack of electronic means for online learning.

1. Identification of families (families with many children, low-income families) in need of electronic learning tools.

8 Problems with restoring social status, social activity, social interaction.

1. Integration activities for interaction both culturally and in shaping community life.

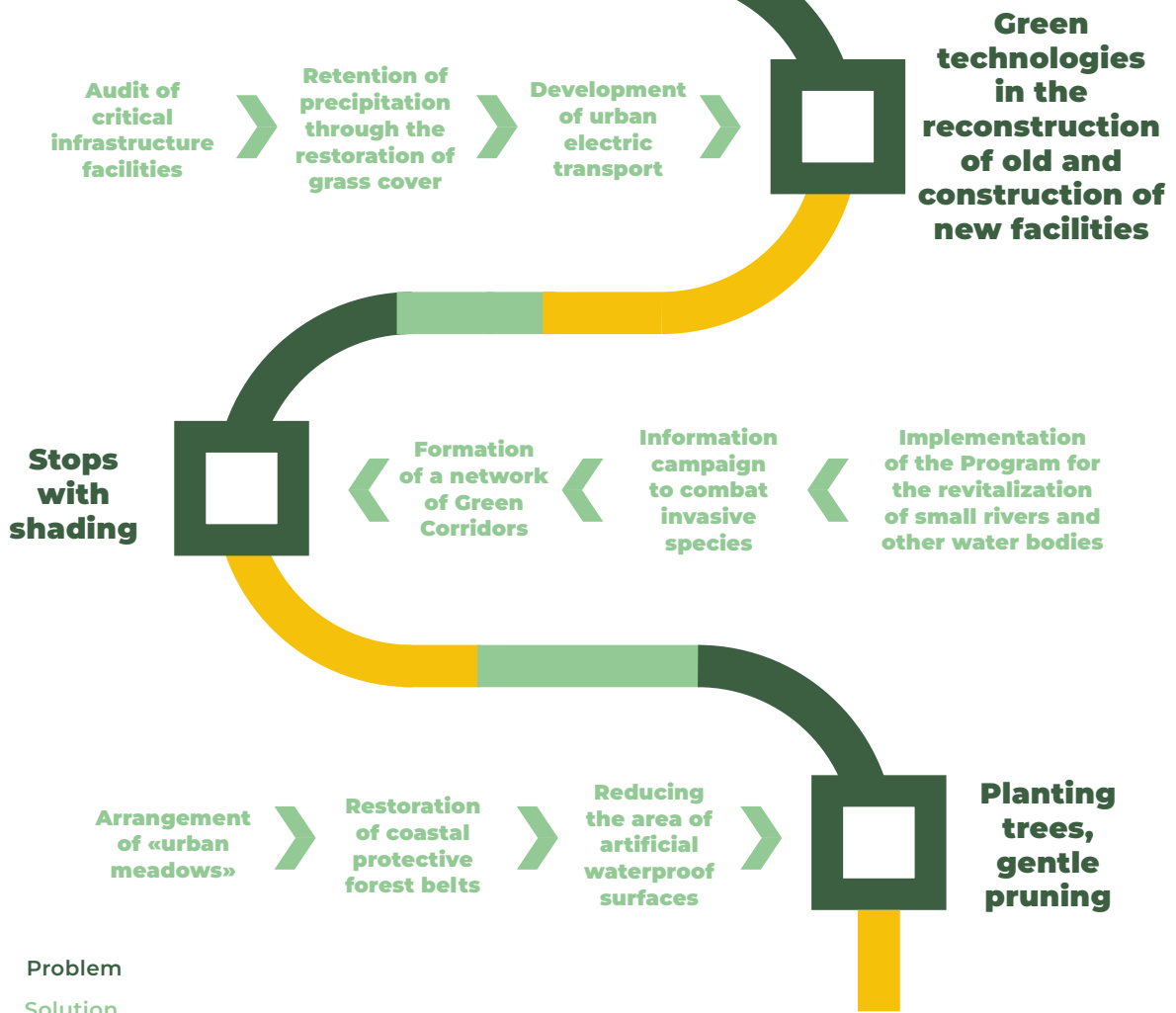
2. Creation of hubs for interaction between IDPs and locals. Introduction of formats to support IDP initiatives.

3. Creation of dialogue platforms.

4. Involvement of IDPs in civil society organizations and initiation of IDPs' civil society organizations.



ADAPTATION TO CLIMATE CHANGE DURING RECOVERY



When developing and implementing recovery measures, it is necessary to focus on preserving the existing natural capital, which can be the basis for building human capital that has undergone radical changes during the period of russia's full-scale invasion.

One of the city's priorities is to create conditions for the return of residents who were forced to leave their homes and for the settlement of those who were forced to come to Zaporizhzhia. The city council should create comfortable living conditions for them with minimal impact of negative weather events and climate threats.

The recommendations are focused on the short term – up to 10 years.

Recommended activities and projects

Challenges to climate change adaptation (grouped by infrastructure sector)	Activities for climate change adaptation
<p>1 Critical infrastructure:</p> <p>1.1. Reduced efficiency of functioning due to the occurrence of adverse weather events and/or climate change effects, in particular, flooding and extreme snow and ice events.</p>	<ol style="list-style-type: none"> 1. Implementation of a system for monitoring the condition of critical infrastructure facilities. 2. Audit of critical infrastructure facilities with an assessment of the facility's condition, and functionality: availability of emergency water and electricity supply, heating/cooling, and communication. 3. Bringing critical infrastructure facilities to a state of full functionality. 4. Taking preventive measures (e.g., coating open wires with special materials (polymers)) to reduce the likelihood of ice freezing during frequent transitions of air temperature through zero degrees. 5. Planning of new infrastructure in Zaporizhzhia should include the creation of critical infrastructure facilities, taking into account the assessment of vulnerability to climate change and the requirements of the full functionality of such facilities.
<p>2 Built environment/green planning/urban planning (social infrastructure):</p> <p>2.1. Increased need for social housing for vulnerable populations, including IDPs.</p> <p>2.2. Destruction and damage to infrastructure.</p> <p>2.3. Increased need for modernization of the existing housing stock due to its aging and low energy efficiency.</p> <p>2.4. Large area of waterproof surface coverage.</p>	<ol style="list-style-type: none"> 1. Integration of nature-based approaches to microclimate regulation and urban space cooling into all planning projects for new residential and public buildings. 2. Implementation and development of recommendations for the use of green technologies during the reconstruction of old and construction of new built environment facilities as mandatory elements: vertical gardening, greening of facades and roofs, use of natural ventilation of space, use of materials, including facade decoration and light-colored paints. 3. Development and implementation of a comprehensive plan for rainwater retention in the city by preserving and restoring grass cover in open spaces to retain rainwater (use of permeable materials in parking lots, sidewalks, and playgrounds). 4. Development of the city public transport: renewal of the transportation fleet including the purchase of electric buses, reconstruction and expansion of the tram network and trolleybus routes. 5. Arrangement of public transport stops with shading and shelter from precipitation. 6. Formation of a network of Green Corridors to connect individual districts with the central part of the city and for pedestrians, cyclists, and users of light and low-speed personal electric vehicles to move within the neighborhoods in a shaded space.

7. Implementation of measures planned in the Concept for the development of cycling infrastructure in Zaporizhzhia.

3 Green spaces:

3.1. Increased duration of periods with high temperatures.

3.2. Reduced availability of water resources.

3.3. Increased demand for shaded areas, cool zones, and recreational areas.

3.4. Loss of biodiversity.

3.5. The need to change approaches to species composition and maintenance of green spaces.

3.6. Increased periods of high concentrations of toxic substances in the air.

1. Implementation of electronic accounting (inventory) of green spaces.
2. Conducting an information campaign to engage the general public in filling the database.

3. Inclusion of funds for landscaping and arrangement of irrigation and drainage systems in the design and estimate documentation of improvement facilities.

4. Maintaining records and an information campaign aimed at counteracting the spread of invasive species (ragweed, hogweed, etc.). Information about the fight against and presence of invasive species should be accessible and understandable: placement of information messages in the media and social networks; creation of a separate map on the geoportal of Zaporizhzhia (when its work is restored), involvement of schools and out-of-school educational institutions in filling the map and disseminating information.

5. Implementation of the Program for the revitalization of small rivers and other water bodies in Zaporizhzhia [31], creation of a program to strengthen the slopes of gullies and cliffs, planting vegetation for bank protection of small rivers and the Dnipro River. Consider the possibility of involving people temporarily left without financial support in the implementation of the program.

6. Creating conditions for the participation of willing residents in the Victory Gardens initiative – for implementation, it is necessary to assess the availability of resources for watering the relevant vegetation; analyze the current Rules for the improvement of the territory of Zaporizhzhia and conduct an information campaign to explain to citizens in which areas gardening is prohibited (for example, coastal protection zones along rivers, around water bodies and on islands).

7. Changing approaches to algorithms for the care of green spaces:

- preference is given to planting perennial species that are resistant to periods of drought and high temperatures;
- planting trees with a spreading crown to create shaded spaces;
- gentle pruning of tree crowns, which will help to create a wide shaded space;
- a ban on low grass mowing during hot periods of the year to prevent the extinction of vegetation and exposure of soil cover;
- giving preference to therapeutic and restorative measures instead of cutting down tree species;
- creating « urban meadows » instead of traditional lawns.

4 Water resources availability:

4.1. Increased water use in summer.

4.2. Reduced and uneven distribution of precipitation.

4.3. Decrease in groundwater level.

4.4. Violation of the hydrological regime and sanitary condition of small rivers and the Dnipro River.

1. Restoring the natural state of water bodies located in the city:

- certification of all water bodies in the hromada;
- mapping the boundaries of the coastal strips of all water bodies and registering them in the State Land Cadastre of Ukraine and the land management documentation of the hromada and private owners;
- restoration of the natural state of coastal protective forest belts with the implementation of nature-based solutions – at the first stage, within the existing park and green areas, preparation of solutions to expand this practice to areas not included in these zones;
- implementation of erosion control measures and planting of vegetation with soil retention capacity (having a branched root system).

4.5. Destruction of the coastline.

4.6. Increase in the area of impervious surfaces.

2. Developing a plan for depressurizing the space (reducing the area of artificial waterproof surfaces):

- when designing infrastructure facilities, avoid large areas covered with impervious materials (asphalt, concrete) and instead use coatings that allow rainwater to filter into the ground;
- preserving grass under parking lots and covering it with various lawn grates;
- creation of «rain gardens, parks» – recessed parts of parks, gardens, and squares, which in normal times serve as public spaces, and during periods of intense precipitation serve as a temporary pool for the accumulation of rainwater;
- creation of «rain gutters» along the roadway, which will simultaneously facilitate the drainage of rainwater and its accumulation and accessibility to plants during periods of low rainfall.

CONCLUSIONS

The Green Book of the Postwar Recovery of Zaporizhzhia reflects the conceptual framework of the recovery policy, building a logical sequence of actions to transform the city into a territory attractive for people and investment.

The priority strategic directions of Zaporizhzhia's post-war recovery, which will lead to the sustainable development of the city and a comfortable life for its citizens, should be:

1. Restoration of mental health and psychological adaptation of the population to conditions of uncertainty, which creates conditions for the psychosocial well-being of citizens, enables them to be more actively involved in the processes of post-war reconstruction and city recovery, and improves social interaction and social cohesion.
2. Environmental safety of people in the city and restoration of the environment affected by industrial pollution and military operations
3. Green restoration of Zaporizhzhia's energy infrastructure, which should take into account the need to adapt to various emergencies, climate change, and the decarbonization goals adopted by the Covenant of Mayors.
4. Economic recovery through entrepreneurship development, cluster creation, and technology development, development of cultural and creative industries of the city, and integration of IDPs.

5. Restoration and development of infrastructure based on the principles of inclusiveness, barrier-free accessibility, and environmental friendliness (Build Back Greener).

6. Reconstruction and modernization of the housing sector based on the principles of energy efficiency, inclusiveness, accessibility, and climate change adaptation.

7. Community development through economic, organizational, managerial, regulatory, socio-psychological, and informational programs for the integration of IDPs as additional human capital.

To achieve these goals, it is necessary to update the Zaporizhzhia Development Strategy for the period up to 2028 to achieve synergies between stakeholders, and include the recommended activities in projects and programs aimed at the post-war recovery of Zaporizhzhia. The model of effective cooperation between the hromada, business, state, local governments, and NGOs should be based on a system of mutual support – only in partnership can solutions be found that will be effective and efficient for the post-war green recovery of Zaporizhzhia as a Ukrainian and European city.

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For almost 10 years, Ecosense NGO has been uniting citizens, activists, experts, and local authorities of Zaporizhzhia city through joint actions. Since the beginning of the military invasion, our community has rallied around the main goal of preserving the lives and health of Ukrainians, the right to a safe environment during the war and post-war recovery.

Our activities are focused on five key areas:

1. Green recovery of Zaporizhzhia following the European Green Deal.
2. Dissemination of climate change adaptation practices.
3. Promoting the transition of the Zaporizhzhia region to sustainable energy development.
4. Restoring and maintaining the mental health of the Ukrainians.
5. Development of participatory democracy tools through social activity and cohesion of Ukrainians.

We invite everyone who cares to cooperate and work together for the sustainable green and democratic development of Zaporizhzhia!

More information about the activities of the Ecosense community can be found on our website and social media pages.

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