

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Promoting Circularity in Rebuilding Ukrainian Cities




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PREFACE

This policy paper on “Promoting circularity in rebuilding Ukrainian cities” was developed as part of the project “[UN4Kharkiv: Integrated Rehabilitation of Settlements \(Territories\) in Ukraine with a pilot project in the City of Kharkiv](#)”, funded by the Regular Programme of Technical Cooperation (RPTC) of the United Nations Economic Commission of Europe (UNECE). It serves as a background document for the thematic workshop “Promoting circularity in rebuilding Ukrainian cities”, which was organized on 25 November 2022.

Five policy papers were produced which serve as outcomes of the UN4Kharkiv and UN4Mykolaiv initiatives that UNECE initiated in April 2022, upon the request of the Ministry for Communities, Territories, Development and Infrastructure of Ukraine. The initiative supports the national and local governments of Ukraine in their efforts to plan a staged urban recovery following a balanced, evidence-based, participatory approach that links emergency and long-term strategic objectives to “build back better”. The initiative supports the preparation of blueprints for reconstruction and recovery of cities in Ukraine. The approach is piloted in Kharkiv and Mykolaiv with the preparation of reconstruction master plans for these two cities.

As part of the initiative, UNECE organizes a series of activities which support the development of the master plans. These includes thematic workshops bringing together key international experts on priority topics for the master plans identified by the two city governments; and the development of several policy papers on topics that are important for reconstruction and recovery.

ACKNOWLEDGEMENTS

The “Promoting circularity in rebuilding Ukrainian cities” policy paper was developed under the auspices of the UNECE Environment Division, in close collaboration with international and local experts, and in coordination with the city governments of Kharkiv and Mykolaiv.

UNECE expresses its gratitude to the following people for their contributions to the completion of this paper. The document was written by Ms. Olena Maslyukivska, Consultant at UNECE Environment Division, with support from Ms. Melanie Steinkemper, Consultant at UNECE Housing and Land Management Unit. The paper was reviewed by Ms. Sarangoo Radnaaragchaa, Regional Advisor at UNECE Environment Division, and Ms. Gulnara Roll, Secretary to the Committee on Urban Development, Housing and Land Management; Forests, Land and Housing Division, UNECE. We also thank Ms. Anya Magotra, UNECE Consultant, who supported as editor, and Ms. Veronika Simkova, UNECE Intern, who supported with the layout.

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United Nations unofficial publication issued by the Economic Commission for Europe (UNECE).

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ABBREVIATIONS

AA	Association Agreement
BAT	Best Available Technique
CBD	Commercial Bank of Dubai
CDCS	Country Development Cooperation Strategy
CLRTAP	Convention on Long- Range Transboundary Air Pollution
CMU	Cabinet of Ministers of Ukraine
CSO	Civil Society Organization
DOBRE	Decentralization Offering Better Results and Efficiency
EIA	Environmental Impact Assessment
EPL	Environmental People Law
EST	Energy Sector Transparency
GCAP	Green City Action Plan
GoU	Government of Ukraine
MCTD	Ministry for Communities and Territories Development
MinEnv	Ministry of Environmental Protection and Natural Resources
NDC2	the 2 nd Nationally Determined Contributions
NECU	The National Ecological Center of Ukraine
PPP	Public-Private Partnership
PULSE	Policy for Ukraine Local Self Governance
RBMP	River Basin Management Plan
SAWR	State Agency for Water Resources
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SMEs'	Small and Medium-sized enterprises'
TAPAS	Transparency and Accountability in Public Administration and Services
UNFCCC	UN Framework Convention on Climate Change

VOC	Volatile Organic Compound
VRU	Verkhovna Rada of Ukraine
WFD	Water Framework Directive
WSP	Water Safety Plan
WtE	Waste-to-Energy

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EXECUTIVE SUMMARY

This note contains a background document for the thematic workshop on promoting circularity in rebuilding Ukrainian cities, organized on 25 November 2022. The first part covers key challenges cities in Ukraine face, as well as key national legal acts and regulations relevant to circularity, key organizations and data, and key national and local programmes in Ukraine in place before and during the war. The second part lists relevant UN and other international tools and instruments, which can help Ukraine to address challenges the cities are facing.

Based on the desk review, it can be concluded that for the planning of cities recovery, the following aspects need to be considered:

- Smart Spatial Planning is crucial to account for different city zones. Available tools can guide on planning industrial sites, green and blue zones.
- Strategic Environmental Assessment should be considered as all plans, programmes or other strategic documents (including city master plans) are subject to SEA according to the Ukrainian legislation.
- Public participation is crucial as Ukraine is Party to the Aarhus Convention and its Protocol on Pollutant Release and Transfer Registers, therefore it is being legally bound by the obligations of these two international treaties.
- Air protection and water safety are key elements of the environmental sustainability of cities. Ukraine is also a party to several international conventions and protocols. Climate change impacts and adaptation measures will directly impact the city planning due to the increased heatwaves and scarcity of water.
- Circular approaches are important when considering post-war rubble management, waste management, and resource efficiency of business planning.
- Gender considerations must be incorporated into city planning, accounting for the needs, interests and routines of women and girls in the city.

BACKGROUND

The Russian invasion of Ukraine has caused massive disruption of economic activity in Ukraine and damage to infrastructure, the environment and livelihoods of the Ukrainian people. To support local reconstruction efforts in cities and other human settlements, the Ministry for Communities and Territories Development of Ukraine has elaborated a draft National Framework for Programmes for the Integrated Rehabilitation of Settlements and Territories.

Building on their longstanding cooperation, the Ministry for Communities and Territories Development of Ukraine (the Ministry) requested the United Nations Economic Commission for Europe (UNECE) to provide technical assistance on urban development and housing in the context of recovery of Ukrainian cities from damages sustained from the war. As part of this cooperation, the Ministry initiated a first pilot project on the development of a reconstruction plan for the city of Kharkiv, the second largest city in Ukraine, which is expected to become a blueprint for the reconstruction of other Ukrainian cities. In response, UNECE established the UN4Kharkiv Task Force with the objective of supporting the efforts of national and local governments in Ukraine in the planning and preparations for rebuilding and reconstruction of cities, to support them in achieving the SDGs based on the “Building Back Better” principle.

As part of this initiative, UNECE has partnered with UN agencies and international experts to develop a series of policy papers aimed at assisting the national and local governments of Ukraine in furthering their recovery objectives through the provision of concrete policy recommendations. Such policy recommendations are in line with the National Recovery Plan of Ukraine devised by the National Recovery Council. They cover the thematic areas of Affordable Housing, Housing Policy and Emergency Architecture, Climate Neutrality and Energy Efficiency in Buildings, Circular Economy, Environmental Sustainability and Green-Blue Cities. Please visit our [UN4UkrainianCities webpage](#) for detailed information on project events and workshops related to these thematic areas.

INTRODUCTION: CIRCULARITY AND RECOVERY

Two-thirds of the Earth's population will be living in urban areas by 2050. Despite taking up just 2 per cent of global landmass, urban centres consume more than 75 per cent of natural resources, are responsible for over 50 per cent of solid waste and emit up to 60 per cent of greenhouse gases, which contributes to pollution, climate change and biodiversity loss¹.

Maintaining economic growth, while creating sustainable livable cities for all, is the biggest urban challenge facing the world today. Many cities are already struggling with environmental degradation, traffic congestion, inadequate urban infrastructure and dilapidated basic infrastructure, such as water supply, sanitation, and waste management. The environmental footprint of cities is quite alarming and can threaten the natural resources required to sustain economic development and poverty alleviation rates. The vulnerability of cities to increasingly common and extreme weather caused by climate change, will continue to grow unless significant action is scaled up.

Cities also provide concrete solutions to minimize impact on the environment. They have a high concentration of resources, capital, data, and talent, spread over a relatively small geographic area, and are centres for innovation. As a result, cities are also uniquely positioned to support certain circular business models, such as sharing models, reuse systems or product-as-a-service models².

A circular city is one that promotes the transition from a linear to a circular economy in an integrated way across all its functions in collaboration with citizens, businesses and the research community³. At the core is the concept of closed-loop systems in which all raw materials are recaptured as a response to both growing resource scarcity and waste management challenges⁴. Circular cities aim to eliminate the concept of waste, keep assets at their highest value at all times, and become enabled by digital technology. A circular city seeks to generate prosperity, increase livability, and improve resilience for the city and its citizens, while aiming to decouple the creation of value from the consumption of finite resources. Through this transition, cities seek to improve human well-being, reduce emissions, protect and enhance biodiversity, and promote social justice in line with the Sustainable Development Goals (SDGs).

A circular city embeds the principles of a circular economy across all its functions, establishing an urban system that is regenerative, accessible, and abundant by design. Box 1 provides a summary of the circular city elements.

¹ The Collaborating Centre on Sustainable Consumption and Production (CSCP). 2019. Circular Economy Guidebook for Cities <https://www.cscp.org/publications/ce-guidebook-cities/>

² Circular cities: thriving, liveable, resilient <https://ellenmacarthurfoundation.org/topics/cities/overview>

³ European Circular Cities Declaration. 2020. Cities and the Circular Economy. <https://circularcitiesdeclaration.eu/cities-and-the-circular-economy/what-is-a-circular-city>

⁴ UNECE. 2018. Green economy related concepts. <https://unece.org/green-economy-3>

Box 1 Circular city elements⁵

A built environment that is designed in a modular and flexible manner, sourcing healthy materials that improve the life quality of the residents and minimise virgin material use. It will be built using efficient construction techniques, and will be highly utilised thanks to shared, flexible and modular office spaces and housing. Components of buildings will be maintained and renewed when needed, while buildings will be used where possible to generate, rather than consume, power and food by facilitating closed loops of water, nutrients, materials and energy to mimic natural cycles.

Energy systems that are resilient, renewable, localised, distributed and allow effective energy use, reducing costs and having a positive impact on the environment.

An urban mobility system that is accessible, affordable, and effective. A multi-modal mobility structure that will incorporate public transportation, with on-demand cars as a flexible last-mile solution. Transportation will be electric powered, shared, and automated. Air pollution and congestion will belong in the past, and excessive road infrastructure will be converted to serve other needs of citizens. Central to vehicle design will be remanufacturing, durability, efficiency and easy maintenance.

An urban bioeconomy where nutrients will be returned to the soil in an appropriate manner, while generating value and minimizing food waste. Nutrients could be captured within the organic fraction of municipal solid waste and wastewater streams and processed to be returned to the soil in forms such as organic fertiliser – used for both urban and rural agriculture.

Production systems that encourage the creation of “local value loops”. This means more local production and increased and more diverse exchanges of value in local economies. Maker-labs (to encourage local production, repair, and distributive manufacturing), collective resource banks (to even out the demand and supply of materials) and digital applications (to broker the exchange of goods, materials, and services) would feature in these local, circular production systems.

Leading international think tanks recommend analysing and planning circular cities through the framework structured into five complementary R strategies:⁶

- **Rethink:** Redesign systems to lay the foundation for circular activities and enable the transition to a circular economy
- **Regenerate:** Harmonize with nature by promoting infrastructure, production systems and sourcing that allows natural ecosystems to thrive
- **Reduce:** Do better with less by using and supporting infrastructure, processes and products that are designed to minimize material, water and energy use and waste generation from production to end of use

⁵ The Collaborating Centre on Sustainable Consumption and Production (CSCP). 2019. Circular Economy Guidebook for Cities <https://www.cscp.org/publications/ce-guidebook-cities/>

⁶ ICLEI. 2021. Circular City Actions Framework <https://circulars.iclei.org/action-framework>

- **Reuse:** Use longer and more often by extending and intensifying the use of existing resources, products, spaces and infrastructure
- **Recover:** Eliminate waste by maximizing the recovery of resources at the end of the use phase so that they can be reintroduced into production processes

As of September 09, 2022, some 140,000 residential buildings have been destroyed in Ukraine since the war. Over 800 thousand people have lost their homes. As of August 22, 2022, 311 bridges and overpasses, 24,8 thousand km of communal roads, roads of state and local importance have been damaged or destroyed. As of September 5, 2022, the total amount of direct damage to infrastructure reached \$114.5 billion. The World Bank and the Government of Ukraine presented a report '[Ukraine Rapid Damage and Needs Assessment \(2022\)](#)', which estimates that US\$349 billion is needed for Ukraine's recovery and reconstruction needs.

Recovery of Ukrainian cities on such a scale will create a high demand for finite natural resources causing ecosystem degradation and emission of high volumes of greenhouse gases. Recovery on a such massive scale will present a challenge for rubble management and the growing demand for resources such as gravel, sand and timber, needed for restoring and rebuilding damaged and destroyed buildings and infrastructure.

The circular economy approach reduces this demand, by lowering carbon and regenerating natural systems. It is designed to maximize the value of products and materials while in use, then recover and repurpose them at the end of their lives, ultimately eliminating waste.

SECTION 1.

Thematic legislation and key organizations in Ukraine

Key challenges faced by cities in Ukraine – with relevance to "Promoting circularity in rebuilding Ukrainian cities"

Air pollution remain one of the key environmental problems of Ukraine. Despite a certain decline in production in Ukraine, the level of atmospheric air pollution in large cities and industrial regions remains consistently high. This causes a rise in the concentration of greenhouse gases in the atmosphere. Two-thirds of the country's population lives in areas where the atmospheric air does not meet hygiene standards, which affects the general morbidity of the population⁷. The main polluters and sources of greenhouse gas emissions in Ukraine are mining and processing industries, heat and power engineering, and motor vehicles.

The main reasons for poor atmospheric air quality in populated areas are non-compliance by economic entities with the norms of environmental protection legislation and the slow introduction of new technologies. In non-industrial cities, vehicle emissions contribute up to 90% of air pollution.

Inability to meet the public demand for information about the air quality gave birth to a civil society movement, who created alternative methods of air quality monitoring such as information dissemination through digital technology. Local civil initiative [SaveDnipro](#) and its application [SaveEcoBot](#), have quickly expanded their activity from Dnipro to the entire country.

Water. Ukrainian cities face challenges with their water quality, due to the discharge of untreated and inadequately treated wastewater into water bodies. Urban treatment plants, which lack tertiary treatment facilities, have inadequate capacity and poor working conditions. Most water utilities have not been modernized for the last 30 years; networks are critically worn out and outdated equipment has not been updated for years. Thirty-five per cent of water supply networks and 38 per cent of sanitation networks are in critical condition⁸. Almost 30 per cent of pump units at pumping stations need to be replaced. Due to this, the level of losses and unaccounted-for water, reaches 36 per cent on average. Outdated technologies and equipment in centralized drainage and wastewater treatment systems are very energy intensive.

The main reason for this disappointing situation is chronic underfunding of the industry. Many water enterprises are operating at a loss. There are no current financial support programs and

⁷ Law of Ukraine "On the Basic Principles (Strategy) of the State Environmental Policy of Ukraine for the period up to 2030", dated February 28, 2019 № 2697-VIII. (in Ukrainian) zakon.rada.gov.ua/laws/show/2697-19#Text

⁸ CMU Order #388-r dated April 28, 2021 "About approval of the Concept of the National target social program 'Drinking water of Ukraine' for 2022-2026" zakon.rada.gov.ua/laws/show/388-2021-%D1%80#Text

tariffs for centralized water supply and sewerage services are at least five times lower than in the EU.

In addition, access to drinking water and sanitation is further degraded by the increasing frequency of floods and droughts⁹. Over the last 20 years, droughts have occurred almost twice as often¹⁰, occurring every 2-3 years¹¹. Studies show that with the expected increase in air temperature during 2020-2050, even by 1.5° C, every second season may be dry¹². The Organisation for Economic Co-operation and Development (OECD) provides estimates that total expected losses caused by floods and droughts could vary from €85.7 million (\$100.8 million) to €252.7 million (\$297.3 million) per year¹³.

Waste. Ukraine's current waste management practices are resource-inefficient and result in negative environmental impacts. In 2019, the country's industry and households generated 441.5 million tons of waste. The volume of solid waste generation by households in Ukraine in the same year amounted to almost 11.86 million tons, i.e., 280.5 kilogram per capita. This number is expected to grow with the increase in GDP, as there is a strong positive correlation between the increase in waste generation and GDP per capita. According to various sources, the solid waste recycling level in Ukraine varies from three to eight per cent. Only about 78 per cent of Ukraine's population is provided with waste disposal services. The prevailing method of household waste treatment is its removal and disposal in landfills and dumping grounds.

According to official estimates, 10,000 square hectares of land is covered by approximately 6,700 landfills and dumps, though unofficial numbers may be even higher; 5.6 per cent of the landfills are overloaded and 30 per cent do not meet environmental safety standards. According to expert estimates, over 99 per cent of the operating landfills do not comply with European standards. Waste accumulation in landfills and dumps leads to pollution of the atmosphere, soils, groundwater, and surface water; affecting the functioning of ecosystems and harming agriculture. Ultimately, gas emissions contribute to climate change.

In general, the waste management system in Ukraine is defined by the following trends:

- i. accumulation of waste both in the industrial and domestic sectors, having an adverse effect on the environment and human health;
- ii. improper treatment and disposal of hazardous waste;

⁹ OECD (2021) Developing a Water Policy Outlook for Georgia, the Republic of Moldova and Ukraine. p.91. www.oecd.org/greengrowth/developing-a-water-policy-outlook-for-georgia-the-republic-of-moldova-and-ukraine-512a52aa-en.htm

¹⁰ NISS (2020) Climate change: consequences and adaptation measures: analytical report - 110 p., p. niss.gov.ua/sites/default/files/2020-10/dop-climate-final-5_sait.pdf

¹¹ Trypolska Halyna. 2020. How is climate change manifesting itself in Ukraine? (in Ukrainian) ua.boell.org/uk/2020/06/09/yak-proyavlyatsya-zmina-klimatu-v-ukraini

¹² EcoAction (2020) Climate change in Ukraine and the world: causes, consequences and solutions to counter ecoaction.org.ua/zmina-klimatu-ua-ta-svit.html

¹³ OECD. 2021. Developing a Water Policy Outlook for Georgia, the Republic of Moldova and Ukraine. p.113. www.oecd.org/greengrowth/developing-a-water-policy-outlook-for-georgia-the-republic-of-moldova-and-ukraine-512a52aa-en.htm

- iii. storing household waste without taking into account possible hazardous consequences; and
- iv. improper use of waste as secondary raw materials.

The absence of an effective waste management mechanism, low institutional capacity of government agencies, poor interdepartmental cooperation, and lack of strategic planning, cause the creation of new dumps and landfill congestion. As many as 26,600 unauthorized landfills with an area of 7,500 hectares are discovered annually in the private sector. The drawbacks of the household waste collection system led to the loss of millions of tons of valuable materials contained in waste.

Existing donor initiatives focus on work in the regions, piloting innovative approaches to waste management, but they cannot provide a nation-wide impact without the new regulatory framework in place. For example, the Swiss funded DESPRO works with several communities to assist them with waste management under the decentralization reform. UNIDO is attempting to provide solutions related to circular economy, resource and energy efficient production, and EBRD provided a loan for a new landfill for Lviv. Several civil initiatives, such as [“Ukraine without waste”](#) and [“Batteries, give-up”](#), created power information campaigns with minimum crowd-funded resources and built a network of citizens committed to responsible waste management practices.

Urban sustainability. Ukrainian city authorities have few competencies and resources for urban planning. At the same time, there are weak relationships between key urban development actors: politicians, local and regional authorities, landowners, professionals, and other relevant stakeholders. Cooperation with concerned citizens is rare and the advantages of common decision-making are underestimated. This often results in development strategies and masterplans with little relation to the local context.

The first cities to develop urban sustainable programs were Voznesensk and Vinnytsia. Most recently, Kyiv, Lviv, and Mariupol started developing their plans with the support of the EBRD Green Cities program, which facilitates city planning and infrastructure investments needed to overcome obstacles in urban environmental infrastructure.

Local self-government associations, such as the Ukrainian network “Energy Efficiency Cities of Ukraine” and Covenant of Mayors, support urban sustainability via peer-to-peer learning programs to help local authorities finance and implement their sustainable energy and climate plans.

Climate change resilience. Ukraine is vulnerable to climate change. The 2018 Climate Risk Management Screening for Ukraine, conducted as part of USAID’s Country Development Cooperation Strategy for Ukraine process, considered the following projected future climate changes:

- Increasing temperatures, heat stress, and heat waves, particularly in the east and south;
- Changing seasonal rainfall patterns;

- Increasing evapotranspiration and decreasing overall water balance;
- Moderate increase in dry spells and droughts, particularly in the south;
- Increasing intensity and frequency of heavy rainfall events, especially in the north;
- Increasing frequency of flash flood events and fewer early spring floods;
- Potential increase in dust storms due to increasing temperatures and drier conditions, particularly in the south;
- Uncertain extent of sea level increase.

The impacts of climate change can force migration and displace entire communities. The threat to biodiversity is also substantial, with a decline in the number of useful species, changes in forests and fauna, soil degradation, and changes in the species composition of soil flora and fauna. Climate change impacts will likely also increase societal tensions and conflict risks as competition over resources intensify.

Biodiversity. A leading cause of fragmenting natural ecosystems and landscapes is the development of infrastructure in various sectors of the economy: construction of roads, pipelines, reservoirs, various irrigation facilities, etc. Therefore, the main threats to biodiversity include habitat degradation, uncontrolled use of forest resources, land degradation, overexploitation of the steppes, recreational activities, wastewater pollution of the aquatic and coastal ecosystems, regulation of the Dnipro River and its tributaries changing the natural mode of floods, organic pollution, and destruction of natural habitats. Additional key threats are natural factors such as excessive overgrowth in small rivers of air-water vegetation, that reduces the biodiversity of aquatic organisms (plants and animals), invasive species, and climate change in forest areas.

The circular cities concept can help Ukrainian cities revive urban biodiversity, adapt to climate change and create a sustainable livable urban setting. The first application of a nature-based solutions concept showed great potential¹⁴. A catalogue of nature based solutions is available in Ukrainian¹⁵.

Key national legal acts and regulations relevant to the topic

Ukraine has achieved important steps in developing its environmental legislation. It became a signatory to environmental and sustainable development international conventions, and adopted a wide range of legal acts and programs. The scope of Ukrainian environmental legislation is comprehensive (more than 300 legal acts) and covers most areas of environmental protection and natural resources management¹⁶.

¹⁴ UNDP. 2020. Urban Safari: Ecological Solutions for Lviv and Bila Tserkva <https://www.undp.org/ukraine/news/urban-safari-ecological-solutions-lviv-and-bila-tserkva>

¹⁵ EcoAction. 2020. Catalog of nature-based solutions <https://ecoaction.org.ua/kataloh-pryrodoorientovanykh-rishen.html>

¹⁶ World Bank (2016) Ukraine Country Environmental Analysis. Last accessed on 20/08/2022 openknowledge.worldbank.org/bitstream/handle/10986/24971/Ukraine000Coun0ironmental0analysis.pdf?sequence=4&isAllowed=y

However, the country's environmental legislation faces several weaknesses¹⁷:

- The legislation is largely declarative in nature and does not have all the essential enforcement mechanisms for implementing legal acts and international agreements;
- Many of the acts are not coherent with each other; and
- The impact of existing legislation undergoes limited in-depth analysis. For example, a Regulatory Impact Analysis is not conducted for proposed pieces of legislation.

National environmental priorities

The Environmental Policy Strategy, adopted in February 2019, defines national priorities in the environmental area. Its goals and objectives are aimed at eliminating the causes of negative phenomena, and not their consequences:

Goal 1: Formation of ecological values and principles of sustainable (rational) consumption and production in the society (five strategic objectives).

Goal 2: Ensuring the sustainable development of Ukraine's natural resource potential (16 strategic objectives).

Goal 3: Ensuring the integration of environmental policy in decision-making on Ukraine's socio-economic development (seven strategic objectives).

Goal 4: Reducing environmental risks for ecosystems and public health to a socially acceptable level (11 strategic objectives).

Goal 5: Improvement and development of the state environmental management system (12 strategic objectives).

A list of 32 indicators was proposed, for which the target values for the base year of 2015 and forecasts for 2020, 2025, and 2030 were determined.

Re-established in June 2020, the Ministry of Environmental Protection and Natural Resources (MinEnv) set its priority areas, which include: 1) reducing and controlling industrial pollution; 2) reforming waste management, including nuclear waste; 3) rational use of natural resources, including reforming the forestry sector, and sustainable management of water resources and fisheries; 4) biodiversity conservation and development of a Nature Reserve Fund (NRF); and 5) preventing and adapting to global climate change¹⁸.

On April 5, 2021, the GoU approved a National Action Plan for Environmental Protection for the period up to 2025. It was designed to ensure implementation of the Strategy of National Environmental Policy of Ukraine for the period up to 2030. The National Plan objectives are:

¹⁷ *Ibid*

¹⁸ Priorities of the work of the Ministry of Environmental Protection and Natural Resources of Ukraine 2020-2024. (in Ukrainian). mepr.gov.ua/files/images/news_2020/28_09_priorities_presentation_%D0%A3%D0%9A%D0%A0.PDF

- shaping ecological values and principles of sustainable consumption and production within society;
- ensuring sustainable development of Ukraine’s natural resource potential;
- integrating environmental policy into all spheres of Ukraine’s socio-economic development;
- reducing environmental risks to minimize their impact on ecosystems and the health of Ukrainians; and,
- improving and developing the state environmental management system.

The war in Ukraine launched on 24 February 2022, caused a shift in national priorities. On April 21, President Zelenskyy by his decree created the [National Council for the Recovery of Ukraine from the Consequences of the War](#), as a consultative and advisory body under the President of Ukraine. Under the Council, [24 working groups](#) were formed, which almost cover the entire spectrum of state policy, with the exception of foreign policy, defense and security. By mid-May, the working groups were filled with members, formed an average of 4-5 working subgroups in each area of state policy until 2032.

According to Minister of Environment Protection and Natural Resources of Ukraine Mr. Ruslan Strilets, the strategic goal of post-war reconstruction is a clean and safe environment, further movement along the European Green Deal and reconstruction of the economy according to the principles of sustainable development. Therefore, Ukraine needs to implement [9 urgent reforms](#) including waste management, state environmental control, regulation of industrial pollution, integrated environmental monitoring, management of nature conservation areas, and others.

The following section provide details on the international and national legal framework relevant to the theme of the workshop.

Spatial Planning and Recovery. As a consequence of the war, a number of legal changes have been adopted in relation to spatial planning and recovery.

On 27 July 2022, the updated Law of Ukraine "[On the Basics of State Regional Policy](#)"¹⁹ entered into force. Considering the new amendments, the Law began to refer to the principles of reconstruction of the regions after the war. The document stipulates that, in addition to the General Recovery Plan of Ukraine, local plans are developed and approved at the level of communities, and projects of regional plans are developed at the level of regional state administrations. On 9 July 2022, the Law of Ukraine "[On making changes to some legislative acts of Ukraine regarding the principles of the state regional policy and the policy of restoration of regions and territories](#)" was been adopted²⁰. The law envisages comprehensive improvement of

¹⁹ The Law of Ukraine 156-VIII, valid, current edition — Edition dated 07/27/2022 <https://zakon.rada.gov.ua/laws/show/156-19#Text>

²⁰ The Law of Ukraine 2389-IX dated 07/09/2022 On making changes to some legislative acts of Ukraine regarding the principles of the state regional policy and the policy of restoration of regions and territories <https://zakon.rada.gov.ua/laws/show/2389-20#Text>.

state regional policy and takes into account the challenges faced by communities and regions in connection with the military aggression of the Russian Federation.

On October 14 2022, the Cabinet of Ministers of Ukraine approved the "[Procedure for the development, holding of public discussion, approval of programs for the comprehensive restoration of the region, the territory of the territorial community \(its parts\) and making changes to them](#)". Provisions of programs for the comprehensive restoration of territories should contribute to the implementation of modern approaches, such as people-centeredness, rational spatial planning, ensuring the balance of resettlement and placement of jobs, sustainable urban mobility, inclusiveness, energy efficiency and environmental friendliness. Also, such programs must meet the Sustainable Development Goals of Ukraine until 2030.

Air Pollution. The Law of Ukraine "On Protection of Atmospheric Air" – is fundamental in the field of atmospheric air quality regulation. It defines the legal and organizational foundations and environmental requirements in the field of atmospheric air protection.

On 9 July 2022, the Verkhovna Rada of Ukraine (VRU) amended this law. The amendments change the algorithm of interaction between the state, business and the public, in issuing emission permits and air pollution control. In particular, the Law defines a clear list of documents required for obtaining permits and the permit procedure was transferred to an online format.

The system of environmental monitoring is undergoing reform. On 8 February 2022, the Ministry of Environmental Protection and Natural Resources of Ukraine published the draft order of the Cabinet of Ministers of Ukraine "[On approval of the Concept of the State Targeted Environmental Monitoring Program](#)", for public consultations.

[The National Plan for Reducing Emissions from Large Combustion Plants](#) was approved in November 2017.

On 20 September 2022, the Verkhovna Rada approved the government bill "[On the National Register of Emissions and Transfer of Pollutants](#)." The register will become the only state online system of data on emissions and transport of pollutants. The digital map will display all polluting enterprises and information about them. In addition, the national register is integrated with the corresponding European register.

Currently, the Verkhovna Rada of Ukraine has registered three draft laws in the field of industrial pollution prevention (No. 6004, No. 6004-1 and No. 6004-2). All three draft laws were sent for revision due to ambiguous interpretations, selective implementation of the European Directive on industrial pollution, and unrealistic deadlines for the transition to new environmental standards.

Water. Ukraine is party to a number of international conventions on water. To fulfil them, the VRU first adopted the Water Code in 1995, a key piece of legislation for protecting water resources and water management, which was updated in January 2015. The Water Code regulates water conservation and rational water use; protects water resources from pollution, contamination, and depletion; improves water bodies' ecologic conditions; and protects water users' rights.

The EU-Ukraine Association Agreement (AA) accelerated gradual improvements in national water legislation, including an alignment with the EU's water law. The revised Water Code of Ukraine²¹ legislates all types of water bodies including surface, underground, and marine waters. It sets the basis for implementing extended water-quality monitoring programs, for example, to support assessing the ecological status of surface-water bodies. In 2017, changes to the Water Code defined legal provisions for moving towards integrated water resource management, in accordance with the EU Water Framework Directive (WFD). They also established basin principles for water resource management.

The main improvements relate to defining river basin districts and establishing river basin councils and procedures for developing river basin management plans (RBMPs). The MinEnv and the State Agency for Water Resources (SAWR) are developing the plans and overseeing their implementation in coordination with the State Service of Ukraine for Geodesy, Cartography, and Cadastre (State GeoCadastre), central and local executive bodies, local governments, and other stakeholders, including the relevant basin councils²². Updates are reviewed every six years. By 2024, Ukraine must develop RBMPs for nine river basins.

In April 2021, the Cabinet of Ministers of Ukraine (CMU) approved the concept of the state program "Drinking Water of Ukraine" for 2022-2026²³. According to the program, 1,747 projects are planned, including construction of 290 water intake facilities, 280 water supply and treatment facilities, and 1,093 water supply networks. The program is planned to be financed from the state budget, local budgets, grants from international organizations, external and internal borrowings, and funds from water supply and sewerage companies. The estimated amount of funding from the Ministry for Communities and Territories Development (MCTD) was estimated at 28.589 billion hryvnias (\$1.1 billion), comprising of 16.949 billion hryvnias (\$635.5 million) from the state budget and 11.639 billion hryvnias (\$436.4 million) from local budgets²⁴.

Waste. Although the first waste-related legislation was adopted in 1998, the problem of waste accumulation, production, and consumption is one of the leading threats to environmental safety in Ukraine. The volume of waste generated, including chemically hazardous substances, is growing in the country and the area of unauthorized landfills is significantly expanding.

To solve this problem, in 2017 the CMU approved the National Waste Management Strategy in Ukraine through 2030,²⁵ and the Plan in 2019²⁶. The strategy envisages establishing regional waste disposal centers, introducing circular economy principles and extended producer responsibility, to encourage businesses to minimize waste generation and incentivize waste

²¹ The Water Code of Ukraine, version of 27 May 2021 zakon.rada.gov.ua/laws/show/213/95-%D0%B2%D1%80#Text

²² OECD (2021) Developing a Water Policy Outlook for Georgia, the Republic of Moldova and Ukraine. Last accessed on 07/22/2021 www.oecd-ilibrary.org/environment/developing-a-water-policy-outlook-for-georgia-the-republic-of-moldova-and-ukraine_512a52aa-en

²³ Concept of the state program "Drinking Water of Ukraine" for 2022-2026 approved by CMU Order #388-r dated April 28, 2021. (in Ukrainian) zakon.rada.gov.ua/laws/show/388-2021-%D1%80#Text

²⁴ *Ibid.*

²⁵ The National Waste Management Strategy of Ukraine through 2030 www.kmu.gov.ua/npas/pro-zatverdzhennya-nacionalnogo-planu-upravlinnya-vidhodami-do-2030-roku

²⁶ The National Waste Management Action Plan of Ukraine through 2030 zakon.rada.gov.ua/laws/show/117-2019-%D1%80#Text

recycling. Among other things it also established the 5-step waste management hierarchy introduced in the EU. Local self-governing authorities are obliged to create a system of recycling points for certain products, such as household appliances, furniture, and clothing.

The [Guidelines for developing regional waste management plans](#) to establish national and regional levels of waste management were adopted in September 2021. At the national level, the strategic vision is being implemented together with the key performance indicators that are expected to be achieved. At the regional level, waste management is being planned in clusters, which are formed based on the population size (no less than 150,000 people), minimum required capacity of new regional landfills, maximum distances for waste transportation, and local restrictions on landfill location due to geological / hydrogeological conditions, areas prone to flooding, proximity to protected areas, etc. The guidelines were developed for the Ukrainian regions so that they prepare their own regional plans with local waste management manuals that will be transformed into investment plans.

On 20 June 2022, the Verkhovna Rada of Ukraine adopted the long awaited Law "[On Waste Management](#)", which establishes a framework for modern rules on the operation of Ukraine's waste management system. Based on this framework, a number of other necessary sectoral laws will be developed. The ultimate goal is to make waste management more efficient and safer for people and the environment. The Law will be enacted on 09 July 2023.

Biodiversity. Ukraine is a party to all relevant international treaties on biological diversity. National legislation has been amended for more progressive nature protecting practices, including prohibiting dry grass burning and zinc phosphide pesticides, limiting certain catch tools for hunting and fisheries, and introducing a "silent season"²⁷.

Climate change resilience. Ukraine's legal and institutional framework for action on climate change, including measures to incentivize investment in adaptation and resilience, has undergone extensive development in recent years. This trend results from increasing and more visible climate change risks.

Ukraine ratified the Paris Agreement on July 14, 2016²⁸, and adopted key framework documents governing climate change actions: Concept for Implementing the State Policy on Climate Change through 2030²⁹ and the Action Plan and Strategy of Low Carbon Development of Ukraine through 2050 (approved in 2018).

Ukraine plans to achieve climate neutrality by no later than 2060³⁰. On 30 July 2021, the CMU approved the 2nd Nationally Determined Contributions (NDC2) with the goal of reducing greenhouse gas emissions to 35 percent by 2030, compared to 1990³¹.

²⁷ An official period of time during peak bird nesting season when forestry must cease its logging operations to allow birds to nest and raise their young so that they are fledged and ready for their impending fall migration.

²⁸ Law "On the ratification of the Paris Agreement" zakon.rada.gov.ua/laws/show/1469-19#Text

²⁹ CMU (2016) "Implementation of Public Policy on Climate Change for the Period Through 2030" of 7.12.2016 zakon3.rada.gov.ua/laws/show/932-2016-%D1%80/paran8#n8

³⁰ National Economic Strategy of Ukraine through 2030, approved by the CMU in March 202

³¹ MinEnv press release of July 30, 2021 mepr.gov.ua/news/37842.html

On 20 October 2021, the Strategy for environmental safety and adaptation to climate change through 2030 was adopted³² as a framework strategy³³ to support the further development of each sector of the economy. Adaptation measures require significant financial resources and can include reforestation, smart irrigation, urban greening, climate resilient infrastructure, increasing connectivity between ecosystems, etc. The amount of adaptation-related costs is difficult to access due to the high uncertainty about the scale and timing of climate change impacts, as well as difficulty with assessing the vulnerability of various sectors.

Urban Mobility. The [National transport strategy of Ukraine for the period until 2030](#) was adopted in 2018. It includes four priorities:

1. Competitive and efficient transport system
2. Innovative development of the transport industry and global investment projects
3. Safe for society, ecologically clean and energy-efficient transport
4. Barrier-free mobility and interregional integration

An [Action Plan](#) for the implementation of the National Transport Strategy of Ukraine for the period until 2030, was developed for the implementation of the NTSU was approved on 7 April 2021.

Environmental Assessment. The Law on Environmental Impact Assessment and the new Law on Strategic Environmental Assessment strengthen the framework for public participation and environmental decision making.

In 2017, the Law on Environmental Impact Assessment (EIA) was adopted. The [EIA Registry](#) ensures transparency and access to all EIAs.

In 2018, the Law on Strategic Environmental Assessment was adopted. It provides for a systematic and comprehensive procedure for evaluating the implications of policies, plans, or programmes, in order to prevent negative environmental impacts and ensure compliance with the principles of sustainable development. Ukraine's legal framework for environmental protection foresees the establishment of a nation-wide environmental monitoring system for the state of the environment and the level of pollution.

Each community needs to develop the Strategy for the development of territorial community. Each region needs to develop a regional development strategy, published on the Ministry of Regional website³⁴. They all are subject to the SEA. In 2021, the following guideline was published: "[Methodical recommendations](#)" regarding the procedure for developing, approving, implementing, monitoring and evaluating the implementation of strategies for the development

³² CMU press release dated October 20, 2021 <https://www.kmu.gov.ua/news/uhvaleno-strategiyu-ekologichnoyi-bezpeki-ta-adaptaciyi-do-zmini-klimatu-do-2030-roku>

³³ Draft CMU Order "On approval of the Strategy of environmental safety and adaptation to climate change through 2030" dated March 1, 2021 (in Ukrainian) mepr.gov.ua/news/36922.html

³⁴ <https://www.minregion.gov.ua/napryamki-diyalnosti/derzhavna-rehional-na-polityka/strategichne-planuvannya-regionalnogo-rozvytku/strategichne-planuvannya-regionalnogo-rozvytku-na-period-do-2027-roku/regionalni-strategiyi-rozvytku-na-period-do-2027-roku/>

of territorial communities".³⁵ Recommendations provide for the involvement of community residents at all stages of strategic planning. In addition, they contain templates that can be used to facilitate the work of local self-government bodies in the process of developing a draft strategy.

The 2021, "[Methodological recommendations](#)" for the development of comprehensive plans for the spatial development of the territory of the territorial community and other types of urban planning documentation at the local level", was published, containing recommendations on conducting SEA.

In May 2022, educational materials and practical guides for the development of comprehensive plans for the spatial development of communities, were developed with the support of the USAID's AGRO programme. In particular, a guide for communities "[Development of comprehensive plans](#)", guide for professionals "[How to develop a comprehensive community plan](#)" and "[Strategic environmental assessment of the comprehensive plan](#)" were developed.³⁶

On 16 August 2022, the Verkhovna Rada of Ukraine in the first reading, adopted [bill No. 5159](#) "On Amendments to Certain Laws of Ukraine Regarding the Introduction of Liability for Violation of the Procedure for Strategic Environmental Assessment."³⁷ The document regulates the creation of the Unified Register of Strategic Environmental Assessment, which proposes to establish responsibility for violations in the field of environmental protection, and allows the State Environmental Inspection to monitor compliance with legislative requirements. The draft law will help prepare the groundwork for the environmentally sustainable recovery of the country from the consequences of the war with the Russian Federation.

Access to Information, Public Participation in Decision-making, and Access to Justice. In 1999, Ukraine was one of the first parties to ratify the Aarhus Convention³⁸. In 2003, Ukraine also became party to the Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context³⁹, ratified in 2015.

Concerning environmental justice, pursuant to the Aarhus Convention, representatives of the public have a right to appeal violations of the national environmental law in court. However, this right has only been observed in December 2018, in the resolution of the Grand Chamber of the Supreme Court in the case Environment-People-Law (EPL) vs. "Aquadelf" Ltd, where for the first time the court reached a conclusion that an environmental non-governmental organization is entitled to represent before the court the environmental interest of the society and its separate members, to protect the violated environmental human and citizen rights or in order to remedy

³⁵ Regional development strategies for the period until 2027. <https://www.minregion.gov.ua/napryamki-diyalnosti/derzhavna-rehional-na-polityka/strategichne-planuvannya-regionalnogo-rozvitku/strategichne-planuvannya-rozvytku-terytorialnyh-gromad/metodychne-zabezpechennya/>

³⁶ Decentralization portal press release (31/05/2022). <https://decentralization.gov.ua/news/15007>

³⁷ Draft Law No. 5159 on Amendments to Certain Laws of Ukraine on the Introduction of Liability for Violation of the Strategic Environmental Assessment Procedure. <https://itd.rada.gov.ua/billInfo/Bills/Card/25758>

³⁸ UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters <https://unece.org/environment-policy/public-participation/aarhus-convention/introduction>

³⁹ Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context <https://unece.org/fileadmin/DAM/env/eia/documents/legaltexts/protocolenglish.pdf>

breaches of the requirements of the environmental law⁴⁰. Only few CSOs (e.g., Environment-People-Law, EcoAction) challenge decisions and protect citizens in court. Moreover, the judicial reform is still under way, with one-third of judgeships vacant since 2016⁴¹. Therefore, access to any type of justice is problematic. Experts think that national legislation should be revised to create legal requirements for broad and timely information for the public on the development of plans, programs, and strategies related to the environment. Laws should be created that oblige officials to disclose accessible information on the launch of decision-making processes as well as related results.

Key national and local programmes in Ukraine present before and during the war

The GoU has developed several state programs to finance the implementation of its strategies. Funding from state and local budgets for environmental measures has been insufficient over the last 30 years. Even approved programs are often not delivered to the full program budget. The most recent annual report by the Ministry of Economy of Ukraine on the [State of implementation of state target programs in 2020](#) provides an overview. In 2020 due to COVID-19 measures, all programme funding from the state budget was stopped. The war also has a detrimental effect on the national programmes funding.

The majority of programs in Ukraine foresee funding from donor projects. Given that environmental protection is an issue that straddles borders, especially when regarding river basins, coastal zones, or air pollution, the **European Union** establishes regional projects that not only promote EU standards but also develop cooperation between neighbouring countries, and strengthen Ukraine's participation in international environmental protection. Regional eastern partnership programs (EU4 projects) support a broad range of environmental and climate-related reforms.

Ongoing EU support for the green transition in Ukraine amounts to €300 million (\$352.9 million), out of which €200 million (\$235.3 million) is allocated for energy and energy efficiency supporting programs, such as the Energy Efficiency Fund, Eastern Europe Energy Efficiency and Environment Partnership (E5P), and Covenant of Mayors; €120 million (\$141 million) for climate, environment, and private sector (EU4Climate, EU4Environment, APENA projects, FINTECC); and €22 million (\$25.8 million) for sustainable transportation (Ukraine transportation connectivity, Ukraine Railway Rehabilitation, Assistance for Dnipro transportation development). At least an additional €700 million (\$823.5 million) investment is being enabled via blending mechanisms with IFIs.

The next program in preparation was the €10-million (\$11.7-million) [Climate Package for Sustainable Economy](#), including components on district heating; support to small- and medium-sized enterprises' (SMEs') energy efficiency, renewable energy sources (measures facilitating

⁴⁰ The Supreme Court of Ukraine (2018) Environmental Organizations Shall Have Right to Appeal against Decisions of State Bodies Violating National Environmental Law – the SC Grand Chamber. <https://court.gov.ua/eng/supreme/press-centr/news/618734/>

⁴¹ UkrInform News Agency (2020) "Threatening trend: High Council of Justice chairman declares 'staff shortage' in courts" www.ukrinform.ua/rubric-society/3076223-zagrozliva-tendencia-golova-vrp-zaavlae-pro-kadrovij-golod-u-sudah.html

larger uptake and integration of variable, including small-scale, renewable energy sources to the energy infrastructure and markets), strengthening greenhouse gas reporting and ratification of the [Kigali Amendment to the Montreal Protocol \(2016\)](#), transportation decarbonization, circular economy (sector studies, preparing and implementing action plans for the most promising sectors), and establishing a climate resource center. Substantial technical assistance support to Ukraine began in 2022, to strengthen cooperation on critical raw materials and batteries. Technical assistance was also planned and initiated for green hydrogen.

Sweden plays a prominent role in supporting the environment and climate in Ukraine. The objective of Swedish support in Environment and Energy Efficiency is to support Ukraine in its efforts to increase compliance with EU regulations and international agreements on the environment, climate, and energy. Efforts are made to promote enhanced environmental responsibility among the public, the business sector, and civil society. Sweden provides investment grants for environmental projects through the E5P and allocates technical assistance. They also work with IFI framework programs such as the EBRD and the Nordic Environment Finance Corporation (NEFCO), on areas such as modern district heating and renewable energy, energy efficiency in buildings, and water and sewage and waste management. Support is also provided through environmental CSOs. [‘Strategy for Sweden’s global development cooperation on sustainable economic development 2022–2026’](#) expands the country’s existing cooperation on climate-related work to biodiversity conservation.

Germany and Ukraine work jointly on enhancing energy efficiency, promoting the modernization of electric power and heating systems, and expanding the use of renewable energy. Germany also has been active in the climate and biodiversity sectors through the International Climate Initiative (IKI) as one of the most important instruments of the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety for the international financing of climate change mitigation and biodiversity. IKI operates within the framework of the UN Framework Convention on Climate Change (UNFCCC) and the CBD, financing climate change mitigation and biodiversity conservation in developing, emerging, and transition countries. It was the first to support structural change in Ukrainian coal regions.

Canada does not have current or planned programs related to the environment and climate, although these issues are made cross-cutting through all activities. In terms of future programming on the environment and climate, the Canadian development program in Ukraine is not in the approval or concept process at this point. However, there may be some initiatives following the 2021 G7 Leaders’ Summit where [Prime Minister Justin Trudeau announced the doubling of Canada’s climate finance](#) from \$2.65 billion in 2015 to \$5.3 billion over the next five years. He also announced increased support for adaptation, as well as nature and nature-based solutions that are in line with the G7 Nature Compact. The Prime Minister noted that Canada will increase its provision of grants to 40 percent, up from 30 percent previously, for improved access by impacted communities. This funding will help developing countries build domestic capacity to take climate action, build resiliency, and reduce pollution. This includes finding nature-based solutions to combat climate change, like protecting biodiversity, planting trees, supporting the transition to clean energy and the phasing-out of coal.

United States of America. USAID’s Country Development Cooperation Strategy (CDCS) defines the mission to “promote and demonstrate democratic values abroad, and advance a free, peaceful, and prosperous world”⁴². To achieve this goal USAID with its partners, works on participatory, transparent and accountable governance processes, broad-based resilient economic development, and improved access to health services along four development objectives. USAID also prioritizes efforts to counter trafficking of persons and supports the Chernobyl Shelter Fund as part of a multi-donor international effort.

Several initiatives and projects contribute towards circular cities: Energy Security Project, Energy Sector Transparency (EST), Governance and Local Accountability (Hoverla) Activity, Policy for Ukraine Local Self Governance (PULSE), Decentralization Offering Better Results and Efficiency (DOBRE), Transparency and Accountability in Public Administration and Services (TAPAS), Competitive Economy Program, Economic Resilience Activity and several which indirectly contribute.

Key organizations

Government

Circular economy is a new notion to the Government of Ukraine. There are no units dedicated to this topic within governmental agencies. After Ukraine decided to develop national targets harmonized with the European Green Deal in 2020, increasingly more discussions and activities take place around the industrial strategy, which will transform Ukrainian industry to become “greener, more circular and more digital while remaining competitive on the global stage”.

Four key Ministries need to be involved in the discussion on circular cities:

- *Ministry for Communities and Territories Development* is responsible for city planning, communal services provision, and waste management, in particular, energy efficiency.
- *Ministry of Environmental Protection and Natural Resources* is responsible for the environmental quality, waste management policy, and biodiversity protection. It has a Deputy Minister, who has circularity as part of the functions within the waste management policy.
- *Ministry of Economy* creates policies, which can stimulate circular public procurement, circular industrial practices, energy efficiency. It has a state expert on resource efficiency in the Directorate of the Development of the Real Sector of Economy.
- *Ministry of Infrastructure* is responsible for sustainable transportation practices.

Environmental CSOs have increased their presence in public discourse over the last decade and have become a strong driving force behind ongoing reforms. They have become increasingly important over the last few years, especially after the signing of the EU-Ukraine Association

⁴² USAID’s Country Development Cooperation Strategy 2019-2024. <https://www.usaid.gov/ukraine/cdcs>

Agreement in 2014. CSOs' work is supported by a growing awareness in society about environmental concerns. Many representatives of the CSO work as think tanks, providing strong analytics in support of environmentally sustainable decision making. Table 1 provides list of CSOs and their networks, which work in the areas related to the workshop.

Data

Reliable and robust urban data and statistics are key to support the transition from a linear to a circular economy.

The [State Statistics service of Ukraine](#) is traditionally the most reliable source of data. It has representative offices in each oblast of Ukraine and can provide a detailed local level information about the socio-economic situation. For example, the [Department of Statistics](#) in Kharkiv oblast.

Digitalization became instrumental in reforming all environmental areas in Ukraine. The country has made a strong push toward making data public. Following the initiation of the [national open data portal Diia](#) (Action) in 2014, the national online [platform EcoSystem](#) was launched on June 8, 2021. Still in testing mode as of July 2021, it contains up-to-date and reliable information about environmental and natural resources and includes monitoring data on air, water, and soils in settlements, as well as all registers maintained by the Ministry of Environmental Protection and Natural Resources of Ukraine and the central authorities that the Ministry coordinates. EcoSystem already provides access to 35 environmental information registers, with a plan to increase access to 60 registers, which will allow every Ukrainian to monitor the state of the environment in real time, including water quality, air, pesticides, forest fires, etc. The Ministry targets integrating 29 environmental services into [National portal Diia](#). After reaching its full capacity, EcoSystem will provide a full range of online services for citizens and businesses with up-to-date information, reporting calendars, and newsletters.

Despite its ambitious goal, the data in EcoSystem is different depending on the source of data. Many datasets are still missing and most of the datasets are not machine readable, which prevents data from being used by artificial intelligence.

This [Informative Inventory Report](#) of Ukraine presents and describes data submission in 2021 under the Gothenburg Protocol under the United Nations Economic Commission for Europe (UNECE) Convention on Long- Range Transboundary Air Pollution (CLRTAP). The report by the Ministry of Environmental Protection and Natural Resources of Ukraine contains information on emission inventories in Ukraine from 1990 to 2019. It contains descriptions of methods, data sources, data quality assurance measures, the analysis of key categories and the analysis of trends.

The [State GeoCadastr](#) launched a web portal for electronic services, which includes a public cadastral map that, as of August 2021, contained 73 percent of all land registered and the [geoportal of the administrative-territorial structure](#) of Ukraine. In 2020, the [National Spatial Data Infrastructure geoportal](#), developed by the Research Institute for Geodesy and Cartography, was launched in pilot mode. It is an interconnected set of organizational structures, hardware and

software, fundamental and thematic sets of geospatial data, metadata, services, technical regulations, standards, and technical specifications, required for producing, updating, processing, storing, disclosing, and using geospatial data and metadata and other data-related activities.

Table 1: Major environmental CSOs in Ukraine and their networks⁴³

Environmental Problems	CSO Networks in Ukraine	Most Active CSOs
Air	<ul style="list-style-type: none"> Ukrainian Cycling Network 	<ul style="list-style-type: none"> Save Dnipro U-Cycle
Water	<ul style="list-style-type: none"> Global Water Partnership - Ukraine International Association of River Keepers Eco-TIRAS 	<ul style="list-style-type: none"> Center for Environmental Initiatives Ecodiia (EcoAction)
Climate change		<ul style="list-style-type: none"> Society and Environment Resource & Analysis Center Center for Environmental Initiatives Ecodiia (EcoAction)
Protection of Biodiversity		<ul style="list-style-type: none"> Osoporky Ecopark (Kyiv)
Urban Sustainability	N/A	<ul style="list-style-type: none"> Urban Reform Municipal Development Institute (Kyiv)
Circular Economy	N/A	<ul style="list-style-type: none"> ReThink PPV Knowledge Networks Resource Efficient and Cleaner Production Centre Association of Sustainable Development Professionals

⁴³ The list could be significantly expanded

Degradation of environmental monitoring systems and low public accessibility of environmental data, gave birth to a number of private initiatives, which has improved public access to data.

There are several resources that provide information on the level of air pollution. These are open sources available to anyone:

- "Air quality in Kyiv" [Telegram bot](#) has information on air pollution in Kyiv, with the option of tracking it by area.
- [SaveEcoBot](#) is an environmental bot for monitoring the permits of environmental pollutants.
- [EcoCity](#) is a social, ecological, independent project implemented by the non-profit public organization "Free Arduino", for the purpose of public air quality monitoring in Ukraine.

An [interactive map of river pollution](#) in Ukraine, based on data from the SAWR, presents over 400 river water control points, with up to 16 pollution parameters that show how the level has changed over the last five years.

SECTION 2.

Relevant UN and other international tools, treaties and instruments

Relevant UNECE tools and instruments (with hyperlinks to publications and web materials)

Housing. [The Geneva UN Charter on Sustainable Housing](#) (the Charter) is a non-legally binding document that aims to support member States as they seek to ensure access to decent, adequate, affordable and healthy housing for all⁴⁴. It was endorsed by the United Nations Economic Commission for Europe (UNECE) on 16 April 2015. The Charter, among other things, recognizes the provision of housing as a resource-intensive exercise with negative environmental consequences, particularly for carbon dioxide emissions⁴⁵. The Charter binds itself to four overarching principles: environmental protection; economic effectiveness; social inclusion and participation; and cultural adequacy:

- a) *Environmental protection*: Housing should be planned, constructed and used in a way that minimizes environmental impact and promotes environmental sustainability.
- (b) *Economic effectiveness*: Housing is, and has been, an influential sector in national economies and should be a sustainable element in a vibrant economy as well as meeting people's needs.
- (c) *Social inclusion and participation*: Housing policy should be advanced with an enhanced emphasis on engaged and negotiated civic involvement, social inclusiveness, public health, transparency, and a concern for ethical processes.
- (d) *Cultural adequacy*: Housing policy should take into consideration questions of cultural identity, value, and emotional well-being.

[Guidance for the implementation of the Geneva UN Charter on Sustainable Housing](#) has been developed in 2016.

In October 2021 the UNECE Ministerial Meeting on Urban Development, Housing and Land Management endorsed a Regional Action Plan for the UNECE region "[Place and Life in the ECE - A Regional Action Plan 2030: Tackling challenges from the COVID-19 pandemic, climate and housing emergencies in region, city, neighbourhood and homes](#)". It aims to support Governments of the UNECE member States in the recovery from the COVID-19 crisis through the sharing of examples and good practices in facilitating investments and promoting the "building back better" approach. Among other listed actions, it states the following about circularity:

⁴⁴ Geneva UN Charter on Sustainable Housing. <https://unece.org/housing/charter>

⁴⁵ UNECE. 2022. "[Place and Life in the ECE – A Regional Action Plan 2030: Tackling challenges from the COVID-19 pandemic, climate and housing emergencies in region, city, neighbourhood and homes](#)"

- Encourage the development of housing stock based, as much as possible, on local solutions, labour and local materials in design, construction, refurbishment and maintenance, to contribute to local employment and the circular economy (p. 24).
- Assemble reliable and robust urban data and statistics and support the transition from a linear to a circular economy (p. 26).

The Regional Action Plan also draws on best practices in sustainable housing across the UNECE region, which were inspired by the consistent implementation of the 2030 Agenda and the principles of the Geneva UN Charter on Sustainable Housing. In addition, this Regional Action Plan is based on the findings and recommendations of the [#Housing2030: Effective policies for affordable housing in the UNECE region study](#), which was carried out by UNECE in partnership with UN-Habitat and Housing Europe. The study explores housing governance and regulation; access to finance and funding; access and availability of land for housing construction; and climate-neutral housing construction and renovation. The Regional Action Plan also follows the United Nations system-wide COVID-19 response guidance documents, which are discussed in the next section.

Circular Cities. [A guide to circular cities](#) contains a circular city implementation framework that is designed to improve circularity in cities and support stakeholders in implementing circular actions. The framework consists of a four-step methodology that provides a consistent method for assessing, prioritizing and catalyzing different circular actions. This deliverable is developed in response to the growing sustainability challenges that cities are facing, as well as the emergence of the circular economy concept and its applicability in a city setting. The Guide starts with an assessment of the main developmental and sustainability challenges that cities are facing and the ways in which the circular economy concept can be extended beyond the economic sphere, to be applied to different city examples.

[Guidelines on tools and mechanisms to finance Smart Sustainable Cities projects](#), provides practical recommendations for city governments on how to develop investment-grade projects in support of sustainable smart urban development. The document explains what a sustainable smart city project is and provides an overview of traditional and innovative financing tools that are available and can be used to finance city projects. It also outlines what types of potential investors exist and how to make a sustainable city development plan attractive to them.

[Guidelines on Promoting People-first Public-Private Partnerships Waste-to-Energy Projects for the Circular Economy](#), explores how the Waste-to-Energy (WtE) industry through the use of People-first Public-Private Partnerships (PPPs) for the Sustainable Development Goals (SDGs), can contribute to a transition towards a circular economy.

The UNECE Code of good practice for [reducing food loss and ensuring optimum handling of fresh fruit and vegetables along the value chain](#), provides a methodology for measuring food loss and waste along supply chains.

The [e-Basel Standard: Transboundary Movements of Waste](#) standardizes business processes and information entities in the area of tracking waste movements as required by the [Basel Convention](#).

UNECE also has various outputs/activities to support a circular economy transition.

Public-Private Partnerships

[UNECE Public-Private Partnerships Evaluation Methodology for the Sustainable Development Goals](#) is a unique platform to scoring infrastructure projects against the SDGs and the Public-Private Partnership (PPP) for the SDGs criteria. The methodology brings together five PPP for the SDGs outcomes: access and equity; economic effectiveness; environmental sustainability and resilience; replicability; and stakeholder engagement while integrating considerations of resilience, sustainability and circularity.

Air. While air pollution is often seen as a local problem, it is indeed one that transcends local and even national boundaries. It is increasingly evident that local air pollution, including in cities, is heavily influenced by the long-range and transboundary transport of pollutants, and that cities are themselves large sources of air pollution.

Under the [Convention on Long-range Transboundary Air Pollution](#), Parties set concrete emission reduction targets at the national level. Reductions in air pollution at the national level achieved under the Air Convention also mean an improvement in air quality at the city level. The quantification of the effects of air pollution at the city level under the Convention's [Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe \(EMEP\)](#), assists countries in tracing progress towards improving urban air quality.

The Convention sets values for emission limits based on Best Available Techniques (BATs) for different types of sources, which are of great relevance in the urban context, e.g. industry, power generation and vehicles. These emission limit values have proven to be an effective tool in stimulating investment in clean technologies and those that are more energy efficient. Guidance on Best Available Techniques (BATs) has been developed under the Convention [for solid fuel burning and small combustion installations](#) (heating), [for emission control techniques for mobile sources](#) (road transport), [for stationary sources](#) (industry, power), and [for agricultural sources](#).

[The 1998 Aarhus Protocol on Heavy Metals](#) was adopted in Aarhus (Denmark) on 24 June 1998. It targets three particularly harmful metals: cadmium, lead and mercury. In 2012, Parties to the Protocol on Heavy Metals adopted decision [2012/5](#) to amend the Protocol to include more stringent controls of heavy metals emissions and to introduce flexibilities to facilitate accession of new Parties, notably countries in Eastern Europe, South-Eastern Europe, the Caucasus and Central Asia. In addition, they adopted decision [2012/6](#) to update [guidance](#) on best available technologies (BAT), as contained in annex III. These amendments entered into force on 8 February 2022.

In 2013, the [Minamata Convention](#) on Mercury was adopted, a treaty negotiated under the auspices of the United Nations Environment Programme (UNEP). Building on the 1998 Protocol on Heavy Metals, the Minamata Convention is a global treaty to protect human health and the environment from the adverse effects of mercury.

[The 1994 Oslo Protocol on Further Reduction of Sulphur Emissions](#) builds on [The 1985 Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per](#)

[cent](#). It recognizes the measures taken by countries to reduce sulphur emissions under the 1985 Helsinki Protocol. The Oslo Protocol sets emission ceilings until 2010 and beyond. In addition, Parties are required to take the most effective measures for the reduction of sulphur emissions, including, inter alia, measures to increase energy efficiency, the use of renewable energy, measures to reduce the sulphur content of fuels, and to apply the best available control technologies. The Protocol also encourages the application of economic instruments for the adoption of cost-effective approaches to the reduction of sulphur emissions.

- Guidelines for estimation and measurement of emissions of volatile organic compounds
- Guidance Document on emission control techniques for mobile sources
- Guidance document on control techniques for emissions of sulphur, NO_x, VOC, and particulate matter (including PM₁₀, PM_{2.5} and black carbon) from stationary sources
- Code of good practice for wood burning and small combustion installations
- Guidance document on economic instruments to reduce emissions of regional air pollutants
- Guidance document on health and environmental improvements using new knowledge, methods and data

As the provisions of the most recently amended protocols ([Gothenburg Protocol](#), [Protocol on Heavy Metals](#), [Protocol on POPs](#)) to the UNECE [Convention on Long-range Transboundary Air Pollution](#), including on the application of Best Available Techniques (BATs), are mirrored in the EU legislation (IED (2010/75/EU), National Emission Reduction Commitment Directive ((EU) 2016/2284)) and form part of the Association Agreement, implementation of the Agreement will help the country with ratification and implementation of the Air Convention and vice versa.

Cities are most vulnerable to exposure to air pollution, which has a severe effect on people's health. Under the Convention, the [Joint Task Force on the Health Aspects of Air Pollution](#) works to quantify how long-range transboundary air pollution affects human health and helps define priorities to guide future monitoring and abatement strategies.

Monuments and cultural heritage are key to making a city livable. The work of the [International Cooperative Programme](#) investigates the effects of air pollutants on historical and cultural structures.

As air pollution needs to be tackled on different scales, the [Expert Panel on Clean Air in Cities](#) analyses and communicates the potential benefits of multi-scale air quality management and aims to find an optimal mix of local, national and international policy actions.

Water. [The Convention on the Protection and Use of Transboundary Watercourses and International Lakes](#) (Water Convention) is a unique international legal instrument and intergovernmental platform which aims to ensure the sustainable use of transboundary water

resources by facilitating cooperation. Although it was initially negotiated as a regional instrument, it was opened up for accession to all UN Member States in 2016.

The Water Convention requires Parties to prevent, control and reduce transboundary impact. Parties must also use transboundary waters in a reasonable and equitable way, ensuring their sustainable management. Parties bordering the same transboundary waters must cooperate by entering into specific agreements and establishing joint bodies. As a framework agreement, the Convention does not replace bilateral and multilateral agreements for specific basins or aquifers; instead, it fosters their establishment, implementation, and further development.

[The Protocol on Water and Health](#), jointly serviced by UNECE and WHO-Europe, is a legally binding instrument that aims to protect human health through better water management and by reducing water-related diseases. The Protocol provides a practical framework to translate into practice, the human right to water and sanitation, and to implement SDG 6. To meet these goals, Parties are required to establish national and local targets for the quality of drinking water and the quality of discharges, as well as for the performance of water supply and waste-water treatment. They are also required to reduce outbreaks and the incidence of water-related diseases. UNECE developed [Guidelines on the setting of targets, evaluation of progress and reporting under the Protocol on Water and Health](#) - step by step guidance to support countries in setting and developing targets under the Protocol, identifying implementing measures to achieve them, and to track and report their progress.

Ukraine has developed a public [Draft Brief Report on the Progress of Implementation of the Protocol on Water and Health for 2019-2021](#).

A number of useful guidance documents and practical tools have been developed under the Protocol for countries to advance their WASH policies and achieve SDG 6.

The [Equitable Access- Score Card](#) is an analytical tool developed to support Governments and other stakeholders to establish a baseline measure of the equity of access to water and sanitation. It also enables Governments to discuss further actions to be taken and evaluate progress in ensuring equitable access to water and sanitation through a process of self-assessment. [Ukraine applied](#) the tool in 2013, at both the national level and in the city of Sebastopol. During one of our recent intergovernmental meetings, Ukraine recently shared its interest to re-apply the Score-Card when possible.

The policy brief: [Policy options and good practices to ensure the affordability of safe drinking water and sanitation services in the pan-European region](#), was developed with concrete examples from the region on how to address affordability concerns through specific measures. The document is intended for government representatives from ministries responsible for water and sanitation services, social protection, and finance; water regulatory authorities; local authorities; and providers of water and sanitation services.

The [field guide for Water Safety Plans](#) provides a step-by-step introduction to the approach used by small communities and offers hands-on advice and ready to-use templates, to assist communities and local institutions in developing and implementing WSPs. It also provides [guidance](#) for policy-makers on defining strategies for the sustainable financing of small-scale

water supplies and sanitation systems; a [guidance document](#) to support countries in preventing and reducing water related diseases; [practical tools](#) to support education and public health authorities in assessing and monitoring water, sanitation and hygiene conditions in schools.

The Guidance to the [Protocol on Water and Health Driving action on water, sanitation, hygiene and health](#), describes benefits that a country can get out of the Protocol platform.

Climate change will result in significant impacts on our water resources and some of the effects are already visible now. Nearly all countries are expected to be negatively affected. Moreover, climate change impacts on water resources will have cascading effects on human health and many parts of the economy and society, as various sectors directly depend on water.

[Guidance on water and adaptation to climate change](#) provides advice to decision makers and water managers on how to assess the impacts of climate change on water quantity and quality, how to perform risk assessments, including health risk assessments, how to gauge vulnerability, and how to design and implement appropriate adaptation strategies.

[Collection of good practices and lessons learned on climate change adaptation in transboundary basins](#), compiles and analyses various experiences and demonstrates lessons learned as well as good practices to take into account when developing a climate change adaptation strategy for water management, in a basin or transboundary context.

[Words into Action Guidelines Implementation Guide for Addressing Water-Related Disasters and Transboundary Cooperation](#), aims to raise awareness on the importance of river basin management and transboundary cooperation in Disaster Risk Reduction, while considering climate change adaptation. It provides information on steps that governments and other stakeholders at different levels can take to harness the values of river basin management and transboundary cooperation, together with good practices from all over the world and lessons learned in this field.

Industrial Accidents. Industrial operations may involve substances that do not usually represent a great threat to our health or our environment but are nevertheless potentially hazardous. Even the safest plant is never entirely risk-free.

[Convention on the Transboundary Effects of Industrial Accidents](#) aims at protecting human beings and the environment against industrial accidents, by reducing their frequency and severity and by mitigating their effects. It promotes active international cooperation between the contracting Parties, before, during and after, an industrial accident. Parties to the Industrial Accidents Convention are obliged to ensure that operators of hazardous facilities reduce risks and demonstrate the safe performance of these facilities, and that competent authorities carry out regular inspections and issue licenses or bans. The Convention specifically states that “parties shall seek the establishment of policies on the siting of new hazardous activities and on significant modifications to existing hazardous activities”.⁴⁶

⁴⁶ Article 7 of the Convention on the Transboundary Effects of Industrial Accidents
https://unece.org/DAM/env/documents/2017/TEIA/Publication/ECE_CP_TEIA_33_final_Convention_publication_March_2017.pdf

In 2017, the [Guidance on Land-Use Planning, the Siting of Hazardous Activities and related Safety Aspects](#) was developed under three legal instruments of the UNECE – the Industrial Accidents Convention, the Espoo Convention and its Protocol on Strategic Environmental Assessment. It aims to assist Parties in effectively mitigating the effects of possible industrial accidents and the consequences on human health, the environment and cultural heritage within countries and across borders.

[Information Repository of Good Practices and Lessons Learned in Land-Use Planning and Industrial Safety](#) – is an online hub consolidating the good practices and lessons learned by UNECE countries in the fields of land-use planning and industrial safety. It covers the following integrated issues: industrial accident prevention, preparedness and response, decisions on the siting of hazardous industrial/chemical facilities, Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), public participation and information provision to the public, disaster risk reduction (including Natural hazards triggering technological disasters), and transboundary cooperation.

The renovation of Kharkiv and other Ukrainian cities will benefit from the conclusions and presentations delivered at the [Sub-Regional Workshop on land-use planning and industrial safety for Eastern Europe and the Caucasus](#) in 2019. The aim of the workshop was to provide a platform for the countries of Eastern Europe and the Caucasus to share their experiences and good practices in coordinating land-use planning and industrial safety procedures, and to support cooperation between relevant experts for industrial accident prevention in a transboundary context. The event highlighted the importance of joint environmental and risk assessments, and of taking into account the new and existing risks from hazardous activities.

Impact Assessment. [The Espoo \(EIA\) Convention](#) sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of States to notify and consult each other on all major projects under consideration, that are likely to have a significant adverse environmental impact across boundaries. The Convention was adopted in 1991 and entered into force on 10 September, 1997.

[The Kyiv \(SEA\) Protocol](#) augments the Espoo Convention by ensuring that individual Parties integrate environmental assessments into their plans and programmes at the early stages – helping to lay the groundwork for sustainable development. The Protocol also provides for extensive public participation in the governmental decision-making process. The Protocol entered into force on 11 July, 2010.

Strategic Environmental Assessment (SEA) provides a systematic integrated framework for considering sustainable development in urban planning. It allows for a more proactive approach towards sustainable development and makes it possible to consider a wider range of alternatives in an urban environment. The nature of spatial planning makes cumulative effects a critical issue. SEA can help detect, manage, and monitor cumulative impacts over large areas and long time periods, along with recommending mitigation measures.

SEA can become a catalyst for healthier spatial planning: [the Protocol on SEA](#) places an important focus on health issues and requires consultations with health authorities.

This [Simplified Resource Manual to Support Application of the SEA Protocol](#) (available in Russian) is a short and concise introduction to the Protocol and its practical application. The UNECE Protocol on Strategic Environmental Assessment video (in [English](#)) presents the SEA process, its benefits, and its potential as a tool for greening economies.

[Protocol on Strategic Environmental Assessment: Facts and Benefits](#) (available in Ukrainian), introduces the SEA procedure as set out in the Protocol, with reference to its provisions and benefits, while rectifying misconceptions regarding its procedure. It also provides background information on the origins of SEA, and practical examples of the implementation of SEA. Finally, it presents steps to be undertaken by Governments that plan to accede to the Protocol.

[Good Practice Recommendations on Public Participation in Strategic Environmental Assessment](#) aims to improve public participation in strategic environmental assessment (SEA) as provided for by the UNECE Protocol on SEA to the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). The objective is to support the application of the Protocol's provisions by Parties and future Parties, as well as to illustrate good practice in this field, to promote early, timely and effective opportunities for public participation.

The most practical document is the [Guidelines on Strategic Environmental Assessment for Urban Planning Documents](#), which is currently in the process of finalization. The guidelines are still being reviewed in light of Ukraine's recent revisions to its urban planning legislation, introduced after the start of the unprovoked aggression of the Russian Federation against Ukraine⁴⁷.

UNECE has practical experience with conducting SEA for cities, e.g. [Strategic Environmental Assessment \(SEA\) of the Master Plan of the Municipality of Orhei](#), Moldova.

Public Participation. The [Aarhus Convention](#) and its [Protocol on Pollutant Release and Transfer Registers](#), empower citizens with the right to access information, participate in decision-making in environmental matters, and to seek justice. They are the only legally binding global instruments on environmental democracy. For this reason, they are unique in that they are crucial for protecting both the environment and human rights, and can help us respond to many challenges: from climate change and biodiversity loss, air and water pollution, to poverty eradication and security. They provide a solid framework for governments to effectively engage the public in implementing the 2030 Agenda for Sustainable Development and its SDGs. [Quick guide to the Aarhus Convention](#) and [A simplified guide to the Protocol on Pollutant Release and Transfer Registers](#) are available in Russian.

As Ukraine is a Party to the Aarhus Convention and its Protocol on PRTRs, it is legally bound by the obligations of these two international treaties, namely, effective and inclusive access to information, public participation in decision-making, and access to justice relevant for environmental matters. As such, the requirements of these two treaties shall be upheld throughout the implementation of the UN4Kharkiv initiative. It should also be noted that Ukraine is a member of the Bureaux of the Convention and of the Protocol.

⁴⁷ For the most recent status of the Guidelines contact Leonid Kalashnyk at leonid.kalashnyk@un.org

The Aarhus Convention and its Protocol on PRTRs provide a solid framework for engaging the public through the promotion of effective and inclusive access to information and public participation in environmental matters. They help incorporate public opinion on environmental and health concerns, into programmes, plans, policies, projects and legislation, across the economy. They also enable public participation in specific economic sectors including agriculture, forestry and fishing, energy, mining, manufacturing, transport, water, waste, tourism and housing construction.

[Maastricht Recommendations on Public Participation in Decision-making](#), provide local authorities with a step-by-step approach on how to ensure effective and inclusive participation of the public in decision-making on plans, programmes, legislation and projects related to all aspects of urban planning and management.

[Guidance on the Protocol on Pollutant Release and Transfer Registers \(PRTRs\)](#), explains how to establish online PRTR systems. PRTRs are inventories of pollution from industrial sites and other sources. The Protocol's objective is "to enhance public access to information through the establishment of coherent, nationwide PRTRs".

[Recommendations on the more effective use of electronic information tools](#) aims to promote the development, maintenance, upgrade and use of electronic information tools, that can be used for urban planning and management.

[The Geneva Declaration of Mayors](#) was endorsed by the Mayors of the UNECE region at the first Forum of Mayors held in October 2020. It is a commitment to:

- Strengthen the resilience of our cities;
- Take ambitious climate action;
- Make our cities greener;
- Accelerate the transition to sustainable energy;
- Ensure urban transport is sustainable;
- Ensure housing is affordable, healthy and adequate;
- Make cities more equitable and inclusive.

Inclusivity. Cities need to account for the needs of vulnerable and underrepresented groups, such as those with disabilities. Cities must ensure they are gender-sensitive and age-responsive, acknowledging the changing needs of citizens during different life stages, as each of these groups will tend to use public space in different ways. The importance of this was highlighted in UNECE's concept of "[people-smart sustainable cities](#)". All of these factors should be accounted for during the reconstruction process.

The World Bank recognizes the importance of considering the spatial, social and economic dimensions of [urban inclusion in city planning](#). They have conducted analytical research and collected extensive knowledge, experiences and lessons from past projects, which could prove useful during the reconstruction process in Ukraine.

The World Bank's [Handbook for Gender-Inclusive Urban Planning and Design](#) encourages gender-inclusive planning and design, a concept that prioritizes actively includes the voice of women, girls, and sexual and gender minorities of all ages and abilities.

Relevant tools, programmes and instruments by other international and national organizations (including links to relevant web pages and online resources)

In 2015, world leaders agreed to 17 global goals and 169 targets. [The 2030 Agenda for Sustainable Development](#) is a “plan of action for people, planet and prosperity”, which highlights the need to “Make cities and human settlements inclusive, safe, resilient and sustainable” (SDG 11). It sets clear targets⁴⁸:

- (a) Access for all to adequate, safe and affordable housing and basic services (11.1);
- (b) Access to safe, affordable, accessible and sustainable transport systems for all (11.2);
- (c) Enhance inclusive and sustainable urbanization and capacity for participatory, integrated, and sustainable human settlement planning and management (11.3);
- (d) Protect and safeguard ... cultural and natural heritage (11.4);
- (e) Significantly reduce the number of deaths [...] and substantially decrease direct economic losses [...] with a focus on protecting the poor and people in vulnerable situations (11.5), which is of particular significance in the context of the global efforts to curb the spread of the COVID-19 pandemic and address its lingering effects;
- (f) Provide universal access to safe, inclusive, and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities (11.7);
- (g) Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning (11.a); (h) Increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change ... (11.b).

[The Paris Agreement](#) was endorsed by 196 national governments who are members to the Conference of Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC) in December 2015, as a global response to climate change with a focus on adaptation, mitigation and finance. Climate change must be addressed as it hinders the process of making cities and human settlements inclusive, safe, resilient and sustainable (SDG 11). In this sense, the Paris Agreement aims to maintain the increase in the global average temperature to below 2°C above pre-industrial levels, and pursue efforts to limit the temperature increase to 1.5°C. The global goal on adaptation focuses on enhancing adaptive capacity, increasing resilience, and limiting

⁴⁸ SDG 11. <https://www.globalgoals.org/goals/11-sustainable-cities-and-communities/>

vulnerability. The agreement also aims to make finance flows consistent with a pathway towards low-carbon and climate-resilient development.

[The Sendai Framework for Disaster Risk Reduction 2015-2030](#) (Sendai Framework) provides Member States with concrete actions to protect development gains from the risk of disaster. It is critical for understanding the risks resulting from climate change. The United Nations Office for Disaster Risk Reduction (UNDRR) have worked with over 200 cities and local governments to assess the gaps and progress in addressing local resilience. UNDRR worked with 20 pilot cities in developing and implementing climate and disaster resilience plans. The report “[Making cities sustainable and resilient: Implementing the Sendai Framework for DRR at the local level](#)” provides 10 essential frameworks which are key to building urban resilience at the local level, as well as 11 factors that contribute to successful urban resilience (see Table 2).

[The New Urban Agenda](#) was adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador, on 20 October 2016. It was endorsed by the United Nations General Assembly at its sixty-eighth plenary meeting of the seventy-first session on 23 December 2016. It represents a shared vision for a better and more sustainable future. If effectively planned and managed, urbanization can be a powerful tool for sustainable development for both developing and developed countries.

[EBRD Green Cities](#) aims at building a better and more sustainable future for cities and their residents. The programme achieves this by identifying, prioritizing and connecting cities’ environmental challenges with sustainable infrastructure investments and policy measures. The 3 billion euro programme has three central components:

- i) Green City Action Plans (GCAPs): Assessing and prioritising environmental challenges, and developing an action plan to tackle these challenges through policy interventions and sustainable infrastructure investments;
- ii) Sustainable infrastructure investment: Facilitating and stimulating public or private green investments : in water and wastewater, urban transport, district energy, energy efficiency in buildings, solid waste, and other interventions that improve the city’s adaptation and resilience to climate shocks;
- iii) Capacity-building: providing technical support to city administrators and local stakeholders to ensure that infrastructure investments and policy measures identified in GCAPs can be developed, implemented and monitored effectively.

Seven cities in Ukraine have joined this flagship urban sustainability programme: Dnipro, Kharkiv, Khmelnytskyi, Kryvyi Rih, Kyiv, Lviv and Mariupol.

Table 2: 10 Essentials and 11 Success Factors to building urban resilience at local levels⁴⁹

⁴⁹ UNDRR. 2019. Making Cities Sustainable and Resilient: Lessons learned from the Disaster Resilience Scorecard assessment and Disaster Risk Reduction (DRR) action planning <https://www.undrr.org/publication/making-cities-sustainable-and-resilient-lessons-learned-disaster-resilience-scorecard>

10 Essentials	11 Success Factors
<ol style="list-style-type: none"> 1. Organize for disaster resilience 2. Identify, understand and utilize current and future risk scenarios 3. Strengthen financial capacity for resilience 4. Pursue resilient urban development and design 5. Safeguard natural and green public areas to enhance ecosystems' protective functions 6. Strengthen institutional capacity for resilience 7. Understand and strengthen societal capacity for resilience 8. Increase infrastructure resilience 9. Ensure effective disaster response 10. Expedite recovery and build back better 	<ol style="list-style-type: none"> 1. Integrated approach: broad-based and multi- disciplinary 2. Partnership and co-ordination across sectors 3. Long-term perspective (and adaptive management) 4. Leadership (national/local?) 5. Public engagement 6. Enabling environment: national legal and policy frameworks 7. Inclusion (across what level and of whom?) 8. MCR and other campaigns 9. Review, analysis, evidence, learning (rather vague) 10. Economics, finance and funding 11. Risk data and assessment (of what exactly)

Circular Cities

OECD runs a [Circular Economy in Cities and Regions](#) Programme.

Its [Centre for Entrepreneurship, SMEs, Cities and Regions](#), helps local and national governments harness the potential of entrepreneurs and small and medium-sized enterprises, promote inclusive and sustainable regions and cities, boost local job creation and implement effective tourism policies.

[The Circular Economy in Cities and Regions](#) Synthesis Report builds on findings from 51 cities and regions, that contributed to the OECD Survey on the Circular Economy in Cities and Regions, and on lessons learnt from the OECD Policy Dialogues on the circular economy carried out in Groningen (Netherlands), Umeå (Sweden), Valladolid (Spain) and on-going in Glasgow (United Kingdom), Granada (Spain), and Ireland. The report provides a compendium of circular economy good practices, obstacles and opportunities, analysed through the lens of its 3Ps analytical framework (people, policies and places). It concludes with policy recommendations, a checklist

for action and a scoreboard, to self-assess existing governmental conditions that foster the transition towards the circular economy in cities and regions, as well as the level of implementation of enabling conditions.

In 2022, OECD printed several comprehensive case studies on circular economy in [Groningen](#) (Netherlands), [Umeå](#) (Sweden), [Valladolid](#) (Spain), and is undergoing the completion of case studies in [Glasgow](#) (United Kingdom), [Granada](#) (Spain), and [Ireland](#).

[Ellen MacArthur Foundation](#) became a recognized leader in promoting circular economy. Its publications serve as guidelines for governments, cities, and businesses. Below are a few useful reports:

[The Circular City Actions Framework](#) provides urban changemakers with five complementary strategies they can use to start working towards a more circular system. The framework is action-based to provide users with concrete strategic directions that showcase the desired outcomes of each strategy. [Cities and the circular economy](#) is a guideline developed by the [Ellen MacArthur Foundation](#), that demonstrates how to apply the principles of a circular economy to urban systems in order to create thriving cities. Buildings, mobility, products and services, and food systems are examined in detail as these urban systems play an important role in our lives and are the foundation upon which transformations can be made.

[Universal circular economy policy goals: enabling the transition to scale](#), provides a framework for national governments, cities and businesses, to create a transition that fosters innovation and decouples growth from finite resource consumption and environmental degradation.

CONCLUSIONS AND RECOMMENDATIONS

1. As many Ukrainian cities have been severely impacted by the war, reconstruction recovery must involve thorough and inclusive planning with local authorities, that priorities making cities sustainable and resilient.
2. Considering post-war reconstruction, Ukrainian central and local authorities need to take into consideration Ukraine's international obligations, as the country is subject to over 40 international environmental agreements. These obligations closely correlate with the EU-Ukraine Association Agreement. Together, they provide a solid framework for Ukraine's reconstruction.
3. Ukraine's international environmental obligations mean that central and local authorities will have access to practical instruments and tools developed in support of the implementation of such international conventions. Access to such resources will prove useful in the process of recovery planning.
4. For the planning of cities recovery, the following aspects need to be considered:
 - Smart Spatial Planning is crucial to account for different city zones. Using available tools and resources, Ukraine can plan for industrial sites and green and blue zones.
 - Strategic Environmental Assessment – all plans, programmes or other strategic documents (including city master plans) are subject to SEA according to the Ukrainian legislation.
 - Public participation – as a Party to the Aarhus Convention and its Protocol on Pollutant Release and Transfer Registers, Ukraine is legally bound by the obligations of these two international treaties.
 - Air protection and water safety are key elements of the environmental sustainability of cities. Climate change impacts and adaptation measures will directly impact the city planning due to the increased heatwaves and scarcity of water.
 - Circular approaches towards post-war rubble management and waste management, resource efficiency of business planning
 - Gender considerations need to be included in city planning, in order to account for the needs, interests and routines of women and girls in the city, and people of different abilities.

The Annex contains links to practical tools, which could be instrumental for developing a reconstruction plan that ensures cities are inclusive, safe, resilient and sustainable.

ANNEX

Annex I: List of practical tools

Topic	Tools (In English, unless specified otherwise)
Early planning	UNECE Public-Private Partnerships Evaluation Methodology for the Sustainable Development Goals
Spatial Planning and Recovery	<p>Guidance on Land-Use Planning, the Siting of Hazardous Activities and related Safety Aspects</p> <p>Information Repository of Good Practices and Lessons Learned in Land-Use Planning and Industrial Safety</p> <p>Procedure for the development, holding of public discussion, approval, introduction of changes, composition and content of comprehensive restoration programs of the region, the territory of the territorial (in Ukrainian)</p>
Air	<p>Guidance on Best Available Techniques (BATs):</p> <ul style="list-style-type: none"> • for solid fuel burning and small combustion installations (heating) • for emission control techniques for mobile sources (road transport) • for stationary sources (industry, power) • for agricultural sources <p>Guidance documents for the implementation of the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (Gothenburg Protocol) provide practical recommendations (available in Russian), for example:</p> <ul style="list-style-type: none"> • Guidelines for estimation and measurement of emissions of volatile organic compounds • Guidance Document on Emission Control Techniques for Mobile Sources • Guidance document on control techniques for emissions of sulphur, NO_x, VOC, and particulate matter (including PM₁₀, PM_{2.5} and black carbon) from stationary sources • Code of good practice for wood burning and small combustion installations

Water	<p>Field guide for Water Safety Plans</p> <p>Equitable Access- Score Card, which is an analytical tool developed to support Governments and other stakeholders to establish a baseline measure of the equity of access to water and sanitation. Ukraine applied it in 2013.</p> <p>Policy options and good practices to ensure the affordability of safe drinking water and sanitation services in the pan-European region</p> <p>Guidance on water and adaptation to climate change provides advice to decision makers and water managers on how to assess impacts of climate change on water quantity and quality, how to perform risk assessment, including health risk assessment.</p> <p>Guidance document to support countries in preventing and reducing water related diseases</p> <p>Practical tool to support education and public health authorities in assessing and monitoring water, sanitation and hygiene conditions in schools.</p>
Circularity (in English)	<p>A guide to circular cities UNECE</p> <p>Guidelines on tools and mechanisms to finance Smart Sustainable Cities projects UNECE</p> <p>Guidelines on Promoting People-first Public-Private Partnerships Waste-to-Energy Projects for the Circular Economy</p> <p>The Circular City Actions Framework</p> <p>Cities and the circular economy</p>
Housing	<p>Guidance for the implementation of the Geneva UN Charter on Sustainable Housing</p>
Strategic Environmental Assessment	<p>Draft Guidelines on Strategic Environmental Assessment for Urban Planning Documents (by UNECE, draft id being finalized, available in English and Ukrainian)</p> <p>This Simplified Resource Manual to Support Application of the SEA Protocol (available in English and Russian) is a short and concise introduction to the Protocol and its practical application.</p> <p>Methodical recommendations regarding the procedure for developing, approving, implementing, monitoring and evaluating the implementation of strategies for the development of territorial communities (in Ukrainian)</p>

	<p>Methodological recommendations for the development of comprehensive plans for the spatial development of the territory of the territorial community and other types of urban planning documentation at the local level (in Ukrainian)</p> <p>Strategic environmental assessment of the comprehensive plan for the spatial development of communities (in Ukrainian)</p>
Public participation	<p>Quick guide to the Aarhus Convention (available in Russian)</p> <p>A simplified guide to the Protocol on Pollutant Release and Transfer Registers (available in Russian)</p> <p>Maastricht Recommendations on Public Participation in Decision-making, provide step-by-step approach to local authorities on how to ensure effective and inclusive participation of the public in decision-making on plans, programmes, legislation and projects related to all aspects of urban planning and management.</p> <p>Guidance on the Protocol on Pollutant Release and Transfer Registers (PRTRs), explains how to establish online PRTR systems. PRTRs are inventories of pollution from industrial sites and other sources. The Protocol's objective is "to enhance public access to information through the establishment of coherent, nationwide PRTRs"</p>
Data	<p>Recommendations on the more effective use of electronic information tools aim to promote the development, maintenance, upgrade and use of electronic information tools that can be used for urban planning and management</p>
Gender	<p>The World Bank's Handbook for Gender-Inclusive Urban Planning and Design encourages gender-inclusive planning and design, which actively includes the voice of women, girls, and sexual and gender minorities.</p>

UN4KHARKIV

Thematic Workshop Background Note

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