

The Green Recovery of Ukraine: a Challenging but Non-Negotiable Way to Succeed in the World of Tomorrow

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The Russian war against Ukraine has had a heavy toll on the country and its population - entire towns levelled to the ground, thousands of people killed, millions forced to flee their homes, and residential areas, large industrial plants, energy facilities, and critical infrastructure destroyed or severely damaged. One of the biggest victims of the Russian aggression is nature, which has suffered considerable losses in the last eleven months, particularly in the east and south of Ukraine, including Azov and Black Sea waters.

According to the State Environmental Inspectorate of Ukraine, 280 thousand m³ of soil have been contaminated with toxic substances and 11 million m³ polluted with exploded ordnance and other remnants of warfare. 686 thousand tons of oil products burned out when Russians stroke oil depots, refineries and similar objects, substantially raising air pollution and contributing to carbon emissions. Almost 60 thousand hectares of forests have been burned with respective wildlife losses. 1.6 thousand tons of hazardous substances ended up in water bodies. The Inspectorate estimates the damage to Ukraine's air, land and water resources, as of the beginning of 2023, at 1.7 trillion UAH (42 billion USD).¹ However, the real numbers are probably much higher, as assessing the actual environmental situation in occupied territories and active hostilities zones is difficult. Some of the damage is irreversible, and the negative effects of environmental degradation will linger and affect the life of the next generations in Ukraine and beyond.

The current environmental degradation builds onto Ukraine's pre-war environmental challenges, such as air and water pollution, resource-intense production, energy-inefficient housing and transport, land degradation due to unsustainable farming practices, and many others. Although Ukraine has been undertaking demanding reforms in environmental protection, energy efficiency, and renewable energy development following the EU-UA Association Agreement, the to-do list of European integration reforms in these areas remains quite long. In particular, in the environmental sphere, the European Commission has recently assessed the state of Ukraine's alignment with the EU acquis as "being at the early stage of preparation".²

No matter how low the current environmental downfall is, Ukraine has a chance to reverse its situation after a military victory if it prioritizes green recovery in its post-war revival. This would mitigate the huge war-related environmental damage and transform Ukraine's energy and resource-intense economy into an innovative sustainable economy, contributing to the goal of a climate-neutral Europe.

The EU candidate status given to Ukraine in June 2022 provides further reason for a post-war focus on green transformation. To become an EU member, Ukraine must complete challenging "homework" by transposing and ensuring the implementation of the environmental acquis communautaire. Ukraine can accomplish the two goals simultaneously by placing

¹ <https://www.dei.gov.ua/posts/2479>

² EU Commission. Commission Staff Working Document – Analytical report following the Communication from the Commission to the European Parliament, the European Council and the Council Commission Opinion on Ukraine's application for membership of the European Union. SWD(2023) 30 final. https://neighbourhood-enlargement.ec.europa.eu/commission-analytical-report-ukraines-alignment-eu-acquis_en

the EU environment and climate-related norms at the core of its recovery efforts.

The Ukrainian government seems to be committed to this idea. After all, it declared its interest in Ukraine joining the EU Green Deal in 2020, even before the membership perspective³. A clean and safe environment and a contribution to zero-carbon transition were also named among the focus areas of the National Recovery Plan, the blueprint of which was presented in Lugano in July 2022.⁴ However, the detailed examination of this and other recovery-related documents leaves an impression that green is an auxiliary colour: sustainability has not become an underlying principle of the recovery vision so far, green initiatives are scattered, and environmental concerns remain seen as a sectoral issue.

Meanwhile, the green transformation of the economy and society can only be achieved by integrating economic, social and environmental policies. Ukraine has many areas where this approach can drive steep growth, including the following:

Industry. Before the war, Ukraine had the most energy and resource-intensive economy in Europe, particularly due to a large share of high-energy consumption industries, such as metallurgy. Now that many industrial plants located in eastern and south-eastern Ukraine have been ravaged, the industrial reconstruction provides an opportunity to eliminate the past dependence on fossil fuels and dirty technologies and replace the oligarchic control of the industry with the multi-stakeholder architecture of owners. By rebuilding the sector following the sustainability and climate neutrality principles, Ukraine could become a major supplier of green goods and raw materials, such as green steel, to the EU and the rest of the world, thus facilitating global decarbonization. The process would be challenging due to the substantial need for investments and the supply of costly best-available technologies. However, it would serve as a basis for Ukraine's economic revival, particularly in the area most affected by the war.

Transport. Responsible for 11% of the oil products used⁵ and 39% of air pollutants released⁶ in pre-war Ukraine, the transport sector has substantial green transformation potential, with prospective benefits including significant GHG emissions cuts, air pollution reduction, increased road safety, and

greater transportation efficiency. The transformation should entail shifting freight from road to electrified rail, prioritizing public transport development, creating conditions for greater use of low- and zero-emission vehicles, promoting the use of alternative/renewable fuels such as biofuels and hydrogen, developing green urban mobility including electric transport and cycling, building efficient networks of public low-carbon transport from suburbs to cities, the promotion of car-sharing, and the introduction of car-free zones. It should also apply innovative solutions and digitalization in the smart management of the sector.

Agriculture. The war has shown how much the world depends on Ukraine's agriculture to ensure food security. To restore pre-war agricultural production and satisfy the global food demand, Ukraine will need substantial investments in the demining of land and the remediation of soil after the physical damage and chemical pollution caused by warfare. Promoting climate-smart and sustainable agricultural practices and developing organic agriculture and biomethane production would be the optimal way to make the most out of Ukraine's agricultural potential both from the economic and environmental points of view. Agriculture waste processing and engagement in decentralized energy production in parallel to main agricultural activities could improve the economic sustainability of farmers. Ukraine should actively promote family and small farming as more environmentally friendly soil utilization.

Residential/Communal sector. This sector is a national leader in energy waste: due to poor insulation of buildings, outdated boilers, and the wear of engineering networks, there are permanent energy losses of significant scale. The municipal sector is also responsible for considerable water pollution due to insufficient wastewater treatment. Another problem is that urban planning in Ukraine is not human-centred: pollution from road traffic is heavy, there are not enough green areas, and generally, Ukrainian cities and towns are not adapted to climate change. However, with the decentralization reform giving more powers to local communities, many municipalities are interested in changing the situation.

Cities and towns that were destroyed, such as Mariupol, should become model green cities, with zero-emissions technologies used in their reconstruction and with their engagement of the local population and other

³ <https://eu-ua.kmu.gov.ua/novyny/olga-stefanishyna-ukrayina-pryamuye-yevropeyskym-zelenym-kursom>

⁴ https://uploads-ssl.webflow.com/621f88db25fbf24758792dd8/62c166751fcf41105380a733_NRC%20Ukraine%27s%20Recovery%20Plan%20blueprint_ENG.pdf

⁵ 2019 data – see https://mepr.gov.ua/files/docs/Zmina_klimaty/Kadastr_2021/Ukraine_NIR_2021_draft.pdf

⁶ 2020 data – see https://ukrstat.gov.ua/operativ/operativ2021/ns/xl/vuk_per_20ue.xlsx

stakeholders in shaping the vision of the renewed cities and ensuring a human-centred approach at all stages of the recovery process.

Energy sector. Before the war, Ukraine had a mixed situation in the energy sector, with pro-European legislative changes and positive developments in advancing energy efficiency and renewable energy taking place side by side with an increase in coal use. The war has reversed some of the positive energy trends, as many renewable energy facilities were located in the area of hostilities and have been destroyed or went out of operation, while electricity cuts due to shelling of energy infrastructure forced businesses and civilians to turn to fossil-burning power generators. Yet, after the war, Ukraine is expected to continue further decarbonization of the sector, which will boost economic growth and ensure the economy's long-term resilience, as there is significant potential in developing wind, solar, and biomass power. Ukraine can quickly boost the development of renewables by providing further adoption of legislative and regulatory basis following the EU Green Deal, including the introduction of market-based energy prices for all consumers. It is also necessary to develop electricity storage and balance fast-start generation with the eventual use of natural gas and biomethane, and hydrogen. To sum up, with favourable investment conditions and stakeholders' commitment to reforms, Ukraine can both satisfy its own energy needs and supply low-carbon and renewable energy to the EU.

Policy conclusions and recommendations:

1. Placing sustainability at the heart of the country's post-war recovery has multiple advantages for Ukraine. A complete green overhaul would make the economy competitive on the European continent, which aspires to become climate neutral in less than three decades. It would substantially strengthen Ukraine's position in its EU accession negotiations. On the one hand, the transposition and implementation of the EU environmental acquis are one of the biggest challenges on the path towards EU membership. On the other hand, the EU needs Ukraine's green transformation to achieve its 2050 climate-neutrality goal. Furthermore, a country prioritizing innovation and environmental sustainability will attract both global investments and talent, with the latter being of critical importance considering the forecasted depopulation of Ukraine due to refugee outflow.
2. That being said, transforming Ukraine into a modern, resource-efficient and competitive economy is daunting, considering the ever-growing damage caused by the war to Ukraine's economy, society and environment. Ukraine's green recovery would require not only unprecedented financial support and investments but, above all, the determination of the government and people of Ukraine, as well as of the EU and other partners, to make this transformation a unique success story, a showcase of sustainability and low-carbon growth. As Ukraine and its partners are now focused on the primary goal – the victory in the war, the green transformation should become a post-war unifying overarching objective. And just as today, Ukraine is a testing ground for modern weaponry, tomorrow Ukraine should become a place to deploy state-of-the-art technologies in green modernization of industry, transport, and more.
3. Ukraine still has many low-hanging fruits in ensuring energy and resource efficiency. It has enormous development potential regarding the energy efficiency of industrial production, renewables (wind, solar, biomethane and others), organic agriculture, sustainable transport, and others.
4. The reconstruction of heavily-damaged cities and towns presents a unique opportunity to build green cities from scratch: construct energy-efficient buildings, provide modern networks and sustainable energy supply based on decentralized local resources (solar, wind, waste and biomass), and develop green urban mobility and low-carbon production. Although there might be pressure to build back fast to provide accommodation to numerous IDPs, the chance for a qualitative change towards human- and environment-centred urban planning should not be wasted. This would become a turning point not only for the green transformation of the economy but also for society.
5. The green recovery should follow a holistic approach, encompassing all aspects of economic and societal life and including changes in policies, regulatory framework, development planning, financing, etc.

6. Public participation is critical to ensure the totality of the reforms. A discussion in Ukrainian society about the country's green future and its pathways should be launched early, be complex and involve different stakeholders so that a consensus vision and societal ownership of the transformation are ensured.
7. Municipalities should become the drivers of green recovery. Financial and technical assistance should be provided to them to design local green recovery plans in a participatory manner and then implement building modernization/reconstruction according to low-emission standards, development of urban mobility, climate change adaptation and other measures taking into account the vision of the local population.
8. The Ukrainian government, donors, and partners should already focus on developing mechanisms for attracting green investments and know-how. While Ukraine should do its job by strengthening the rule of law and investment protection, the EU and other partners should support Ukraine with loans and guarantees, facilitating private direct investments and technology transfer in implementing joint green projects.