

The multiple impacts of war



As armed conflicts claim dreadful death tolls and destroy nature, they jeopardize humanity's future. If safe and peaceful societies are the priorities of governments, more needs to happen to achieve them.

In March this year, the World Bank, the Government of Ukraine, the European Union and the United Nations published a report – Ukraine Rapid Damage and Needs Assessment¹ – covering the first year of the ongoing conflict between Ukraine and Russia, to inform the extent of the damage suffered by Ukraine and provide an estimate of the likely cost of the recovery. The report estimates an overall damage over the period February 2022 to February 2023 of US\$134.7 billion and indicates that for the period 2023–2033, the needs of Ukraine amount to US\$410.6 billion. The magnitude of the impacts from the conflict is worrying. Figures in the report show the economic sectors hit the most – housing, transport, energy and extractives, industry and agriculture. A more in-depth look at the detailed figures and analyses also reveals the substantial impacts on irrigation and water resource management as well as water supply and sanitation. The overall damage to the water infrastructure is estimated to be US\$2.6 billion, whereas the corresponding needs over the next decade are estimated to be US\$16.0 billion. The report highlights how the irrigation and drainage sector, the flood protection sector and the water resource management sector were still in the process of re-building and strengthening when the conflict erupted. Damages inflicted to water resources directly, and indirectly via power outages, have had major impacts on agriculture – a strategic sector globally. According to the report, before the war 70% of water access was offered via a centralized piped supply and 50% of wastewater collection and treatment services was centralized, although with urban–rural inequalities. The war has inevitably made an already challenging situation worse. Despite emergency measures and the efforts of communal service providers, millions of Ukrainians receive intermittent water supply and sanitation services, a situation carrying substantial risks. The report



emphasizes the challenges of collecting reliable data, particularly to assess water supply and sanitation damages and losses, hinting at a likely underestimation of the impacts.

An [Analysis](#) by Shumilova and colleagues featured in this issue of *Nature Sustainability* takes a close look at the water impacts of the Russian military action in Ukraine. It provides a detailed assessment of the complex impacts on the freshwater resources and water infrastructure during the first three months of the conflict. Although the Ukrainian water system was still under re-development at the time the war started¹, it remains a more advanced set-up than the typical one found in most countries affected by conflicts, often located in the Global South. Ukraine's water system includes large multi-purpose reservoirs, hydropower dams, cooling facilities for nuclear plants and water reservoirs for industry and mining, in addition to the network of canals and pipelines for irrigation and household use. By collecting granular evidence from a variety of sources, and acknowledging the inherent uncertainties, the authors were able to document the water impacts of war across the Ukrainian territory, including cases of water-transfer disruption, surface-water pollution (due to sunken military objects and release of chemicals from shelling), mines overflowing, discontinued operations of

wastewater facilities and flooding due to damaged dams, among others.

Assessments of the damages inflicted by war on natural resource access, management and infrastructure remind us of the compounding consequences of conflicts, above and beyond the direct loss of life due to the violence. The United Nations Environment Programme (UNEP) has conducted many assessments of conflict-related impacts in countries such as Afghanistan, Colombia, DR Congo, Kosovo, Iraq and Lebanon. UNEP is currently assisting the government of Ukraine², denouncing after an initial screening carried out last year that the legacy of the conflict will be a 'toxic' one for generations to come. The environmental damages include air pollution incidents in addition to both ground and surface water contamination, plus very likely soil contamination, all with potentially serious consequences for human health, the environment and strategic economic activities. We know from past incidents that, for example, even decades after hazardous substances polluted soils, crops remained contaminated, and things are worse with radioactive substances. Experts warn³ that clean-up efforts are unlikely to tackle warfare pollution over the long term, as the resulting toxicity is diffused and far-reaching.

The government of Ukraine is committed to build back better and will work with UNEP

to ensure that. But sustainably managing the legacy of a long conflict and rebuilding better will be challenging, as it has always been. Lessons from other conflicts have taught us that. Yet, despite mounting evidence of the devastation brought by wars – the irreplaceable loss of life and the threat of prolonged,

severe and wide-ranging health, environmental and socioeconomic risks – ongoing armed conflicts continue, and new ones emerge. War is an unsustainable practice; it is time to stop it.

Published online: 23 May 2023

References

1. *Ukraine Rapid Damage and Needs Assessment: February 2022 - February 2023* (World Bank Group, 2023); <https://go.nature.com/3LVv555>
2. The toxic legacy of the Ukraine war. *UN Environment Programme* (22 Feb 2023); <https://go.nature.com/3LVPVB9>
3. Turns, A. The toxic legacy of the Ukraine war. *BBC* (21 Feb 2023); <https://go.nature.com/3NZH0Bm>