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The environmental costs of Russia's war of aggression

Russia’s war against Ukraine has severely devastated the country’s local environment. Rebuilding its ecology won’t be easy – and it will take time

On 6 June 2023, the Kakhovka dam and hydroelectric station was destroyed. The event has highlighted the extensive environmental destruction caused since the beginning of the conflict in Ukraine. Russia’s war of aggression has severely damaged the country’s ecosystems, and extensive reconstruction is urgently needed — but this needs to be done sustainably.

The uncontrolled loss of water has had dramatic consequences for the people and environment in the regions surrounding the reservoir. Within a few hours, thousands of residents had to be evacuated from the riverside areas, which lie close to the frontline. The toxic mixture of decaying animal carcasses and hazardous substances threatens the outbreak of diseases such as cholera and typhoid fever. The World Health Organization (WHO) has launched an emergency programme in an attempt to mitigate the humanitarian scale of the disaster. Swathes of the Kakhovka reservoir have since dried up above the dam wall, and the drinking water supply to the surrounding regions is still partially disrupted.

At least 150 tonnes of engine oil spilled into the river below as the hydropower plant was destroyed. There are also concerns that the dam’s rupture will bring toxins to the surface or wash them downstream – these had previously been deposited in the bottom of the reservoir after decades of intensive agricultural use as well as the Chernobyl disaster.

Wide-ranging consequences

The dam's destruction has not only affected the environment, but it has also rocked Ukraine’s economic foundations, as agriculture in the fertile, partly Russian-occupied Chernozem regions is at risk. Industries that rely on cooling water are also affected, with the Ukrainian steel company

ArcelorMittal already shutting down a steel plant in Kryvyj Rih after the dam burst. The tidal wave swept away landmines, which are now scattered across unknown locations in the estuary region, posing a significant and long-lasting threat. This will make it more difficult to attract tourists to the region's river and coastal areas in the long term.

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This catastrophe could cause damage for years to come, and not only in Ukraine. Neighbouring countries may be affected by a meltdown if there is not enough cooling water at Zaporizhya, Europe's largest nuclear power station, which is fed from a cooling basin supplied by the Kakhovka reservoir. But since the reservoir has now dried up, the water has stopped flowing into the cooling water basin. According to the Director-General of the International Atomic Energy Agency (IAEA), Rafael Mariano Grossi, there is only enough water left for a few months, but new cooling facilities are currently being developed. In July, Ukrainian President Volodymyr Zelenskyy also warned that Russia could provoke a nuclear incident at the power plant.

The damage caused by the dam's destruction is part of the wider ecological ruin, which scientists have been observing since the invasion began: Russia's war of aggression has had a devastating impact on the local environment in Ukraine on several fronts, for example on its water systems and biodiversity.

A difficult task ahead

But the lengthy and complex reconstruction process required following the destruction has already begun. In July 2022, the country's National Reconstruction Council presented its National Recovery Plan, which describes 15 country-wide reconstruction programmes. The restoration of a clean and safe environment is one of the four strategic imperatives in the plan, estimated to cost $ 20 bn. And for good reason: ecology should not be seen as a mere accessory of reconstruction, but as a strategic investment in Ukraine's future.

But rebuilding Ukraine's ecology will not be easy – several challenges will have to be overcome. First of all, it is foreseeable that time will play a role. While there is a desire to rebuild as quickly as possible, the process needs to be well-planned and managed effectively. Some reconstruction work is

already underway, such as in the town of Irpin, northwest of Kyiv, which saw fighting in the early days of the war. Other measures such as clearing the extensive minefields completely or removing other weapons from frontline areas can't begin until the fighting is over there. As for further action to rebuild ecosystems or implement environmental and climate protection projects, it would also be useful to open them up and engage citizens, since successful formats that involve local people have been shown to increase the long-term chances of these measures succeeding. But all of this takes time.

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Another challenge lies in the purpose. There seems to be a consensus that restoring Ukraine's ecosystems to the way they were before the war is not enough. Firstly, these ecosystems are characterised by severely contaminated sites from the Soviet era. Secondly, climate change is likely to affect rainfall and average temperatures in Ukraine, so existing natural areas will need to be adapted. It is only logical that Ukraine's reconstruction becomes more of an ecological transformation. However, this ambitious aspiration is faced with other issues: many thousands of houses have been damaged or even destroyed by the war. A rapid restoration of this inhabited area is urgently needed, especially in view of the harsh winters.

Another example is Ukraine's severely impacted agricultural sector. The UN's Food and Agriculture Organisation (FAO) estimates losses in this area to be more than $ 6 bn. Restoring this essential source of income for the Ukrainian state budget is both important and urgent. Ukraine should not have to choose between reconstruction and a green revolution. International donors can help by providing comprehensive financial support, clearly geared towards sustainability goals, and by providing flexible and rapid support to aid administrative implementation.

This support also requires the funds provided to be used sensibly and effectively. Before the outbreak of the war, massive corruption made it difficult to achieve policy objectives. This also affected the sustainable management of Ukrainian forests, for example. Strengthening governance structures and the fight against corruption also play a part in creating effective environmental policies.

The conflicts that can arise

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come into play. The $ 20 bn that Ukraine has already earmarked for environmental protection will be supplemented by $ 130 bn to reconstruct the energy system under Ukraine's National Recovery Plan. These investments are very welcome and are in line with the climate policy objective of the United Nations Framework Convention on Climate Change and the European Union. However, the conflicts that can arise between climate and environmental protection measures are well documented. Clever political governance is needed to pursue these two policy objectives, which actually go hand in hand.

The Russian war of aggression has claimed tens of thousands of lives in Ukraine and seriously devastated local ecosystems. It is good that Ukraine has already started rebuilding, together with its international partners. And the fact that this reconstruction has a clear environmental dimension is very welcome. However, the ambitious plans will face a wide range of challenges. Enough time needs to be dedicated to involving the people. While sustainable reconstruction of the housing and agricultural sector should be underpinned by adequate and clearly tailored support. Further governance reforms are needed to ensure funds are used efficiently and effectively. Finally, we must find ways to address the tug-of-war between environmental and climate protection.



Anselm Vogler
Hamburg

Anselm Vogler is a researcher at the Institute for Peace Research and Security Policy at the University of Hamburg (IFSH). He has been working on the project "Conflict and Cooperation at the Intersection of Climate and Security" since April 2020.