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Impact of the Russia–Ukraine armed conflict on water resources and water infrastructure

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The armed conflict between Ukraine and Russia that began in late February 2022 has far-reaching environmental consequences, especially regarding water resources and management. Here we analysed the multifaceted impacts of the military actions on freshwater resources and water infrastructure during the first three months of the conflict. We identified the nature of the impacts, the kind of pressures imposed on the water sector and the negative consequences for the availability and quality of freshwater resources for the civilian population. Our results showed that many water infrastructures such as dams at reservoirs, water supply and treatment systems and subsurface mines have been impacted or are at risk from military actions. Continuation of the conflict will have multiple negative sustainability implications not only in Ukraine but also on a global scale, hampering achievement of clean water and sanitation, conservation and sustainable use of water resources, and energy and food security.

Water is a fundamental and irreplaceable resource for life on Earth. Accordingly, it plays a pivotal role in the Sustainable Development Goals by securing societal and environmental well-being[1]. At the same time, freshwater as a resource[2] and related water infrastructure[3] are among the most vulnerable sectors during armed conflicts. This has led to increased attention to both the role of water as a driver of conflicts[4] and the impacts of armed conflicts on water and water systems[5,6].

Reported violence associated with freshwater resources and water infrastructure, from 2500 BC to the present, is tracked by the open-source database *Water Conflict Chronology* (Pacific Institute[7]). At present, the database consists of more than 1,300 entries, covering three separate categories: (1) water as a 'trigger' (the control of or access to water leads to violence), (2) water as a 'weapon' (water is used as a weapon during a conflict) and (3) water as a 'casualty' (direct attack on water systems) of violence. Over the past decade, the number of recorded conflicts has increased, particularly when water was used as a trigger and/or as a casualty of a conflict (Fig. 1). In addition to these, water resources are often threatened through collateral damage (for example, a pollution spill caused by military action).

Despite its importance, there is a lack of academic research related to the multifaceted impacts of armed conflicts on the water sector. For example, a systematic review by Schillinger et al.[5] identified only 48 peer-reviewed studies on water in conflict settings. Geographically, the majority of studies have focused on the Middle East (in particular, Iraq, Syria and Israel), Africa and Asia.

The armed conflict between Ukraine and Russia (applying the agreed-upon definition of the International Committee of the Red Cross[8]), which started on 24 February 2022, represents an exceptional case with regard to its impact on the environment[9–11] and particularly on water resources and water infrastructure. Unlike previously reported conflicts within the territories of the Global South and emerging economies[5], the current armed conflict occurs in a region characterized by a

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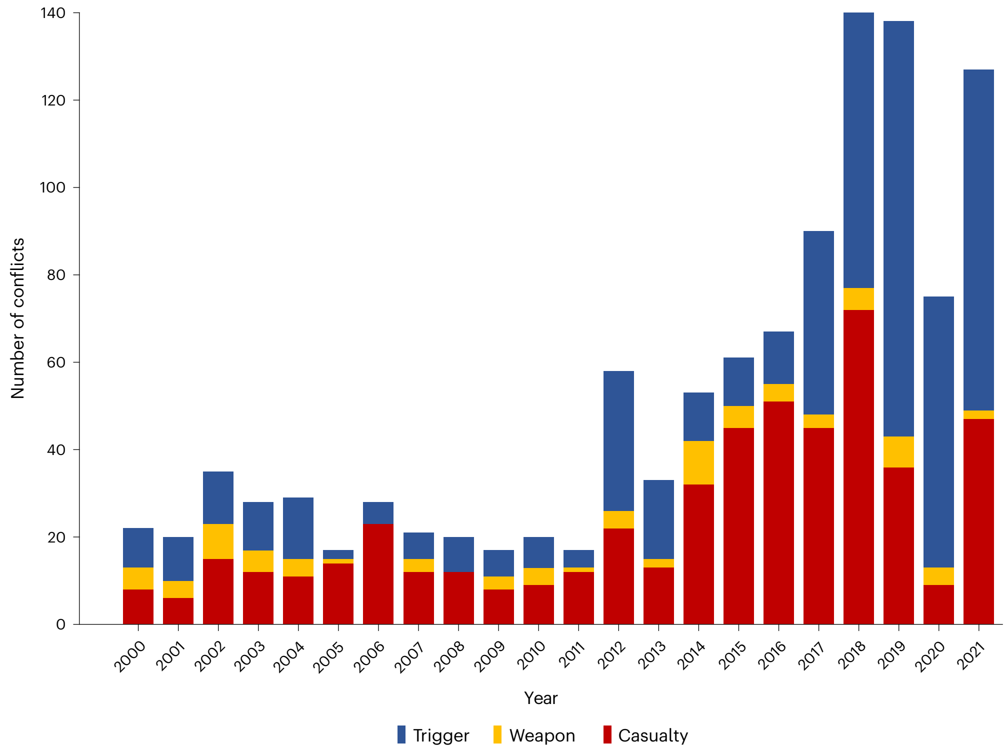

Fig. 1 | Water conflicts by year and type. Data from https://www.worldwater.org.

heavily modified and industrialized water sector[6,12]. The extensive and critical water infrastructure of Ukraine includes large multi-purpose reservoirs, hydropower dams, cooling facilities for nuclear plants, water reservoirs used for industry and mining, and extensive water distribution canals and pipelines for irrigation and household purposes[13]. The majority of this water infrastructure is located in the eastern and southern parts of the country, areas of intense agricultural production and major industrial activities such as metallurgy, coal mining and chemical production.

Within the first three months of the conflict, it became clear that this conflict and its impact on freshwater resources and water infrastructure would impact both the livelihoods of local civilians and the global food supply[14], reflecting the importance of water resources for the agriculture of the region[15]. The impacts of the armed conflict are further compounded by drought and heat waves across Europe and new constraints on water resources as a consequence of climate change[16]. All these factors argue for more detailed analyses and evaluation of possible consequences.

In this Analysis, we compile and analyse information about the multifaceted impacts of the armed conflict on freshwater resources and infrastructure on the basis of reported evidence during the first three months of the conflict. We discuss the key challenges that the water sector of Ukraine is facing due to the armed conflict and provide a retrospective view on previous catastrophes within the water sector of the country to highlight potential consequences of the current impacts. We aim to raise awareness of this problem and to provide evidence and information to help motivate the international community to both act to stop the conflict and develop mechanisms to prevent future water- and environment-related damages from conflicts.

Results

Type and status of identified impacts

In total, we identified 64 reported impacts on the water sector, among them 49 realized and 15 potential (Fig. 2).

The following types of realized impacts were identified: eight cases of water-transfer interruption, six cases of surface-water pollution due to military actions with four cases of sunken military objects and two due to release of chemicals as a result of shelling, five cases of damage to dams (four at reservoirs and one along the North Crimean canal), six cases of mines overflooding, one case of bacteriological pollution due to a mass poultry death and one case of interrupted operation of a hydroelectric station (HES) (Kakhovka HES).

Furthermore, we report impacts on water supply and wastewater treatment systems, including 12 cases of disrupted operation of water and wastewater treatment facilities, seven cases of disrupted centralized water supply and three cases of disrupted operation of wastewater treatment plants. For some regions, it was possible to obtain only pooled information, with a total number of settlements and inhabitants without water supply, and therefore these data are not presented in Fig. 2 but are provided in Supplementary Information 1.

From realized impacts, 17 are the result of direct attacks, 13 are due to power-supply cut-offs, 8 are a combination of both, 4 instances of the pollution of surface waters are from sunken military objects, 1 is related to the indirect damage of the water supply system (the case of Mykolayiv, where connection to an alternative water supply source led to pipe corrosion and damage) and 1 is due to unusual operation condition (flooding in Nova Kakhovka).

With respect to water supply infrastructure, military actions affected 12 pumping stations, pipelines and dams were affected in 6 cases, damages to wastewater treatment plants were reported in 3 cases, and 2 filtering stations with water-intake facilities and 1 artesian well were affected. For a total of 12 settlements, such damages have caused the complete failure of the whole water supply and wastewater treatment system.

As potential threats, we identified 15 impacts, including 8 cases of flooding due to damage to dams (for example, missiles potentially targeting the dams of Kyiv and Kakhovka HESs, explosion of the road on the dam of Pechenizskiy Reservoir, 5 reservoirs are supposedly mined), 4 threats linked to nuclear power plants due to low-flying missiles (potential damage of cooling ponds, spread of radioactive dust), 2 cases of periodically flooded underground mines, 1 possible case of detonation

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of container with chlorine at the territory of wastewater treatment plant and explosion of nautical mines in the Danube River delta.

Geographical distribution of impacts and affected water bodies

Freshwater resources and water infrastructure were affected primarily in the Donetsk and Luhansk regions (17 and 13 realized impacts, respectively), where the conflict has been most intense. The number of incidents peaked within the Siverskyi Donets River basin (Source data and Supplementary Information 2). There the river itself as well as demolished reservoirs located within its basin became a barrier for movement of troops (Supplementary Information 2). A shortage in electricity supply in the region led to interruption in long-distance water transfer (the main source of water supply) and caused uncontrolled rise of contaminated mine waters.

Several impacts on freshwater resources and water infrastructure were also recorded in the western regions of Ukraine far from active ground military operations. For example, an attack on the oil depot in Lviv led to the pollution of the Western Bug River, the tributary to the Narva River (Vistula River basin). North of the Ternopil region, shelling led to the damage of six reservoirs storing mineral fertilizers, causing the pollution of the Ikva River, the tributary of the Styr River (the Dnieper River basin). This resulted in a major increase in ammonia and nitrate concentrations, leading to a mass fish death. In the Odessa region in southern Ukraine, local authorities reported the presence of nautical mines in the Danube River delta, preventing fishing and constraining navigation.

Discussion

Our results show that the most-affected types of infrastructure during the first three months of the armed conflict were dams and reservoirs, underground mines, urban water supply and wastewater treatment systems (overview of this infrastructure in Supplementary Information 2).

Ukraine's critical water infrastructure at risk

Of special concern are large reservoirs along the Dnieper River, which are critical for energy production, cooling of nuclear power plants, sustaining agriculture and seasonal flow regulation. In addition, there is a high concentration of settlements along the Dnieper River, with flooding being an immediate threat if the dams would breach (Fig. 3a,b). During World War II, intentional damage to the 800-m-wide dam of the Dnieper HES holding water in the Dnieper Reservoir, near the city of Zaporizhzhia, affected 20,000–100,000 civilians and retreating soviet soldiers crossing the river[17] (Fig. 3a). Details on a quantitative flooding-risk assessment for the cascade of Dnieper reservoirs, including those based on hydrological conditions observed in 2022, are presented in Supplementary Information 2.

Apart from flooding, breaching of dams along the Dnieper River poses a danger of secondary radioactive pollution due to uncontrolled release of radioactive material accumulated in the sediments and associated with colloidal materials in surface waters after the disaster at the Chernobyl nuclear power plant (NPP) in 1986[18,19]. Following the accident, the reservoirs of the Dnieper Cascade acted as sinks for radiocaesium, with extensive accumulation recorded in the Kyiv Reservoir. As for radiostrontium, about 43% of the dissolved form that entered the Dnieper system from 1987 to 1993 reached the Black Sea[20]. Zaporizhzhia NPP, the largest NPP in Europe, is located on the shore of the Kakhovka Reservoir, 40 km downstream from the dam of the Dnieper HES. A sudden loss of water needed for the reactor's active cooling system can lead to a scenario analogous to the accident at the Fukushima Daiichi NPP in Japan in 2011[21]. The Kakhovka Reservoir also serves as a water source for the largest irrigation system in Ukraine and in Europe[22] (for details, see Supplementary Information 2). The conflict raises a risk of either intentional or unintentional bombing posing threats to regional agriculture, food production and international food trade.

Military actions and severe environmental pollution

As a result of the armed conflict, multiple Ukrainian communities have been left without wastewater treatment, resulting in pollution of surface waters. For example, remote-sensing images showed that polluted wastewater was released into the Kakhovka Reservoir when the wastewater treatment plant near Zaporizhzhia ceased operation[23]. Rivers and networks of irrigation channels that are natural barriers for movement of troops have also become a burial place for military objects (for example, Figure 3c). The underwater decomposition of ammunition leads to release of heavy metals and toxic explosive compounds, with impacts that may last for decades[2]. This can be critical in the southern regions of Ukraine where an extensive network of irrigation channels exists. Low quality of irrigation water affects the agricultural cropping and the quality of food production[24]. In the pre-conflict period, the concentrations of heavy metals in waters of the Kakhovka Canal were in compliance with water-quality standards[25], but there is concern that the conflict will lead to a deterioration of water quality.

In June–July 2022, for the first time, traces of oil products were reported within the area of the surface drinking water intake in the basin of the Siverkyi Donets River, together with exceeded concentrations of mercury, ammonium nitrogen, nitrites, polyaromatic carbons, heavy metals and the insecticide cypermethrin in some rivers within the basin[26] (for details on the state of the Siverskyi Donets River since 2014, see Supplementary Information 3). In addition, multiple electrical blackouts within Donbass region have increased the threat of pollution of water sources with mine waters because of failures in operation of pumping equipment. Overflooding of geologically connected mines, a problem present in the region for a long time (for details, see Supplementary Information 2), leads to increase in the concentration of salts in mine water up to 20–70% (except for chloride) and can double concentrations of organic substances and hydrocarbons[27]. High concentrations of sulfates, chlorides and heavy metals in mine waters pose severe risks for groundwater and surface-water quality (for example, the Kamyshevakha River has become severely polluted by mine waters since 2018; Fig. 3d).

Access to safe water resources and the danger of epidemics

During the armed conflict, water supply infrastructure has been subjected to repeated attacks, with limited time and few opportunities for repair and recovery. By 20 April 2022, the United Nations reported that 6 million people in Ukraine were struggling every day to get access to drinking water, with 1.4 million people being reported to lack access to safe water in the east of the country and another 4.6 million people having only limited access[28]. For the period between March and December 2022, the UN estimates that some 16 million people in Ukraine will need water, sanitation and hygiene assistance[29]. In the city of Mariupol, more than 40% of the water supply system is reportedly damaged, and on 17 May 2022, the World Health Organization raised concerns about the danger of a cholera epidemic in the city due to mixing of sewage and drinking water[30]. In Mykolayiv, the population was left without a centralized water supply for more than a month (Fig. 3e,f), and water supplied with interruptions from an alternative source later had excessive concentrations of chlorides, sulfates and other mineral salts even after treatment[31]. The population of Donetsk is reportedly receiving water for only two hours once every 3–4 days, and all specialists capable of addressing problems with the water system are mobilized in the armed conflict, limiting the ability to repair the system[32]. The Luhansk region, with a pre-conflict population of 2.1 million, was left completely without water supply in the beginning of May, and delivery of water was possible only externally through humanitarian organizations. The lack of access to clean water poses a serious threat of epidemic outbreaks, which was worsened by both extremely hot temperatures observed during the summer in 2022 and reduced capabilities of the medical system[33]. According to UNICEF, children living through prolonged conflicts are more likely to die from water-borne diseases than from the military conflict itself[34].

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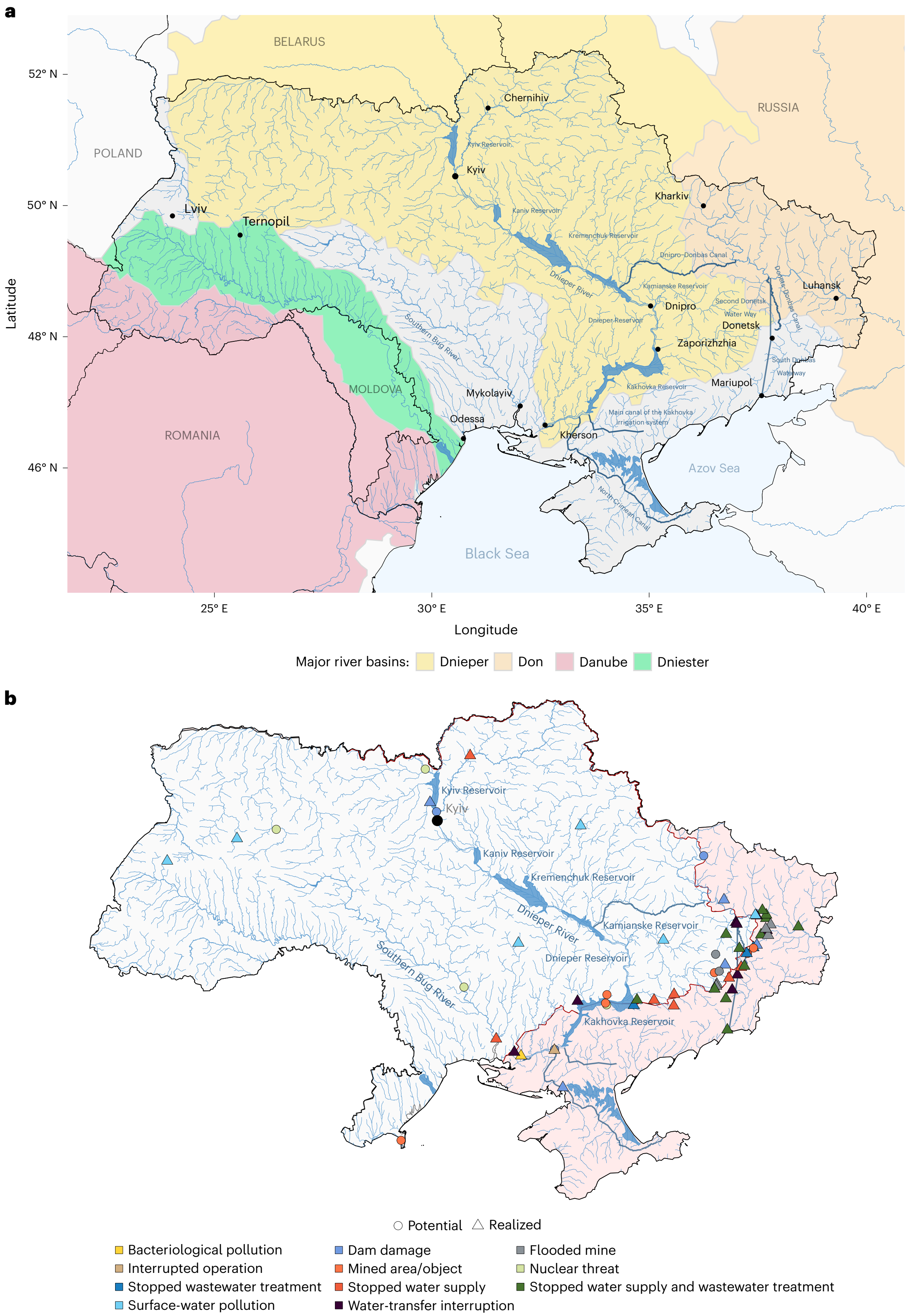

Fig. 2 | The effects of conflict on the water resources and infrastructure in Ukraine. a, Locations of major river basins in Ukraine. **b**, Identified impacts on water resources and infrastructure in Ukraine (18 February 2022–24 May 2022). Red line corresponds to a front-line location after three months of the armed conflict[53]; red area shows parts of Ukraine that are not under control of the Ukrainian government. See Source data for details.

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Fig. 3 | Examples of impacts on water resources and infrastructure in Ukraine during armed conflicts. a, The dam on the Dnieper River near the city of Zaporizhzhia after reportedly being blown up by Soviet special forces in 1941 in an attempt to delay the offence of German troops. **b**, Demolition of the dam on the Irpin River on 26 February 2022 caused flooding near the village of Demidov in the Vyshhorod district of Kyiv region. **c**, Craters formed by shells on the floodplain of the Irpin River. **d**, Water in the Kamyshevakha River polluted by mine waters (picture taken in 2021). **e**, Damaged pipe near Kiselevka village in the Kherson region (picture taken in April 2022). **f**, People in a line for drinking water in Mykolayiv (picture taken in April 2022). Panels adapted with permission from: **a**, ref. [54], Taras Shevchenko National University of Kyiv; **d**, ref. [55], Deutsche Welle; **e**, ref. [56], Korabelov.info; **f**, ref. [57], Novosti-N. Credit: photographs in **b**,**c**, Vincent Mundy.

Caveats and uncertainties

Expert evaluation of reported and projected impacts of armed conflict is limited in many cases by the lack of safe access to affected sites and by possible biases and discrepancies in reporting. However, to a certain extent, consequences of the use or targeting of water systems in conflicts can be estimated on the basis of retrospective analyses of similar impacts on freshwater resources and infrastructure. For example, catastrophic flooding due to damage to the Dnieper HES during World War II and the spread of radionuclides through water as a result of the catastrophe at Chernobyl NPP indicate the spatial extent of potential impacts in cases when large reservoirs or NPPs are affected by military actions. The long-lasting consequences of environmental pollution due to impacts on water infrastructure have been highlighted by an accident of a potash spill into the Dniester River due to overflooding of the Stebnik waste pond in the Lviv region in 1983[35,36]. In this event, more than 3.8 km^3 of highly concentrated waste salts were spilled, raising the salinity of the Dniester River to levels higher than seawater. This event disrupted water supply to millions of people in Odessa, Kishinev and the Tiraspol region, killed hundreds of tons of fish and heavily contaminated the sediments of the river[35,37].

Although modern military technologies can allow precise destruction of localized objects, the damage to industrial targets is not always environmentally local, and many of the attacks have been not precise but general. In highly industrialized Ukraine[38], targeting urban and industrial infrastructure leads inevitably to widespread and severe environmental consequences. By the beginning of June 2022, more than 25 big Ukrainian industrial companies were damaged or fully destroyed. Most prominent are the ammonia producer AZOT, the Coke and Chemistry concern in Avdievka and the centre of metallurgy AZOVSTAL in Mariupol[39]. Port infrastructures in the Black Sea and Azov Sea coastal areas were heavily bombed in Mykolayiv, Odessa and Mariupol.

Other impacts on water resources can be only roughly estimated at the moment, including the threat to regional biodiversity. It has been reported that 14 Ramsar wetland sites covering 400,000 hectares along the coastline and lower reaches of the Dnieper River are under threat[40]. Damage to reservoirs during spring spawning led to mass fish deaths (confirmed for the Oskil Reservoir)[41].

The need for urgent action

Our study on the impacts of the armed conflict on freshwater resources and water infrastructure in Ukraine highlights diverse and long-lasting consequences not only for local populations and ecosystems, but also for progress towards the global Sustainable Development Goals[42].

Catchments cut across political borders and pollutants released into the environment from armed conflicts can spread across national borders. Ninety-eight percent of the catchment area of Ukrainian rivers flows to the Black Sea and Azov Sea, and the remaining 2% to the Baltic Sea. Although the international community has already identified the risk of environmental pollution in the Donbass region in the eastern part of Ukraine since 2014[43], military actions have dramatically intensified and are now taking place in the previously unaffected southern part of Ukraine. This area is important for agricultural activities that depend on an extensive network of irrigation channels. According to the World Food Programme, Ukraine contributed 50% of sunflower oil and 10% of wheat to the total global exports in 2021, being the first and the sixth global producer, respectively[44]. Due to the armed conflict, agricultural production has been substantially reduced, leading to food shortage on the global scale, with countries of Middle East and Africa most affected[11].

A lack of access to safe water and the environmental threats urge prompt action. Priority activities should focus on providing safe drinking water for millions of civilians in the affected areas and protecting civilian water supply and treatment systems. A set of international rules related to protection of the environment and civilian water infrastructure during armed conflicts is defined by the Geneva List of Principles, including especially the 1977 Protocols to the Geneva Convention[4,45]. According to the recent resolution adopted by the United Nations Security Council on 27 April 2021, all parties of the armed conflict are obliged to protect civilians and civilian infrastructure, including water facilities[46]. Nevertheless, multiple cases of attacks on water technicians since the start of the conflict have been reported in Chernihiv, Kharkiv and Mykolayiv, adding to at least 35 water engineers who have been killed or injured in the Donetsk and Luhansk region since 2014[47,48]. We argue that protection of civilian water technicians should be ensured, providing the so-called 'green corridors' for safe access to water infrastructure.

Support by international agencies and partners is needed to provide water-treatment systems that can be used by individual households and to provide temporary access to safe drinking water or assistance in rebuilding and replacing destroyed civilian water infrastructure. For places without current access to safe drinking water, sustainable options should be investigated apart from the temporary and costly option of transporting bottled water. In particular, water-treatment systems should be installed at critical locations such as hospitals, schools and community centres. Individual households could be supplied with individual small-scale filtration systems. In the longer term, options such as desalination should be considered because most of the local surface waters in the southeastern parts of the country are characterized by high mineralization[49] (for example, the current water supply to Mykolayiv from the Southern Bug to replace the damaged supply system from the Dnieper[30]). For settlements that were receiving water from the basin of the Siverskyi Donets River, the option for desalination is even more convincing due to both the proximity to alternative water supply sources and the fragility of water-transfer facilities as has been shown by this armed conflict.

Importantly, environmental monitoring and data collection efforts to better understand the environmental risks are urgently needed. Unfortunately, in March 2022, the Organization for Security and Cooperation in Europe, the official international conflict monitor, announced closure of its Special Monitoring Mission in Ukraine[50]. The mission was enabling the repair and maintenance of the critical civilian infrastructure facilities benefitting civilians on both sides of the contact line in eastern Ukraine since 2014.

The current crisis demands coordinated action from Ukraine and Russia, mediated and facilitated by other countries of the European Union and the United Nations. We recommend that science and management focus on assessing the dynamic state of the environment and water conditions in the zone of the conflict, with the aim to develop effective and prompt approaches for its post-war rebuilding. Although the conflict is still ongoing, freshwater resources and water infrastructure should be protected and maintained because of their central role in supporting basic human needs, health and well-being. Because access to the sites in the zone of conflict is limited, particular attention should be given to spatial mathematical and cartographic modelling using remote-sensing data, which allow efficient use of limited input information. Such an approach can be applied to simulating flooding due to dam breaching under different hydrological scenarios, spread of pollutants from sunken military monitions, effect of land mines on surface and groundwater, predicting quality of subsurface mine waters and their overflow to geologically connected areas, forecast of quantity and quality of water for drinking and irrigation purposes and assessment of the effect on freshwater biodiversity. From a management perspective, we recommend that future studies focus on assessing financial apparatus and the economic dimensions of sustainable water management, on the enforcement of water-related regulations and on identification and evaluation of current and post-conflict needs, facilitating the recovery of Ukrainian water resources and infrastructure.

Methods

Information about the effects of the armed conflict on water resources and infrastructure was collected between 18 February 2022 and 30 May 2022, covering the first three months of the armed conflict. Although the conflict started on 24 February 2022, we included information from one week before due to massive attacks on water infrastructure in the eastern part of Ukraine during this period. Furthermore, because the conflict area occupies almost the same territories, the main results reported here remain fairly actual.

To avoid biased presentation of the information, we cross checked data from governmental and media sources of Ukrainian, Russian and international origin. As a primary source of information, we used weekly reports of the Ministry of Ecology and Natural Resources of Ukraine, reports of the Ministry for Reintegration of the Temporary Occupied Territories and Internally Displaced Persons of Ukraine and reports of the Ukrainian regional war administrations. To search for information from media sources, we used keywords related to reported impacts in Ukrainian, Russian and English languages in Google Search. As a timeline for checking information sources, we defined the period between 15 February and 15 September 2022. We also included information not only reported by the Ukrainian governmental sources, but provided by media sources in different countries, including Russia. For most of the identified events (64 in total), the majority of the information was derived from Ukrainian official governmental and media sources (43 and 56, respectively); less information was available from sources of international and Russian origin (28 and 24, respectively). All references and sources are listed in the Source data file and can be assessed and evaluated by readers if required.

The database on impacts (Source data) consists of three information clusters. First, the cluster on location characteristics contains information about location (for example, name of the region, city, reservoir or mine), including coordinates and dates of impacts, together with information on affected hydrographic sub-basin and main basin, water body and water infrastructure. Second, the cluster related to the type of incident provides a short description of the impact and its status, defined as realized (with documented evidence) or potential (impacts for which high likelihood of the event was documented, but no evidence on irreversible damage had been reported). In addition, each impact is described according to the DPSIR framework (drivers, pressures, states, impacts, responses), which is commonly used to assess and manage environmental problems[51]. Thus, for each impact, we described related drivers, pressures and states and provided an impact description. Due to the ongoing nature of the current conflict and difficulties in obtaining reliable information on the state of water resources or infrastructure, we did not include the category 'response' proposed by the framework. Although other methodological approaches can be applied to analyse the impact of armed conflict on water resources, this framework provides a good balance between a need to collect complex information over a long-term period of conflict duration (for example, used in the social-ecological system framework[52]) and the necessity to include certain analytical assumptions on the dynamic nature of conflict and the operation of water utility companies (for example, such as in the ISO 31000 standard for risk management[49]) or generalize collected information (for example, when impacts on water resources are classified according to Sustainable Development Goals and their specific targets[44]). Finally, the third cluster of the database provides references to Ukrainian governmental sources and media sources, Russian media sources and international sources used in data collection. Cases for which information in the respective informational source was not found are marked with 'NA'. In addition, we collected information on regions of Ukraine left without water supply since the start of the armed conflict in February 2022 (Supplementary Information 1).

Although we aimed to collect and arrange a database that is as comprehensive as possible, it is clear that, given the difficult circumstances intrinsic to an armed conflict, the data that we collected might be incomplete, and our account is an underestimate of the extent of the problem. Certain territories of Ukraine were left without internet access, and therefore adequate data on impacts were not available, or impacts took place in areas where adequate tracking of consequences was not possible. In addition, certain potential impacts could not be confirmed with full confidence.

Reporting summary

Further information on research design is available in the Nature Research Reporting Summary linked to this article.

Data availability

Source data are provided with this paper.

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Author contributions
O.S., K.T., A.S. and P.G. designed the study. O.S., A.S., V.K., K.T. and P.G. collected the information on impacts of freshwater resources and water infrastructure from media sources. P.G. provided additional data from the Water Conflict Chronology. J.A.H.-A. produced Figs. 2 and 3 presented in the manuscript. O.S. wrote the paper with contributions from K.T., A.S., V.K., L.D.M., P.G., G.T., S.S. and J.A.H.-A. All authors participated in reviewing and editing the full manuscript.

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Study description	We collected information on impacts of military actions on freshwater resources and water infrastrcture during the first three months of the Russia-Ukraine armed conflict. The dataset of collected impacts includes information on location charactersitics of recorded impacts, short description of impacts and their status (realized or potential), as well as links to original governmental and media sources from which information was obtained.
Research sample	The collected dataset (provided in the Supplementary Information 1 of the manuscript) consists of 64 impacts of the Russia-Ukrainian armed conflict on freshwater resources and water infrastructure reported in governmental and media sources of Ukrainian, Russian and international origin for the first three months of the conflict (February – May 2022).
Sampling strategy	As a primary source of information we used official reports of the Ukrainian governmental authorities. To avoid bias in the information, all impacts were additionally cross-checked from media sources of Ukrainian, Russian and International origin. To search for information from media sources we used keywords related to reported impacts in Ukrainian, Russian and English languages in Google Search.
Data collection	The data was collected by all co-authors of the study. Information available from governmental and media sources was then classifed according to the pre-defined structure in the excel table.
Timing and spatial scale	Information sources for collection of the dataset of impacts were checked between 24th of February and 15th of September 2022 covering impacts that happened on the territory of Ukraine as recognized in 1991.
Data exclusions	No data was excluded from the analysis. All reported impacts are presented within the dataset.
Reproducibility	This section is not applicable for the data of the manuscript as no experimental work was conducted. The dataset reports impacts of military actions on freshwater resources and water infrastructure. Reported impacts are unique cases and can not be reproduced due to their devastating impact on the environment and human population.
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Blinding	Blinding was not relevant for the current study. In the study our aim was to collect complete and reliable information on impacts on freshwater resources and infrastructure, without excluding any cases.

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