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Ukrainian dam breach: What is happening and what's at stake

Прорив української дамби: що відбувається та що поставлено на карту

Експерти попередили про можливість екологічної катастрофи для дикої природи та екосистем в Україні та за її межами після підриву Каховської ГЕС. За словами професора фізичної та екологічної географії Королівського коледжу Лондона М. Маллігана, величезне водосховище виснажиться, а мілини вгору за течією висохнуть, що завдасть значних екологічних збитків водній рослинності та дикій природі, які покладалися на воду протягом семи десятиліть. За його словами, швидкий приплив прісної води в Чорне море може також завдати шкоди рибальству та ширшій екології північно-західної частини моря. Український військовий аналітик О. Жданов сказав, що повинь ще більше ускладнить переправу через річку, зазначивши, що це торкнеться мінних полів на підконтрольному росії східному березі. На його думку, мінні поля були затоплені, міни будуть змиті, і ніхто не знає, де вони спливають.

<https://www.thestar.com/news/world/europe/2023/06/06/ukrainian-dam-breach-what-is-happening-and-whats-at-stake.html>

KYIV, Ukraine (AP) — The dramatic rupture of the dam that upheld Ukraine's largest reservoir released a torrent of water Tuesday, raising fears of widespread damage and flooding in areas where tens of thousands of people live.

It's not clear what caused the breach in the Kakhovka dam, which was already damaged. Ukraine accused Russian forces of blowing up the facility, while Russian officials blamed Ukrainian military strikes.

WHY IS THE DAM IMPORTANT?

The 30-meter-high (98-foot-high) dam and associated hydroelectric power station sit in Russian-controlled territory along the Dnieper River about 70 kilometers (44 miles) east of the city of Kherson — a flashpoint of Russia's war in Ukraine.

MORE ON THE DAM BREACH

– Collapse of major dam in southern Ukraine triggers emergency as Moscow and Kyiv trade blame

– Wheat prices rise following collapse of major dam in southern Ukraine

Together with the power station, the dam helps provide electricity, irrigation and drinking water to a wide swath of southern Ukraine, including the illegally annexed Crimean Peninsula.

Ukraine's vast agricultural heartland, which is partially fed by the Dnieper river, is a crucial to worldwide supplies of grain, sunflower oil and other foodstuffs. Global wheat prices rose Tuesday on concerns that production might be disrupted.

The reservoir created by the dam holds some 18 million cubic meters (4.8 billion gallons) of water — a volume nearly equivalent to that of the Great Salt Lake in the United States. Those waters supply cooling systems at the Zaporizhzhia nuclear power plant, where fighting has repeatedly raised fears of catastrophic accident.

WHAT HAS HAPPENED TO THE DAM DURING THE WAR?

Russia has controlled the dam since the early days of the war, and Moscow and Kyiv accused each other of shelling it. Ukraine said that last fall, the troops occupying it detonated explosives that damaged three sluice gates, which help regulate water levels when operated properly. Signs of damage to the gates were evident in late May.

Even before the devastation wrought by Tuesday's breach, hydropower generation was at a fraction of peak levels. Ukrainian officials and independent experts say Russian forces have failed to maintain the dam — built in the 1950s — either deliberately or through neglect.

Earlier this year, water levels in the reservoir were so low that many across Ukraine and beyond feared a meltdown at the Russian-occupied Zaporizhzhia nuclear power plant. Since mid-February, the water level has steadily increased, according to data from Theia, a French geospatial analytical organization.

The Ukrainian government-backed company that manages the dam and power plant estimates that it will take about four days for the reservoir to reach equilibrium and stop discharging massive amounts of water.

WHO AND WHAT IS AT RISK?

As floodwaters swelled, both Russian and Ukrainian authorities have ordered evacuations of towns and villages, though neither side reported any deaths. Officials said about 22,000 people live in areas at risk of flooding in Russian-controlled areas, while 16,000 live in the most critical zone in Ukrainian-held territory.

Ukraine's Energy Ministry said there is a risk of flooding at energy facilities in the Kherson region. Nearly 12,000 consumers in the city of Kherson have already been left without electricity, and water supplies are also at risk.

Upstream, riverbanks extended as water levels dropped. At the Zaporizhzhia plant, Europe's largest, the Ukrainian utility operator and the U.N. atomic energy agency said the situation was under control and there was no immediate risk to safety.

Experts warned about the possibility of an environmental disaster for wildlife and ecosystems — in Ukraine and beyond. The dam was one of the biggest in the world in terms of reservoir capacity.

The biggest impact of the breach is likely to be upstream, said Mark Mulligan, a professor of physical and environmental geography at King's College London and co-leader Global Dam Watch, a project that collates information on dams and reservoirs.

“This huge reservoir is going to drain down and the shallows upstream are going to dry out,” causing significant ecological damage to aquatic vegetation and wildlife that have relied on the water for seven decades, he said. The rapid flow of freshwater into the Black Sea could also damage fisheries and the wider ecology of the northwest part of the sea.

WHAT DOES IT MEAN FOR THE WAR?

Ukrainian officials said that the Russians destroyed the dam to prevent Ukraine from launching a counteroffensive in the area.

Russian Defense Minister Sergei Shoigu claimed that it was Ukraine that destroyed the dam to prevent a potential Russian attack on the western bank.

Either way, the destruction of the dam severs a key crossing of the country's most important river. The dam served as a bridge, enabling vehicles to pass over; its destruction also unleashed torrents of water that make it harder to cross the river by other means.

Since last fall, the lower portion of the Dnieper has made up an important part of the frontline that stretches more than 1,000 kilometers (620 miles) between Russian and Ukrainian forces.

The crossing repeatedly came under rocket fire as Ukrainian forces led a successful counteroffensive in November that drove Russian forces back across the Dnieper.

Ukraine's military has used groups of scouts to try to gain control of small islands near the Russia-controlled eastern bank and areas in the river's delta. But experts say a broader offensive would involve major risks and logistical challenges.

Crossing the wide river was always seen as a daunting task for the Ukrainian military, and most observers expected it to launch a counteroffensive in other sectors of the front.

Ukrainian military analyst Oleh Zhdanov said that the flooding would make crossing the river even more difficult, noting that it would impact the minefields on the Russia-controlled eastern bank. "Minefields were flooded, mines will be washed off and no one knows where they will surface," he said. _____