When planning nuclear waste sites in Canada, consider Ukraine’s potential nuclear crisis

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TRENDING:

When planning nuclear waste sites in Canada, consider Ukraine’s potential nuclear crisis

As more countries learn from the Ukraine war, the risk is that many inter-related problems surrounding nuclear power beset future generations for thousands of years.

An aerial view of the Bruce Nuclear Generating Station—the world’s largest nuclear generating station—on the shore of Lake Huron, near Kincardine, Ont. Photograph courtesy of Wikimedia Commons

OPINION | BY ERIKA SIMPSON | July 6, 2023
Nuclear reactors need cooling water to prevent nuclear accidents. That’s why the largest operating nuclear generating station in the world—the Bruce reactor in Ontario—was constructed on the shore of Lake Huron, and the Pickering and Darlington reactors were built on the shore of Lake Ontario.

Canada’s Nuclear Waste Management Organization (NWMO) is considering a proposal to bury all of our nation’s high-level nuclear waste in a borehole in Teeswater, Ont.,—situated in the Great Lakes water basin—or in Ignace, Ont., which is located on rivers that drain into the Hudson’s Bay water basin.

As seen in Ukraine, humankind’s future could be adversely affected by warring parties that take advantage of nuclear power plants in order to instil fear and foreboding about nuclear meltdowns that could possibly be worse than the accidents at Chernobyl and Fukushima. Both Russia and Ukraine accused each another this week of plans to attack and potentially explode Ukraine’s Zaporizhzhia Nuclear Power Plant (ZNPP)—the largest in Europe, and currently occupied by Russia since 2022.

The International Atomic Energy Agency (IAEA) is aware of reports of mines having been placed near the ZNPP’s cooling pond. The IAEA director general Rafael Mariano Grossi travelled with a team of IAEA experts to the facility for a third time last month. “With military activities and tension intensifying in the area” and the explosion of the Kakhovka dam “further complicating the facility’s extremely challenging nuclear safety and security status,” the team saw first-hand that the Kakhovka reservoir had drained, he said.

The IAEA team advises the plant’s large cooling pond and different channels at or near the site hold sufficient reserves to
be able to provide cooling water in the short- to medium-term in case the reservoir can no longer be used. Unfortunately, the IAEA is the only international organization that can provide independent and neutral assessments of the ZNPP’s safety and security. There are limits to the team’s access to the site, and reports according to Ukrainian officials are that Russia has mined the facility, and either Russia or Ukraine carried out drone attacks on the power supply switchyard.

At the same time as the plant copes with water-related scarcity, the ZNPP depends on a single 750 kilovolt power line for the electricity it needs for essential functioning, compared to the four power lines it used before Russia’s attack on Ukraine. According to the IAEA’s most recent public statement on June 21, the ZNPP lacks back-up power if the single line is lost.

The IAEA team saw significant damage and also remnants of parts of drones that had targeted the area. “Now more than ever, all sides must fully adhere to the IAEA’s basic principles designed to prevent a nuclear accident,” Grossi stated in a June 21 statement.

Observers in Canada may jump to the conclusion that a nuclear meltdown could poison all of Europe for thousands of years—and it is not worth our lives so that Ukraine can be whole—but we need to pay careful attention to Grossi’s assessment that “while the presence of any explosive device is not in line with safety standards, the main safety functions of the facility would not be significantly affected.”

Nevertheless, questions remain about what could happen if the water at the Kakhovka reservoir continues to recede. In light of the lessons learned from the ZNPP debacle, the design of all
nuclear reactors and disposal facilities should prioritize the protection of water, particularly large water basins.

In future, long-term caretaking of reactors and disposal facilities needs to be internationally monitored as well as nationally ensured. Consent from local communities in whose territory future facilities will be planned must be obtained through democratic processes. In Canada, Indigenous Peoples must be consulted, and must be able to exert a veto because their water basins and livelihoods could be affected for more than seven generations into the future.

Ukrainians near the ZNPP site must wish they could have vetoed the Soviet Union’s decision to build the facility back in 1980. The six Soviet-designed water-cooled reactors contain uranium 235 with a half-life of more than 700 million years, according to Reuters. Due to the war, all six reactors are in cold shutdown; however, electrical pumps still must somehow move precious water through the reactor cores to cool the fuel.

Canada’s NWMO submitted its recommendations for an Integrated Strategy for Radioactive Waste to our minister of natural resources on June 30. The NWMO claims it engaged for two years (during the COVID–19 pandemic) on issues surrounding what to do with nuclear waste including high-level waste that will remain dangerous for hundreds of thousands of years. Yet what the NWMO recommends regarding high-level waste still remains unclear. Whether all the waste should be buried or stored above ground until humankind develops new technologies that ensure it is not reusable remains an unanswered scientific and technical question. How might it be transported on Canada’s highways
and disposed of so that it is not a credible soft target attracting the interest of warring parties is an unanswered dilemma.

The NWMO’s new strategy recommends that intermediate-level waste and “non-fuel, high-level waste from medical isotope production” be disposed of in a deep geological repository. Where will such a depository or depositories, and the high-level waste, and the waste from proposed Small Modular Reactors (SMRs) be buried if SMRs are indeed successfully developed and distributed in remote areas?

The answers to these sorts of questions, and related consent-based siting processes, should involve all Canadians. As more countries learn from the Ukraine war, the risk is that many inter-related problems surrounding nuclear power beset future generations for thousands of years.

Erika Simpson is a professor of international politics at Western University, the president of the Canadian Peace Research Association and the author of many articles on nuclear issues available on Western University’s expert gallery.

Friday, June 30, 2023 | Latest Paper

**Prigozhin’s mad race to Moscow a pivotal event and it’s shaken Russia to its core**

The failed rebellion portends that Putin will lose his grip on power, that Russia could become even more of a pariah rogue state, and that its military could redeploy
forces from the southern front in the Ukraine conflict around Moscow, well distant from a potential second front based in Belarus.

Russian President Vladimir Putin, left, Wagner Group leader Yevgeny Prigozhin. Caught in a prisoner’s dilemma—with no satisfactory choices—Prigozhin is a former convict who led a private army including thousands of prisoners who remain desperate with little to lose, writes Erika Simpson. Photographs courtesy of Wikimedia Commons/illustration by Neena Singhal

OPINION
BY ERIKA SIMPSON
June 29, 2023

LONDON, ONT. — Mercenary fighters moved within Moscow’s perimeter on June 24 before turning back to field camps. Their calculated retreat was directed by the head of the Wagner Group, Yevgeny Prigozhin, who then accepted refuge in Belarus, where he could shape negotiations with a strong hand because he commanded an army of more than 25,000 desperate men, confronted with the choice of either signing up for military duty under Russian rule, returning to jail, or being charged with treason.
Caught in a prisoner’s dilemma—with no satisfactory choices—Prigozhin is a former convict who led a private army including thousands of prisoners who remain desperate with little to lose. Experienced fighters, they took on the 16-month Ukraine war, and saw first-hand the lack of Russian support, the incompetence of Russian generals, and how Russia withheld ammunition.

Prigozhin accused Russia’s military of hitting civilian targets from the air to slow the advance of the Wagner Group’s “march for justice.” Russian President Vladimir Putin held talks by phone with Belarus leader Alexander Lukashenko, Uzbekistan leader Shavkat Mirziyoyev, and Kazakhstan President Kassym-Jomart Tokayev, according to the Kremlin press secretary.

NATO ally and Turkish President Recep Tayyip Erdogan spoke by telephone with Putin, and urged him to act with common sense. Putin called the Wagner Group’s action “treason” in an emergency televised address, and said anybody who took up arms against the Russian military would be punished.

Whether the Wagner Group’s para-military forces could continue to work alongside the Russian military was doubtful because security forces were prepared to defend Moscow against them, citizens were advised not to travel around the capital city, and to refrain from returning to work on June 26.

Internationally, worries were that Ukraine might attempt a stronger counteroffensive, and the West might help them even more, leading to rebel forces taking control, somehow, of Russian nuclear forces or the president making a grave strategic error. U.S. President Joe Biden retreated to Camp David for consultations after telephone calls with allies.
Ukrainian supporters rejoiced at their sudden psychological advantage, as Russians seemed to realize they could no longer accept Wagnerian forces as trustworthy. The Wagner Group had conquered Bakhmut for Russia—a short-term victory that will still entail Russian troops defending the decimated city for years into a dismal future.

In the midst of chaos and fighting, Russia’s foreign ministry warned Western countries against any attempt to use the internal situation to achieve so-called Russophobic aims: “such attempts are futile and evoke no support either in Russia or among soberly-minded political forces abroad.” Was Putin’s inner circle still in charge, after 23 years of corrupt power-sharing? Prigozhin’s race toward Moscow was inexplicably mad and crazy; however, it demonstrated how mercenary troops could invade the Motherland unchallenged and possibly enter the capital.

Any armed mutiny must be crushed, but that outcome will be daunting because Russia has used up men and ammunition fighting Ukraine. Russian parents must worry whether their sons will be used as cannon fodder on multiple warfronts now that Putin is openly battling his former crony’s battle-hardened forces, as well as Ukraine’s stalwart sons.

Reports were that one convoy almost reached Moscow having already captured the million-strong city of Rostov—the 10th largest city in Russia—and the headquarters of the Southern Military District, as well as the supply centre for Russia’s attack on Ukraine. The fact it moved so far northwards with little resistance means Prigozhin’s plan had already garnered serious support among members of the Russian regular army, or they had moved the greater part of 1,100 kms (680 miles)
toward heavily-fortified Moscow, but turned back to avoid bloodshed.

Moscow would not have fallen quickly—like Kabul did in Afghanistan—because, assuredly, the members of the Russian National Guard would not take off their military uniforms and hide in their basements? It may be the mutiny was not planned from the beginning as a coup. Still, it must be seen as a pivotal event—like the attack on Washington’s capitol on Jan. 6, 2021,—that shakes Russians to their core.

If Ukraine launches an attack on Crimea now it might mean Putin could cite an ‘existential threat’ and resort to using tactical nuclear weapons. Some rabid Russian generals and academics talk about climbing the ladder of nuclear escalation and threatening their use. And the decision to deploy tactical nuclear weapons to Belarus lends credence to fears that Russians could use nuclear weapons either on purpose or accidentally due to misperception and miscommunication.

Putin’s televised addresses from the Kremlin emphasized Russia’s existence was under threat, and that Russians would continue to fight for their state with its thousand-year history. In an audio message, Prigozhin replied that—as patriots of our motherland who fought and are fighting for it—“We don’t want the country to continue to live in corruption, deceit and bureaucracy.”

The corruption narrative can be entrancing, and it is unlikely the Wagner Group would have made such a rapid move toward Moscow without hidden support from key generals who similarly question the elite’s corruption and Putin’s stronghold grasp. That the Wagner Group took over Rostov without bloodshed— the main logistical hub for Russia’s entire invasion force against Ukraine—and Wagner fighters were able
to take up positions in armoured vehicles and battle tanks while citizens calmly filmed the take-over — means that although Red Square in Moscow was blocked off by metal barriers, the collective Russian mind-set could also be blocked by growing doubts and paranoia about attacking Ukraine.

Russians must be reflecting on the long distance from southern Rostov northwards to Moscow, and the fact the mercenaries passed through another city, Voronezh, halfway en route. Did Russian helicopters fire upon the country’s roads, risking civilians? How were three Russian helicopters reportedly downed?

The failed rebellion portends that Putin will lose his grip on power, that Russia could become even more of a pariah rogue state, and that its military could redeploy forces from the southern front — where they are currently fighting against southern and eastern Ukraine — around Russia’s capital, well distant from a potential second front based in Belarus.

Erika Simpson is a professor of international politics at Western University, the president of the Canadian Peace Research Association and the author of Addressing Challenges Facing NATO and the United States Using Lessons Learned from Afghanistan and Ukraine and Addressing Challenges Facing NATO Using Lessons Learned from Canada.

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