Assessing the possible safety issues in the second nuclear era

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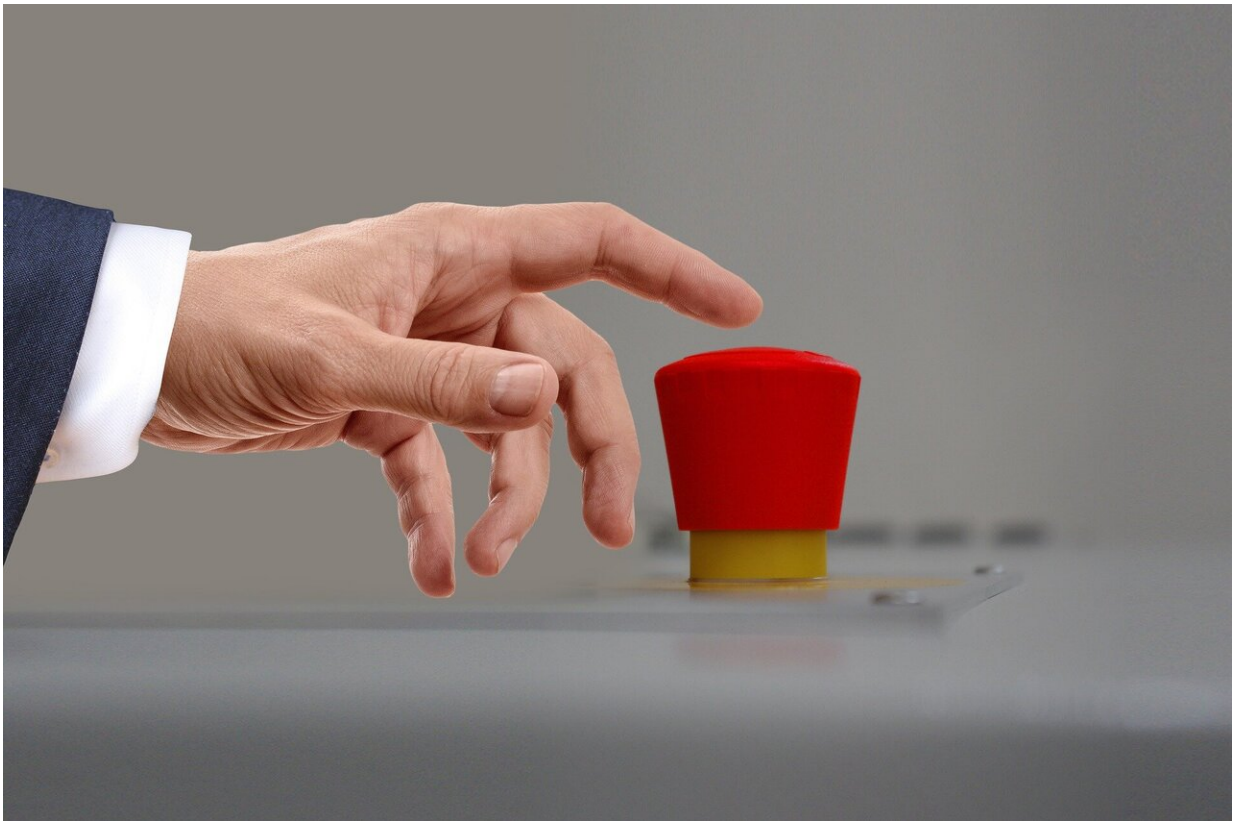

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A team of researchers with the Chinese Academy of Sciences has carried out an assessment of possible safety issues tied to the rise of the second nuclear era. In their paper published in *Proceedings of the*

National Academy of Sciences, the group describes the factors that led to the rise of a second nuclear era and possible safety concerns that need to be addressed.

With the advent of the nuclear science that led to the atom bomb, there also came the development and construction of nuclear power plants. This period is described by the researchers as the first nuclear era—and the major players were mostly highly developed countries such as the U.S., Japan, France, Germany and the U.K. They note that initially, hopes were high in such countries that nuclear power would solve the looming energy crisis. But then accidents happened: TMI, Chernobyl, Fukushima. This led to the deceleration of new installations and plans to get rid of some or all of the plants that were already built—and to focus instead on safer power sources such as solar and hydro. But now, the researchers claim, a new nuclear era has begun—this time, driven by less-developed countries such as India and China, and to some degree, Russia. The researchers suggest this new, unexpected second nuclear era is fraught with great risk. They note that despite efforts by the parties involved in implementing nuclear power plants in the first era, major accidents occurred. They further note that recent history suggests that safely producing nuclear energy has still not been fully realized. In their paper, they outline some of the safety issues involved with the second nuclear era.

The researchers note that unlike most advanced countries, less-developed countries suffer from poor infrastructure and the means for safely maintaining a complex nuclear plant. They also note that the laws in some of the countries developing nuclear plants are less stringent, and that there is more corruption. They also note there is often less political stability. And there are differences in social values regarding risk and the need for safety practices. They also note that many such countries do not have well-established communications channels between those operating nuclear facilities and the public at large. The recent nuclear accident in

Russia highlights why such communications are needed—to protect those in the path of radiation leaks.

More information: Yican Wu et al. Nuclear safety in the unexpected second nuclear era, *Proceedings of the National Academy of Sciences* (2019). DOI: 10.1073/pnas.1820007116