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**Topic of Research: <u>Nuclear Terrorism: A Study of a Threat to Global Peace in the 21<sup>st</sup> Century</u>**

## Findings

This research has unveiled critical insights into the evolving landscape of warfare and terrorism, alongside the growing concerns surrounding nuclear security and the implications of emerging technologies. The key findings of this study are summarized below:

**Evolving Landscape of Warfare and Terrorism:**

- There has been a transformation in warfare dynamics, with non-state actors gaining influence and eroding the distinction between combatants and non-combatants. This shift has led to the obliteration of traditional battlefield boundaries and the introduction of innovative warfare methods.

- Terrorism has evolved, particularly in the 21st century, becoming more lethal and destructive. Tactics such as suicide bombings and the use of various weapons are aimed at maximizing destruction.

- Despite efforts that have degraded terrorist organizations like Al Qaeda and ISIS, the resurgence of the Taliban in Afghanistan highlights the potential for new terrorist entities to emerge, possibly aiding in the resurgence and reorganization of extremist groups. This presents an underlying uncertainty with no definitive guarantee against such developments in the future.

**Nuclear Security Concerns:**

- The rapid increase in the build-up of nuclear fissile material within civilian inventories calls for strategies to restrict the proliferation of separated nuclear material and promote non-weapon-usable alternatives in nuclear technology.

- Countries with nuclear materials face challenges in addressing security concerns, especially during periods of instability. Prioritizing nuclear security and enhancing plant resilience are crucial for safeguarding nuclear facilities against insider risks and fostering a security culture.

- The development of technologies like deep fake technology and 3D printing poses new challenges by enabling the manipulation of information and the unauthorized manufacturing of nuclear components, respectively. This exacerbates the nuclear terrorist threat landscape.

**Impact of Emerging Technologies:**

- The widespread adoption of sophisticated technologies, such as drones and Artificial Intelligence (AI), has heightened the complexities associated with nuclear security. Drones increase the vulnerability of critical nuclear facilities to potential attacks, necessitating effective counter-drone strategies.

- AI's role in advanced cyberattacks and information gathering targeting critical nuclear infrastructure highlights the need to incorporate AI-based security measures to protect against cyber risks and breaches.

- The expansion of the dark web facilitates the covert transfer of confidential information and resources related to nuclear technologies, further complicating the nuclear security scenario.

**International efforts to combat nuclear terrorism:** - There are some gaps in the international efforts to curb nuclear terrorism, like;

- Adherence to the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment shows improvement, but compliance issues remain with some nations.

- Countries in the Global South have made notable progress in nuclear security but have yet to ratify the updated CPPNM.

- Support for the IAEA's role in nuclear security is inconsistent, necessitating nations to contribute resources and participate in committees and conferences to enhance the agency's credibility.

- Consensus on critical issues like the NPT Review Conference and nuclear disarmament remains challenging, underlining the need for collaboration among powerful nations to maintain the non-proliferation framework's integrity.

The study's findings reveal a multifaceted security environment characterized by the evolution of warfare and terrorism, nuclear security challenges, and the disruptive potential of emerging technologies. The unpredictable nature of these dynamics, coupled with the rapid pace of technological advancements, necessitates a proactive and adaptive approach to global security.