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Ukraine War and Nuclear Proliferation Implications for Resilience

White Paper

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With a foreword by:
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FOREWORD

Nuclear technology is both the single biggest opportunity for, and most significant threat to, humanity.

Recent innovation in nuclear fusion paves the way for a safer, greener, energy-resilient global future. The events of the last 12 months have shone a spotlight on the world's unsustainable reliance on unstable fuel sources and the need for an alternative. But these same events have simultaneously highlighted the vulnerability of expanding nuclear energy production into less stable sovereign states.

The irresponsible targeting of active nuclear power stations in Ukraine could yet have catastrophic implications, not just for the immediate vicinity, but for the whole of mainland Europe. Perhaps intentionally, this deliberate provocation could understandably deter the West from supporting nuclear expansion in what it may consider less stable sovereign states, despite the obvious benefits of doing so.

These risks, of course are but a preamble to the threats emanating from the Kremlin of nuclear weapon deployment; the continuing programmes underway in Iran and North Korea; and the risks of 'dirty' bombs – exemplified by the recent detection of radioactive material in the hold of an aircraft at Heathrow Airport. Indeed, the Science and Security Board of the Bulletin of the Atomic Scientists has moved the hands of the so-called Doomsday Clock to the closest they have ever been to midnight.

Does all this mean that we shouldn't pursue the safer, greener future offered by nuclear power, or resign ourselves to the Armageddon offered by the Doomsday Clock? Of course not. But it certainly shows that we have a deal of work to do to deliver resilience structures around new and existing nuclear facilities and to mitigate against fallout, whether accidental or deliberate, local or international.

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Conservative MP for the Isle of Wight and sits on the Foreign Affairs Committee.
He has a PhD from King's College London in Russian military strategy.

UKRAINE WAR AND NUCLEAR PROLIFERATION

IMPLICATIONS FOR RESILIENCE

The threat of nuclear proliferation is no longer confined to the history books. In the Summer of 2022, the tenth Nuclear Non-Proliferation Treaty Review Conference took place. For the first time since the end of the Cold War, the threat of nuclear attack, deliberate vandalism or accident is genuinely at the forefront of the political agenda. The New START Treaty came into force in 2011 and caps the number of strategic nuclear warheads that the United States and Russia can deploy, and the deployment of land and submarine-based missiles and bomber delivery systems for them.

However, Russia has pulled out of the New START nuclear talks in Cairo. And following its invasion of Ukraine in February 2022, Russia has also been threatening Ukraine and the NATO alliance with nuclear weapons and 'dirty' bombs. Elsewhere, Iran claims to be nuclear weapon capable and North Korea has an ambition to do the same. UN President Antonio Guterres has warned that "humanity is just one misunderstanding, one miscalculation away from nuclear annihilation."

At this time of nuclear proliferation and heightened threat, it is crucial that sufficient checks and balances are in place to ensure that mistakes or miscalculations do not trigger a nuclear conflict and to improve national resilience in the face of such a challenge within the UK and its allies.

Nuclear power is the cornerstone of the green energy/net-zero/low-carbon power revolution, especially with recent innovations in fusion, but in the wider public perception, nuclear energy is indistinguishable from nuclear weaponry. Concerns abound that the rhetoric around nuclear risk may deter investment in the technology and mute public enthusiasm. But the public now need educating in resilience, as the risk re-emerges of a nuclear incident, either through deliberate act or accident

WILL RUSSIA GO NUCLEAR IN UKRAINE?

Russia's Defence Minister, General Sergei Shoigu says Russia is to pay 'special attention' to the construction of new bases and infrastructure for nuclear weapons. "When preparing the list of major construction facilities for 2023, special attention will be paid to construction in the interests of the strategic nuclear forces," as quoted by the RIA news agency.

However, the West should not just be alert to Russian investment in new nuclear military infrastructure, but more urgently the risk of an unintentional radiological incident caused by careless behaviour. In the early weeks of their invasion, Russian forces disturbed some of the contaminated ground within the Chernobyl exclusion zone. They are also using the largest nuclear power station in Europe, Zaporizhzhia, as a base from which to launch missiles around Ukraine. This behaviour is reckless in the extreme and could cause another globally significant nuclear accident.

Today, Ukraine is second only to France in its use of nuclear energy, sourcing 62-82 per cent of its power in this way before the war. Its power stations need to be protected and the public educated and trained in both the benefits of nuclear energy and the importance of resilience if things go wrong.

The reaction of the West in supporting Ukraine sends an important message more widely. By challenging the belligerence of one nuclear power (Russia), this sends a powerful message to others, not least Iran and North Korea, where the reaction of the NATO allies is being watched closely. Honoring Ukraine's Non-Proliferation Treaty commitment sends an important message.

The use of nuclear weapons in Ukraine has hitherto been unthinkable; but Russia keeps doing unthinkable things. Whilst no one is sure if Russia is bluffing, it is essential to prepare in case Russia is not.

The illegal annexation of parts of Ukraine into Russia could be used by them to justify nuclear deployment to these areas, in protection of the Russian state. It is even possible that Russia could launch a strike with tactical nuclear weapons if defeat is likely. They may decide to execute a nuclear 'demonstration' perhaps in the Black Sea or create an improvised nuclear device by attacking a nuclear power station.

While catastrophic Ukrainian defeat is less likely now than it was 12 months ago, due to the the fighting spirit and will of the Ukrainian people and the support from NATO and the western allies, the possible recapture of regions such as Crimea or Donbas, which would be a strategic defeat for Russia, could be used as justification by them for nuclear deployment. A protracted conflict could also precipitate nuclear escalation. So the need to build resilience among the civilian population is timely and increasing in importance.

HOW DO WE IMPROVE NUCLEAR RESILIENCE IN THE WEST AND UKRAINE?

- There is an established need for protections and mitigations in the event of either nuclear weapon deployment, or leaks or damage to nuclear facilities. This can be delivered by greatly expanding nuclear radiation detection capabilities to give actionable intelligence to decision makers.
- Public information campaigns are also necessary on all types of social media. The app-based training courses available to all civilians in Ukraine via Telegram show how knowledge can be imparted to the population in a simple digestible format.
- The handling of the incident at Fukushima involved non-optimised decision-making because of a shortage of quality data. Good quality and timely data, equals good quality decision-making,

- The Chernobyl incident was made even worse by the absence of communications about the danger to civilians, which greatly increased the casualties.
- There is a role for the private sector to work alongside public sector in delivering UK-wide, regional resilience.
- The current UK local resilience forum model is a start but requires development to meet the heightened threat.
- Develop and roll out a comprehensive monitoring system to prepare for either military or civilian – either deliberate or accidental - nuclear release and contamination, and work with allies, especially in Eastern Europe and Scandinavia, to review how they detect and monitor radiation. This monitoring and detection system should be rolled out across Europe and networked across governments. As the use of nuclear power grows, this system should be expanded to cover the globe.
- Enhanced political support across the west and United Nations for the Nuclear Non-Proliferation Treaty.

At this time of nuclear proliferation and heightened threat, it is crucial that all the checks and balances are in place to ensure that mistakes or miscalculations do not trigger a nuclear encounter, and NATO must work directly with Russia to ensure this. The Nuclear Non-Proliferation Treaty has always been the best mechanism to contain this threat but it needs our undivided attention, amongst the multiple other issues on which our politicians are currently focused. The war in Ukraine and the nuclear conundrum must be resolved as the priority by our leaders; if not everything else vexing us at the moment will simply be irrelevant.

Ukraine and Ukrainians have adapted to the challenges of conflict. Are we confident that the UK could adapt in such a way?

About the Authors

Dr Bob Seely MP

Conservative MP for the Isle of Wight and member of the Foreign Affairs Committee

Bob Seely is Conservative MP for the Isle of Wight and sits on the Foreign Affairs Committee. He has a PhD from King's College London in Russian military strategy.

From 2008 onwards, he has served in the UK Armed Forces and was mobilised or placed on Full Time Reserve Service (FTRS) for nearly a decade until his selection as a parliamentary candidate in the 2017 election, at which time he resigned his full-time service and returned to the Army Reserve.

Bob was initially mobilised in 2008, deploying to Iraq. He served out of the main operating base at Basra Airport. Over eight months (parts of Op TELIC 12 and 13), he deployed on over 20 operations during his tour, mainly focused on extended patrolling through the villages around the southern Basra marshes and parts of Basra city, meeting local village elders and providing atmospherics reporting for the UK Command. After his tour Bob was remobilised and asked to remain in the Armed Forces on full-time service. He deployed on four occasions to Afghanistan for one to four month tours. He was based out of Lashkar Gah, and Nad Ali.

Bob has been a research associate at the Changing Character of War Programme at the University of Oxford. He is an occasional blogger on Russian / Ukrainian issues, hybrid war, unconventional and new forms of war. He has contributed to the King's College War Studies blog, Oxford Politics Department blog, The Washington Post's social sciences blog and the Journal of the Royal United Services Institute. Bob's most recent peer reviewed article attempts to provide a comprehensive definition for contemporary Russian warfare. Bob has also supported the development of UK military thinking in unconventional warfare.

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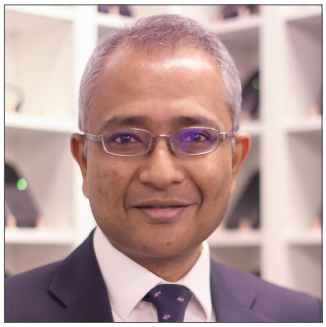
Hamish de Bretton-Gordon is a world leading expert in Chemical and Biological weapons. He is also a director of the NGO 'Doctors Under Fire' and an advisor to the Syrian Medical charity UOSSM. Hamish is a commissioned reserve officer in the Army's Staff Corp as senior advisor and mentor to the MOD on CBRN.

Hamish served 23 years in the British Army including service as Commanding Officer of the UK CBRN Regiment and NATO's Rapid Reaction CBRN Battalion. His operational deployments included the 1st Gulf War, Cyprus, Bosnia, Kosovo, Iraq and Afghanistan and he has been in Syria and Iraq frequently in the last 10 years. This considerable experience in the field places Hamish as one of the world's leading and most current experts in chemical and biological counter terrorism and warfare.

Hamish has worked in Syria during the current conflict setting up the CBRN Task Force and advising medical charities, the White Helmets and the Idlib Health Directorate on treating the victims of chemical weapons attacks and collation of evidence. He advised the Peshmerga 2015-17 on CBRN matters and trained them on several occasions to counter the ISIL chemical attacks in Northern Iraq.

Today Hamish gives advice to UK and US Government agencies and is a senior MOD advisor on CBRN and Syria, and is frequently seen on global news channels providing expert commentary, and writes in UK, Middle East and US news journals and newspapers. He is the Distinguished Visiting Fellow at Magdalene College Cambridge in 20/22 and his memoir 'Chemical Warrior' was published Sep 20.



Dr Arnab Basu

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Arnab is the founding CEO of Kromek Group plc, a leading developer of radiation detection and bio-detection technology solutions for the advanced imaging and CBRN detection segments. Headquartered in County Durham, UK, Kromek has manufacturing operations in the UK and US, delivering on the vision of enhancing the quality of life through innovative detection technology solutions.

In CBRN detection, the Group provides nuclear radiation detection solutions to the global homeland defence and security market. Kromek's compact, handheld, high-performance radiation detectors, based on advanced scintillation technology, are primarily used to protect critical infrastructure and urban environments from the threat of 'dirty bombs'.

The Group is also developing bio-security solutions which consist of fully automated and autonomous systems to detect a wide range of airborne pathogens.