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The "Absolute Weapon" at 80: Confronting the Perils of Proliferation

Bernard F.W. Loo

RSiS S. RAJARATNAM SCHOOL OF INTERNATIONAL STUDIES
Nanyang Technological University, Singapore

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SYNOPSIS

Eighty years after the Hiroshima atomic bombing, nuclear weapons continue to threaten global peace and security. If anything, new developments in horizontal and vertical proliferation may exacerbate the challenge.

COMMENTARY

Eighty years ago, on 6 August 1945, the world entered the nuclear weapons age with the atomic bombing of Hiroshima, followed three days later by another atomic bomb being dropped over Nagasaki. The American strategist Bernard Brodie subsequently called nuclear weapons "the Absolute Weapon", which is also the title of arguably his most famous book, published in 1946. Eighty years later, the world continues to live under the threat, however small, of a nuclear war that will likely have devastating consequences for everyone.

For a few years, the United States "enjoyed" a nuclear monopoly, which became a duopoly on 29 August 1949, when the former Soviet Union conducted its first nuclear weapons test. Since then, the world has witnessed a growth in the number of nuclear-weapons states – that is, horizontal proliferation – with Britain, France, the People's Republic of China (PRC), and, more recently, India, North Korea and Pakistan joining the club. Israel is, allegedly, another member. In the past, Iraq, Libya, South Africa and South Korea were at least suspected of entertaining nuclear weapons ambitions.

More countries are considering developing their own nuclear weapons. There remains much speculation that Iran continues to harbour nuclear weapons ambitions despite having suffered several setbacks: key members of its nuclear scientific community assassinated since 2007, its centrifuges destroyed through a computer attack in 2010, and, most recently, its nuclear facilities at Fordow, Isfahan and Natanz attacked by the

United States. South Korea's alleged nuclear weapons ambitions have resurfaced, and there have been suggestions that Japan ought to join the nuclear weapons club as well. Clearly, nuclear weapons continue to be seen by some strategists as still the "Absolute Weapon", still regarded as a potentially viable solution to the national security woes that some countries face.

Eighty years after the horrors of Hiroshima, some strategists still regard nuclear weapons as a potentially viable solution to national security threats. A nuclear war, however limited, would likely have devastating consequences for everyone.
Image source: Jakub Hałun, CC BY 4.0, via Wikimedia Commons.

Horizontal Proliferation – the Apparent Strategic Utility of Nuclear Weapons

At one level, therefore, strategic planners may see nuclear weapons as constituting the foundation of a country's deterrence posture. Brodie famously asserted in *The Absolute Weapon* that the "chief purpose" of nuclear weapons must be to prevent wars from occurring, and that they "can have almost no other useful purpose". But the possession of nuclear weapons has not prevented occasional armed clashes between India and Pakistan.

While there are striking differences in how individual nuclear weapons states conceptualise nuclear deterrence, much of the concept owes its origins to two American nuclear strategists – Brodie and Herman Kahn. Kahn postulated that nuclear deterrence rests upon a foundation of an assured retaliatory capability – that is, the United States could suffer a nuclear attack from its adversaries and still possess sufficient second-strike nuclear weapons to subject its adversaries to devastating retaliatory nuclear attacks. This was the foundation of US nuclear doctrines for much of the Cold War, mutually assured destruction (appropriately, MAD, for short)

But there is a second potential strategic utility of nuclear weapons. Thomas Schelling introduced the idea that nuclear weapons can be used as instruments of bargaining and coercion. As the *Washington Post* columnist Michael Kinsley put it: "How do you persuade the other guy to give in, when the only method at your disposal … would doom you both? … You just have to convince him that you are prepared to take a higher risk than he is" of dying. Nuclear weapons can therefore be used in brinksmanship, to extract concessions from adversaries that they would otherwise refuse: Russian President Putin has occasionally hinted at using his country's nuclear arsenal in the Russia-Ukraine war; and witness US President Donald Trump's recent ordering of two US nuclear submarines to "appropriate regions" in response to former Russian President Dmitry Medvedev's warnings about the risks of war between the United States and Russia.

Beyond Nuclear Deterrence – Vertical Proliferation

If the first strand of nuclear thinking focused on deterring nuclear war, a second strand of thinking on nuclear weapons focused on nuclear war-fighting, that is, fighting and (presumably) winning a nuclear war. This gave rise to the phenomenon of vertical proliferation, that is, the growth in the types of nuclear weapons that apparently facilitated the possibility of nuclear war-fighting.

In the 1950s, the US Army experimented with nuclear artillery. In the 1970s, experimentation on new types of nuclear weapons, in particular, low-yield warheads, gave rise to the neutron bomb, which was designed for low explosive yield while generating enhanced levels of radiation.

The United States was never alone in entertaining nuclear war-fighting scenarios. Russia's nuclear thinking, derived from its Soviet predecessors, did not necessarily subscribe to the American doctrine of MAD. Russia is allegedly nearing a decade-long programme to modernise its nuclear weapons. The PRC, which continues to maintain a "no-first-use" doctrine, has been rapidly growing its nuclear weapons arsenal, according to the Bulletin of Atomic Scientists. That being said, China's nuclear warheads are thought to be stored separate from its delivery systems, in particular, its intercontinental ballistic missiles (ICBMs).

A potentially disturbing trend in vertical proliferation is in the field of miniaturisation. The technologies for miniaturisation suggest that future nuclear weapons may become even more robust, especially if deployed against hardened targets. Miniaturisation is already being actively pursued by some nuclear weapons countries, North Korea in particular. These technologies, arguably, increase the likelihood that nuclear weapons can (and will) be used.

Finally, there is evidence of research into exotic nuclear fuels, such as Hafnium, which can potentially generate explosive yields that approximate the yields of conventional warheads, but still generate gamma radiation capable of destroying all forms of life within the blast area, as well as penetrating hardened sites and killing all life within these locations. What enhances the destabilising effects these exotic fuels can generate is the scenario of the so-called dirty bomb, where nuclear isomers can be packed into a radiological dispersal device, such as a suitcase.

New Developments in Delivery Systems

Arguably, the most potentially destabilising developments are in the area of delivery systems, in particular, road-mobile, solid-fuel ICBMs. Currently, Russia, the PRC and North Korea deploy such ICBMs – the RT-2PM2, DF-41, and Hwasong-18, respectively.

What makes these ballistic missiles problematic for the maintenance of strategic stability between nuclear-weapons states is that these delivery systems, ostensibly meant to enhance a country's assured retaliatory strike capability upon which nuclear deterrence is based, ironically may increase strategic uncertainty during times of severe crisis.

In the event of a nuclear war between the United States and Russia, ICBMs will begin hitting their targets in approximately 20 minutes after launch. During the Cold War, both superpowers maintained geosynchronous satellite coverage of each other's ICBM sites, providing a 24/7 monitoring of suspicious activities that could indicate an imminent launch – such as the sudden, large-scale fuelling of liquid-propelled ICBMs and heat signatures. The introduction of solid-fuel missiles, however, obviates the need for fuelling, and this makes such missiles readily deployable at very short notice. And, road mobility means missiles can be deployed, hypothetically, from almost any location, rendering early warning of an imminent launch virtually impossible.

Even if both nuclear-weapons states profess a no-first-use doctrine, the fear of a sudden attack becomes very real. This fear makes the "use-them-or-lose-them" option attractive, even potentially necessary. The Cold War already had a number of instances when early warning systems failed: On 26 September 1983, Stanislav Petrov, then a senior officer in the Soviet Air Defence Forces, detected what appeared to be five incoming ICBMs from the United States. He – correctly, as it turned out – interpreted the signal as false and averted a nuclear war. A world where more and more countries contemplate developing their own nuclear arsenals will need more Stanislav Petrovs if nuclear conflagration is to be avoided.

Bernard F.W. Loo *is a Senior Fellow in the Military Studies Programme, Institute of Defence and Strategic Studies, S. Rajaratnam School of International Studies. He is the Editor of IDSS Paper.*

S. Rajaratnam School of International Studies, NTU Singapore
Block S4, Level B3, 50 Nanyang Avenue, Singapore 639798

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