

NUCLEAR RISKS

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Nuclear weapons have been used only twice in war, but nevertheless, the build-up of nuclear arsenals has progressed relentlessly up until the 1980s. The number of US nuclear weapons reached a maximum of 32,000 in 1967 while Soviet nuclear weapons reached a maximum of 45,000 in 1986. While the numbers subsequently decreased, the US and Russia together still possess nearly 14,000 intact nuclear weapons. Taken together with the approximately 1200 nuclear weapons possessed by the other seven nuclear-weapon states (France, China, UK, Pakistan, India, Israel and North Korea), there are now about 15,000 intact nuclear weapons on the planet. Some of these weapons are deployed (about 5,000), and others are either stockpiled (about 4,500) or retired (but intact). A massive use of these nuclear weapons would practically destroy the planet. But even a limited, and local, use would create unimaginable destruction, an enormous loss of lives, and ecological disaster.

The questions are:

1. under what circumstances might these weapons be used?
2. can other countries start building nuclear weapons, so increasing the dangers of nuclear use?

There are several circumstances where the risk of nuclear use is significant:

1. *Nuclear use by mistake.* Several weapons are **always kept** on permanent alert, in the case that there is enough information that an enemy nuclear attack is underway. Note that for intercontinental ballistic missiles, there is about 30 minutes between the notification/verification of an attack and the decision to launch. On 23 September 1983, Russian Colonel Stanislav Petrov made the decision to not abide by his duty and report a launch of five US missiles, deeming correctly that this was a false alarm, and thus avoiding a serious risk of nuclear war by mistake. On 25 January 1995, a Norwegian scientific rocket launched to observe the aurora borealis was mistakenly interpreted as an American nuclear missile; President Boris Yeltsin was handed the nuclear briefcase, but fortunately did not operate it. These are but two (significant) examples from a wide literature of similar “mistakes”.
2. *Nuclear use as a consequence of nuclear strategy.* Planning for the possible use of nuclear weapons to counteract conventional inferiority increases the chance that a conventional conflict could be transformed into a nuclear one. This was typically a part of the nuclear strategy that NATO employed during the Cold War, and it is the strategy

today in the case of Pakistan vis-à-vis India. In general, a no-first-use policy means that nuclear weapons would be used only after a verified nuclear attack—a policy that only China and India now have. On the other hand, a policy of launch on warning (the launch of nuclear missiles only upon warning of an incoming nuclear attack) increases dramatically the probability of nuclear use by mistake. And both the US and Russia have a policy of launch on warning.

3. *Inadvertent escalation*. Independent of their existing nuclear strategies, a conflict involving states that possess nuclear weapons could inadvertently escalate into a nuclear conflict. For instance, the presence of so-called tactical nuclear weapons, and the need to disperse them in a time of crisis, could raise the dilemma of “use them or lose them”. More generally, states possessing nuclear weapons, placed in a militarily critical situation, could decide to use (even a few) nuclear weapons to signal their resolve to not accept a possible defeat.
4. *“Slipping out of control”*. The 1962 Cuban Missile Crisis was a typical example of a combination of misinformation, aggressive statements, and threats that could have resulted in a nuclear catastrophe. Later, in 1992, Castro told McNamara that Cuba had been willing to be destroyed, in a sort of national suicide, had the confrontation “slipped out of hand”. Good sense on both sides (in particular by Khrushchev), and a significant degree of good luck, avoided a catastrophe. Paradoxically, a somehow similar situation is now occurring in North East Asia. Can we count on the good sense of Kim Jong Un and President Trump? Let us hope so....
5. *Terrorists, non-state actors and nuclear weapons*. Non-state actors can get their hands on nuclear weapons. In a state of relatively stable peace, this is difficult, as nuclear weapons are kept **in general** under strict control. But in a situation of tension or conventional conflict, when nuclear weapons may be dispersed over the territory as a precautionary measure, then non-state actors could more easily get their hands on nuclear weapons. More significantly, non-state actors could trigger a nuclear war between nuclear weapon states. For example, non-state actors based in Pakistan could plan a significant terrorist attack in India who, thinking incorrectly that Pakistan itself had organized such an attack, could decide to seize part of Pakistani territory (consistently with their so-called “Cold Start” strategy). And Pakistan has a policy of reacting with “tactical” nuclear weapons to a significant conventional attack. So, a non-state actor group can hope to trigger a nuclear confrontation between two countries that, as in the Indo-Pakistan case, the group considers to be either anti-Islamic or Islamic only by name and not “in reality”.

In any case, in defining the risks of nuclear use, what is relevant is not just the number of existing nuclear weapons, but also the number of states that possess them. So, proliferation of nuclear weapons increases the risk of nuclear use.

The Non Proliferation Treaty (NPT) forbids the proliferation of nuclear weapons. It defines the five recognized nuclear weapon states (US, Russia, UK, France, and China). Every other state

member of the NPT is forbidden to acquire nuclear weapons. There are four significant states (Israel, India, Pakistan and North Korea) that have nuclear weapons but are not members of the NPT. Apart from South Sudan, all other States are members of the NPT. But states that are members of the NPT can withdraw from the treaty (as North Korea did) with relatively few hassles.

A state can choose to acquire nuclear weapons to gain the “prestige” associated with their possession, for concerns about its own security, or both. The prestige associated with the possession of nuclear weapons is obviously very odd, but also unfortunately real, since the NPT-recognized nuclear weapons states are also Permanent Members of the UN Security Council (and the two states possessing the largest number of nuclear weapons are still referred to as “superpowers”). But the nuclear states, despite Art. 6 of the NPT, are not proceeding resolutely to nuclear disarmament.

Security concerns obviously abound, for instance, throughout the Middle East, but only one state, Israel, for now possesses nuclear weapons. But for how long will this be the situation? The Iranian civilian nuclear program has been effectively regulated by the Iran Nuclear Agreement, which is nevertheless now under stress as a result of the US questioning its validity. Were the Iran Nuclear Agreement to be dismantled, then there would be incentives for Iran to come back to the uncontrolled nuclear program that existed before the agreement. And Saudi Arabia and other states in the region will be watching carefully what Iran will do.

The situation of tension in North East Asia, and the ensuing nuclear risks for South Korea and Japan, may well push these two countries to consider the possibility of a nuclear option; they both have very well-developed civilian nuclear programs.

This brings us to the issue of the relation between civilian and military nuclear programs. Any country with a good civilian nuclear program can shift to a military nuclear program with relative ease. The barriers between civilian and military nuclear programs are related not so much to technological issues, but to the control that is made over the civilian nuclear programs, mainly by the International Atomic Energy Agency (IAEA) in Vienna. States can agree to different types of control. The term “Additional Protocol” is used to define a particularly stringent and efficient control of civilian nuclear activities. In particular, a refusal to accept this “Additional Protocol” lowers the effectiveness of the control. There are states that, as a matter of principle, refuse to accept the Additional Protocol by claiming that they are not ready to accept any further discrimination beyond the distinction, encoded in the NPT, between nuclear weapon states and non-nuclear weapon-states.

Finally, we must point out that there are non-nuclear weapon states that are protected by nuclear weapons states. This is the case of the NATO countries. Some of these states, while being non-nuclear weapon states according to the NPT, nevertheless host nuclear weapons, such as Italy, Germany, Belgium, The Netherlands and Turkey. Other states could at some point also desire to be protected under such a “nuclear umbrella”, and possibly host nuclear weapons

belonging to other countries. And as this is arguably allowed under the NPT, then one can imagine a way of promoting the spread of nuclear weapons without contradicting the NPT.

A resolute action to completely eliminate nuclear weapons and ban them, just as chemical and biological weapons are banned, would not only be most desirable, but would also remove the nuclear danger. The recent Nuclear Ban Treaty is an important step in the right direction, but many countries, and not only those possessing nuclear weapons, are not ready to sign it. It will be a long battle to promote this treaty, and convince states to sign it. But it will be a battle worth fighting.

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