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Reducing the risks of nuclear weapons use: 11 policy options

This Clingendael Alert lists 11 categories of policy options that could reduce the risk of (accidental) nuclear weapons use. It is a preview of an extended report on nuclear risk reduction that will be published in June 2018. Author [Sico van der Meer](#) welcomes any feedback on this preview: svdmeer@clingendael.org.

Although the world has never been confronted with any nuclear weapon detonation (except for test explosions) since the nuclear bombings of Hiroshima and Nagasaki in 1945, there have been numerous close calls. Many examples of nuclear weapon incidents have become public, and many more are supposedly not known publicly. However small the probability of inadvertent nuclear weapons use might be, the consequences could be enormous.

Especially during the Cold War much thought was given to measures to prevent nuclear war – on purpose or by accident. Considering the recent increase in status of nuclear weapons in strategic communications, military spending, and political rhetoric in many of the nine nuclear weapons states, it is worthwhile to review the possibility of such risk-reduction options. Below, eleven categories of options are listed that might be realistically implemented by any of the nuclear weapon states. The risk-reduction options are not only aimed at decreasing the risk of accidents, but also at limiting the chances of the deliberate use of nuclear weapons because of incorrect information. Next to technical and human errors, especially miscommunication, misperception and miscalculation are important risk factors that could lead to nuclear weapons use, eventually even escalating into nuclear war.

The order of this (non-exhaustive) overview of potential policy options is not static. Although the list starts with the easiest step and ends with the most difficult option, parallel and synchronised steps are certainly possible. The policy options should ideally be implemented by all nuclear weapons states simultaneously, but unilateral or bilateral measures should be applauded as well.

1) Training

Increasing attention, cooperation and transparency regarding the training of the personnel involved in nuclear weapons. Think of continuous training in safety procedures; cyber hygiene; stress testing; and simulation exercises with complicated, far-fetched scenarios. Awareness of the humanitarian consequences of any nuclear weapon use should be included as well.

2) Transparency

Improving transparency on various issues, for example: past incidents and lessons learned; nuclear doctrines and postures; risk-reduction measures; and planned military exercises or movements that might cause misperceptions and miscalculations.

3) Communication

Preventing misperceptions by establishing well-functioning (emergency) communication mechanisms between nuclear weapons states. Increased threat and intelligence sharing regarding nuclear weapons risks may be helpful as well.

4) De-targeting

Ending the possibility that nuclear weapons could hit any pre-defined targets unintentionally. De-targeting will also increase the decision time for nuclear weapons use (see under 7).

5) Securing launch systems

Technical options to prevent inadvertent use are, for example: ensuring redundancies in launch systems (including a combination of digital and analogue command and control mechanisms); increased attention for cyber security; and always including human decision factors next to automated systems. Tools to destroy accidentally launched nuclear missiles could be thought of as well. Increased transparency on security measures as well as confidence-building measures with regard to not (cyber) attacking the launch systems of adversaries are also feasible.

6) De-alerting

De-alerting nuclear weapons which can currently be launched in a very short time. This will prevent an accidental launch because of misperceptions and will increase the decision time as well.

7) Increasing the decision time

Increasing the decision time for nuclear weapons use in launch procedures and/or by separating warheads from missiles. The more time decision-makers have to ensure the perceived need to launch nuclear weapons in times of stress and (potential) crisis situations, the better.

8) Raising the threshold for use

Limiting the circumstances in which nuclear weapons may be used in doctrines and postures. Think of 'No First Use' policies, at least posturing that nuclear weapons will not be used against non-nuclear weapons states and/or as a response to non-nuclear attacks.

9) Eliminating certain types of weapons

Giving up nuclear weapon types which are lowering the threshold for use and could create confusion between conventional and nuclear weapons during crisis situations. Examples are cruise missiles with nuclear warheads, short-range and/or intermediate-range missiles with nuclear warheads in general, and/or tactical nuclear weapons altogether.

10) Limiting numbers and locations

Currently there are some 15,000 nuclear weapons in the world. Each one entails a risk of being used. Limiting the number of (deployed) nuclear weapons and/or the number of locations at which they are stored may reduce the risk of their use.

11) Disarmament

The ultimate risk-reduction option is, of course, complete nuclear disarmament. The nuclear weapons states should seriously cooperate in working towards this goal, including issues like the reliable verification of disarmament. Also feasible is a (joint) exploration of alternative means to deter adversaries which do not entail the global catastrophic risks involved with nuclear weapons.

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