



MARCH 2020

Nuclear risk reduction: How could the EU contribute?

The prospects for nuclear arms control and disarmament are not very optimistic. Yet, measures contributing to limiting the risk that nuclear weapons will ever be used again, either intentionally or by accident, may offer some possibilities for short-term interim steps that could benefit any state, nuclear armed or not. Although the influence of the EU on this issue is limited, it could play a role in encouraging nuclear-armed states by offering them concrete and practical policy options, with a clear focus on the benefits of such policies for themselves as well.

In these current times of increasing geopolitical tensions, a renewed nuclear arms race and decreasing trust in multilateralism, the prospects for nuclear arms control and disarmament initiatives are very challenging. Nevertheless, in some multilateral forums relatively broad support has recently emerged for what is often called 'nuclear risk reduction' or 'strategic risk reduction': measures contributing to limiting the risk that nuclear weapons will ever be used, either intentionally or by accident. Nuclear risk reduction is not an alternative to nuclear disarmament, but is rather an interim measure to decrease the risks of nuclear weapons as long as they have not been eliminated.

A benefit of the concept of nuclear risk reduction is that it can be discussed without directly touching upon sensitive and politically polarized issues, such as the perceived value or non-value of nuclear weapons from a political-military perspective.¹ Although it

could be argued that a higher risk of nuclear weapons being used increases their deterrent effect, discussions on risk reduction generally do not question the usefulness of nuclear deterrence, and are not aimed at limiting any deterrent effect of nuclear weapons.

This Policy Brief outlines how the European Union (EU) could contribute to nuclear risk reduction efforts. It briefly explores which policy options could be thought of. In order to prevent unrealistic expectations, the publication starts with analysing the limits within which the EU would be able to have any impact on the issue at all.

The limits of EU policies

Before discussing some actual policy options to strengthen nuclear risk reduction, it should be emphasized that the impact which EU policies can have on this issue is relatively limited. An important consideration when discussing options for nuclear risk reduction is that generally these options can only be implemented by nuclear-armed states themselves. However, non-nuclear-armed states can play a role in raising constructive

¹ For more analytical background on the concept, see Wilfred Wan, *Nuclear Risk Reduction: A Framework for Analysis*, United Nations Institute for Disarmament Research (UNIDIR), 2019.

and practical ideas, encouraging nuclear-armed states to take any relevant action, and maybe even bringing relevant parties together to jointly discuss and implement such options. To some extent, non-nuclear-armed states can also contribute to an overall improvement of the international strategic environment, eventually decreasing the perceived need for (the use of) nuclear weapons in general. Such activities are important and necessary, including simply to get the issue higher on the agenda of nuclear-armed states, but in general the influence of non-nuclear-armed states on this topic is limited.

Considering the fact that the EU now has only one nuclear-armed state, France, among its member states after the United Kingdom has left the EU, the implication is that the other eight nuclear-armed states are outside its direct zone of influence. Yet, diplomatic efforts aimed at nuclear risk reduction are most certainly within the scope of the EU. The EU has good relations with almost all of the nuclear-armed states and there are numerous channels for communication. Moreover, the EU is a participant in the Non-Proliferation Treaty (NPT) review process, both in the Preparatory Committee meetings and at the Review Conferences, where it could well contribute to bridging the gap between various (groups of) states within the NPT framework.² The active and successful role of EU diplomats in creating the Joint Comprehensive Plan of Action (JCPOA, often called the 'Iran nuclear deal') in 2015 is a good example of the constructive role that the EU could play.

The EU could also actively promote initiatives launched by individual EU member states or encourage member states to launch or join such initiatives. To mention a few examples of recent initiatives: in 2019 Sweden launched a forum for dialogue called 'the Stockholm Ministerial Meetings on Nuclear

Disarmament and the Non-Proliferation Treaty' and in the same year Germany started the Missile Dialogue Initiative to enhance dialogue on (nuclear) missiles. An example specifically focussed on nuclear risk reduction is that Finland and Germany are co-chairing a working group on this topic within the 'Creating an Environment for Nuclear Disarmament' (CEND) process which the United States launched in 2019.³

Even taking the limitations of the EU's influence into account, any initiative to encourage and assist nuclear-armed states in developing (joint) policies to increase nuclear risk reduction can only be applauded. A selection of some concrete policy options on which the EU could focus such efforts are presented below, grouped in four categories: Declaratory nuclear policies; Communication and cooperation; Operational measures; and Limiting roles, types and numbers.⁴

Declaratory nuclear policies

The first category of policy options to enhance nuclear risk reduction, and the one which could probably be accomplished most easily, is that of declaratory policy measures. The leadership of any nuclear-armed state could issue a public statement which, although completely unverifiable, could (re)assure the rest of the world that the risk of nuclear weapons being used is taken seriously by the states possessing these weapons. Most importantly, however, such declaratory policies may be significant in keeping the threshold for any use of nuclear weapons as high as possible. Especially since some nuclear-armed states seem to be moving in the direction of accepting so-called 'limited nuclear warfighting' as a realistic military option and are planning to (re)introduce sub-strategic

2 Harald Müller, *The NPT review process and strengthening the treaty: Disarmament*, Non-proliferation Paper no. 10, European Union Non-Proliferation and Disarmament Consortium, February 2012.

3 William C. Potter, 'Taking the pulse at the inaugural meeting of the CEND initiative', James Martin Center for Nonproliferation Studies, 15 July 2019.

4 Various policy options are discussed in: Sico van der Meer, 'Reducing nuclear weapons risks: A menu of 11 policy options', Clingendael Policy Brief, June 2018.

nuclear weapon capabilities, the threshold for use currently appears to be lowering.⁵

Statement on nuclear warfare

The most simple kind of statement would probably be one or more leaders of nuclear-armed states expressing their conviction that nuclear war can never be won and should never be fought; a statement similar to that of President Ronald Reagan of the United States and Mikhail Gorbachev of the Soviet Union in 1987.⁶ Although such a statement is almost purely symbolic and not binding at all, it would certainly have some psychological impact. Today, in times when nuclear warfare has returned into political and military rhetoric, such a high-level statement could reassure the world that leaders of nuclear-armed states do not and will not think too lightly about using nuclear weapons.

Negative security assurances

A declaratory method of reducing the risk of nuclear weapons being used could also be to issue negative security assurances. Such assurances entail that nuclear-armed states openly posture that they will not use their nuclear weapons against any non-nuclear-armed states and/or as a response to any non-nuclear attacks, nor threaten to do so. Thus, negative security assurances could play an important role in limiting the circumstances in which nuclear weapons may be used and consequently raise the threshold for their use in general. Although declarations (unilateral or joint) regarding negative security assurances would not be legally binding, they could be considered an influential confidence-building measure.⁷

No first use declarations

Declarations of ‘no first use’ of nuclear weapons (in general or in a more selective way) could be an influential and viable option for nuclear risk reduction as well. Currently, only two of the nine nuclear-armed states (China and India) have publicly declared that they have a no first use policy. More possessor states could publicly declare that they will not use their nuclear weapons unless they are first attacked by such weapons.

Communication and cooperation

A second category consists of measures aimed at increasing communication and cooperation, including policies on crisis management, transparency and training. These measures may require more preparational work than political declarations, but once political willingness has been established, they may be relatively easy to implement in the short term as well.

Increasing dialogue

A seemingly small yet important policy option is initiating increased dialogue between nuclear-armed states as well as between nuclear-armed states and non-nuclear-armed states on nuclear weapon issues in general. Such dialogue could be enhanced at different levels; for example, at the levels of politicians, policy makers and military decision-makers. Apart from any concrete risk reduction measures resulting from such dialogue, the simple fact that nuclear-armed states appear to take dialogue seriously could already have some reassuring effect. Further, the more channels there are available for dialogue and communication, the less risk there is of miscommunication and misunderstanding that could eventually lead to (unintended) nuclear warfare.

Ensuring clear lines of communication

One of the main risks concerning the potential use of nuclear weapons is intended use based on miscommunication. Such miscommunication could create misperceptions among decision-makers, who may consequently base their actions on incorrect assumptions. Clear, unambiguous

5 See e.g. Julian Borger, [‘Nuclear weapons: Experts alarmed by new Pentagon war-fighting doctrine’](#), *The Guardian*, 19 June 2019.

6 Ronald W. Reagan, [‘Joint Statement on the Soviet-United States Summit Meeting’](#), 10 December 1987.

7 For more information see: United Nations Institute for Disarmament Research (UNIDIR) & Geneva Centre for Security Policy (GCSP), [‘Mapping negative security assurances’](#), Background Paper for Subsidiary Group 4 of the Conference on Disarmament, 12 June 2018.

lines of communication on several levels could prevent reliance on incorrect information, especially (but not only) in times of crisis. More than ever before, there are nowadays technical possibilities to manipulate communication, such as using cyber tools to disturb communication channels or creating and spreading fake information on various decision-making levels. Methods that could affect decision-making processes might include data manipulation, the jamming of communication channels and cyber spoofing (changing information in digital systems). This kind of technological possibilities make reliable, direct communication lines even more important.⁸ Some, but not all, nuclear-armed states have already established special communication channels between their leaderships (often called ‘hot lines’). Increasing the number of such communication links could be encouraged, as well as more transparency thereon. Additionally, agreements not to shut down, manipulate or interfere with such communication mechanisms could be conceivable.

Crisis management & information sharing

A further measure regarding improved communication may be increased threat and intelligence sharing regarding potential crises and crisis escalation risks. One possibility would be to establish a framework, such as a technical working group, in which as many nuclear-armed states as possible could participate. Another option is establishing joint warning centres or joint threat perception centres, which could be helpful in creating strategic empathy and consequently in preventing an escalation of relatively small crises to a level of nuclear warfare due to miscommunication or misunderstanding.

Transparency

Although information related to nuclear weapons tends to be highly confidential, increasing transparency on some issues would be helpful in reducing the risks of any (unintended) use. First, increased transparency regarding nuclear capabilities, doctrines, postures and other related policies is a viable risk-reducing policy option. Such transparency could seriously decrease the risk of misperception, misunderstanding and miscommunication, especially in times of crisis and stress. Although some nuclear-armed states prefer a certain level of opacity to ensure the perceived deterrent effect of their nuclear weapons, some changes in favour of risk reduction might still be feasible.⁹ Second, more transparency on past nuclear weapon incidents is an option worth considering. Increased transparency about incidents, as well as about the prevention of actual disasters because of these incidents, could be useful in terms of learning from and sharing lessons on what could go wrong and how to prevent it. In this regard, an open database, managed for example by an independent organisation such as the International Atomic Energy Agency (IAEA), could be considered. Third, increased transparency concerning issues that are not directly related to nuclear weapons, but may influence decisions regarding their use, could also be effective in reducing the risk of (pre-emptive) nuclear attacks as a consequence of miscalculation or misperception. One could think of, for example, pre-launch notifications for any missiles that could be mistaken for nuclear weapon missiles, as well as of increased information exchange on military exercises, which in the past sometimes caused concern and alarm with the use of nuclear weapons being seriously considered as a consequence.¹⁰

8 Beyza Unal & Patricia Lewis, ‘[Cybersecurity of Nuclear Weapons Systems: Threats, Vulnerabilities and Consequences](#)’, Chatham House Research Paper, January 2018, pp. 3-4.

9 John Borrie, Tim Caughley & Wilfred Wan, ‘Reducing nuclear weapons risks’, in: [Understanding Nuclear Weapons Risks](#), UNIDIR Resources, April 2017, pp. 91-101.

10 Patricia Lewis, Heather Williams, Benoît Pelopidas & Sasan Aghlani, ‘[Too Close for Comfort: Cases of Near Nuclear Use and Options for Policy](#)’, Chatham House Report, April 2014, p. 29.

Training

Another measure that could be encouraged is to increase attention and transparency surrounding the training of personnel involved in nuclear weapon infrastructure. Of course, training is already common in all of the nuclear-armed states. Yet, it could be argued that personnel in this field can never receive enough training. A key factor in most known nuclear weapon incidents in the past was the people involved: from technicians and operators to military and political decision-makers, at any moment they could be involved in causing or preventing incidents. Joint training exercises in which relevant persons from various nuclear-armed states cooperate and share experiences and best practices, for example on how to prevent miscommunication and misperception, could be worthwhile.

Operational measures

A third category of policy options can be found on a more operational level. Some measures regarding the procedures for nuclear weapon use could be helpful for nuclear risk reduction. Such measures may not only limit the risk of unintentional use, but also give decision-makers more time for deliberation; the more time they have to verify a perceived need to use nuclear weapons in times of stress and (potential) emergency, the less risk there is of decisions being based on misinformation, miscommunication or misperception. It may be difficult to implement such operational measures in the short term, but some options are not that far-fetched and could well be encouraged.

De-entanglement of command & control systems

There are increasing concerns about the entanglement of nuclear and non-nuclear command-and-control systems in various nuclear-armed states, as well as about new disruptive technologies which might be used to sabotage or manipulate such systems. Due to this entanglement, any disruption of non-nuclear command-and-control systems may have effects on nuclear systems as well, in turn leading to uncertainties and (inadvertent) escalation

in which nuclear weapon use may suddenly become a serious option.¹¹ Operational efforts to raise awareness on this risk and to detangle nuclear and non-nuclear command-and-control systems as much as possible could be encouraged. Unilateral, bilateral or multilateral statements that nuclear command-and-control systems will not be attacked or undermined may be thought of as well as a confidence-building measure.

De-targeting

Little public information is available about the potential, predefined targeting of nuclear weapons in the nuclear-armed states. If a nuclear missile is accidentally launched, will it automatically hit its predefined target, which may well be a densely populated area? After the end of the Cold War, Russia and the United States mutually agreed to change the default targeting of their nuclear weapons to open-ocean targets. This was done as a confidence-building measure and is not being verified, yet the decision sends an important signal that predefined targets cannot easily be destroyed by accident, thus limiting the consequences of any unintended use.¹² Other nuclear-armed states could implement a similar de-targeting policy, or make it public if this has already been implemented.

De-alerting

Certain nuclear-armed states, especially Russia and the United States, are presumed to be keeping some of their nuclear weapons on high alert, ready to be launched within a few minutes. This high-alert status, often called 'hair-trigger alert' or 'launch-on-warning status', is meant to allow nuclear missiles to be launched very quickly after receiving a warning of an incoming nuclear attack, and before the incoming missiles hit their

11 James M. Acton, '[Inadvertent Escalation and the Entanglement of Nuclear Command-and-Control Capabilities](#)', Belfer Center for Science and International Affairs, October 2018.

12 Lewis, etc., '[Too Close for Comfort](#)', p. 28.

targets.¹³ The decision time in the case of an incoming missile warning is presumed to be so short that misperceptions due to technical failure, human error or miscommunication, among other things, may easily occur. In addition, the (cyber) manipulation of automated warning systems coupled with the command-and-control systems of these high-alert weapons may create more serious problems compared to those of nuclear weapons that are not on high alert. In order to reduce the risk of any unintended use of nuclear weapons, or of intended use based on incorrect information, any nuclear-armed state with nuclear weapons on high alert could be encouraged to adjust this status (fully or partially, and immediately or gradually). Greater transparency from nuclear-armed states concerning their alert status and the accessory risk mitigation measures could also be encouraged, especially because reliable information on the issue is currently scarce.

Adding decision moments

Other operational measures may ensure enough time for decision-makers to demonstrate prudent judgment, resolve potential miscommunication and receive all vital pieces of information relating to the perceived need to use any nuclear weapons. One option to build more time into launching procedures is to remove nuclear warheads from missiles and to store them separately, and/or to store nuclear payloads in isolation from detonation devices. Further possible measures to add decision steps (and thus decision time) include de-activating mechanisms that automatically open missile silo covers and/or adding safety switches to missile silos. Moreover, nuclear-armed states could ensure that they always include human decision factors in nuclear weapon launch systems. Although it is regularly claimed that automated systems make fewer errors than humans, past nuclear weapon incidents show that human judgment is

vital in decision-making in this area. Only humans are able to incorporate ethics, to doubt the accuracy of certain information and to disregard inappropriate orders from superiors. Less feasible, but not impossible, would be a directive for nuclear-armed submarines to stay a certain distance away from adversaries' coasts in order to increase the amount of time between any launching of nuclear missiles and their arrival, providing plenty of time to communicate in the case of any unintended launch.

Limiting roles, types and numbers

The fourth category of potential policy options may have the most concrete impact on nuclear risk reduction. It may be stating the obvious, but the ultimate way to prevent nuclear weapon use is, of course, the complete and verifiable elimination of these weapons. Unfortunately, although it should always remain the end goal, complete nuclear disarmament is currently no more than a tiny dot on the horizon. Nevertheless, there are some smaller steps towards the elimination of nuclear weapons that may not be improbable in the short term. Especially policy options which would also benefit the nuclear-armed states themselves could be encouraged in this regard. These options relate to reducing the roles, types and numbers of nuclear weapons, but without fundamentally lowering their perceived deterrent value. As with all the options described in this report, limiting the roles, types and numbers of nuclear weapons could be done unilaterally, bilaterally or multilaterally.

Limiting role in doctrines and postures

An important general risk reduction measure is to keep the threshold for the intended use of nuclear weapons as high as possible. In order to raise this threshold, nuclear-armed states could limit the circumstances in which nuclear weapons may be used in their policy documents, such as doctrines and postures. The doctrinal line between nuclear and conventional warfighting should be very clear. The 'no first use' policies and

13 Hans M. Kristensen & Matthew McKinzie, 'De-alerting nuclear forces', *Bulletin of the Atomic Scientists*, 19 June 2013; Union of Concerned Scientists, 'Reducing the Risk of Nuclear War: Taking Nuclear Weapons Off High Alert', January 2016.

negative security assurances mentioned above are also relevant in this regard, and transparency surrounding doctrines and postures as well. Limiting the role of nuclear weapons in doctrines and postures may be perceived as a symbolic measure, because it cannot be verified whether decision-makers will actually behave in the way that their (published) policy documents postulate. Nevertheless, this too can be considered a potentially influential confidence-building measure.

Limiting the types of nuclear weapon systems

Another viable policy option is the elimination of certain nuclear weapon types that by their very nature lower the threshold for use and could generate confusion between conventional and nuclear weapons during crisis situations. Examples of such weapon types are cruise missiles with nuclear warheads, short-range and/or intermediate-range missiles with nuclear warheads in general, and/or sub-strategic (tactical) nuclear weapons altogether.¹⁴ Even more difficult to verify, but certainly useful to consider, is the elimination of low-yield nuclear weapons in general. Low-yield weapons could be perceived by decision-makers as being more ‘usable’ in actual warfare, with the risk of rapid escalation into fully fledged nuclear war. Eliminating this category of nuclear weapons would definitely raise the threshold for nuclear weapon use.

Limiting the locations of nuclear weapons

Limiting the number of locations where nuclear weapons are deployed or stored may be considered as well. Fewer locations could decrease the risk of, for example, communication and command problems, misperceptions about other activities at such locations, and harmful activities by outsiders. From the same perspective, a clear distinction between locations with nuclear weapons and those with conventional weapons could be

encouraged to prevent conventional weapon activities being misunderstood as nuclear. Another possible measure is to remove any nuclear weapons deployed in border regions between (potential) adversaries, particularly in the case of relatively low-yield sub-strategic nuclear weapons in (tense) border regions. For example, this would include the border regions between India and Pakistan and between Russian and NATO territory (including forward deployed US nuclear weapons in European states).

Limiting the numbers of nuclear weapons

Last but not least, a potentially feasible option for nuclear risk reduction is to limit the numbers of nuclear weapons. Currently, there are some 14,000 nuclear weapons in the world, deployed or in storage, and each one entails a risk of being used (either intentionally or by accident). As long as complete nuclear disarmament is considered to be impossible by various nuclear-armed states, reductions of arsenals remain the second-best option for nuclear risk reduction. In fact, nuclear arms reduction arrangements have proven to be very effective in the past. Agreements between the world’s biggest nuclear weapon possessors, the United States and Russia (treaties such as SALT, START and New START) have helped the total number of nuclear weapons in the world to drop from almost 70,000 in the 1980s to some 14,000 today.¹⁵ The so-called Presidential Nuclear Initiatives (PNI) in the United States and Russia in the early 1990s show that decisions (unilateral or joint) on reducing the number of nuclear weapons can be taken in the relatively short term if there is a political willingness to do so.¹⁶ Dialogue on the concept of ‘minimum deterrence’ could be encouraged as well to explore what numbers of nuclear weapons are actually considered to be required for effective deterrence.

14 Sico van der Meer & Christine Parthemore, ‘[Revive arms control and start with nuclear-armed cruise missiles](#)’, *War on the Rocks*, 8 June 2016.

15 Hans M. Kristensen & Matt Korda, ‘[Status of World Nuclear Forces](#)’, Federation of American Scientists, last updated May 2019.

16 Susan J. Koch, [The Presidential Nuclear Initiatives of 1991–1992](#), Center for the Study of Weapons of Mass Destruction, 2012.

Recommendations

In these current hard times, while nuclear arms control and disarmament initiatives seem to have stalled, nuclear risk reduction may offer the EU opportunities to continue and strengthen efforts to reduce the global risk of nuclear weapons being used. Diminishing this risk does not only benefit the EU itself, but mankind in general as well.

Although the EU may have little direct influence on the issue, it could play an important role in encouraging the nuclear-armed states to take their responsibilities seriously in this regard by offering them concrete and practical policy options. To be effective in these efforts, it is important not to alienate the nuclear-armed states, but instead to show an understanding of their perceived security dilemmas while at the same time presenting them with reasonable policy options that would benefit themselves as much as the rest of the world.

The EU could actively try to facilitate discussions by bringing relevant parties together to jointly discuss (and implement) nuclear risk reduction policies. It could use its good relations with almost all of the nuclear-armed states as well as its participation in the NPT review process. The EU could also encourage France, as the only nuclear-armed EU member state, to show leadership among the nuclear-

armed states with regard to risk reduction measures. In general, the EU could also actively promote relevant initiatives launched by individual EU member states or encourage member states to launch or join such initiatives.





Considering the current, negative perceptions of multilateralism in some nuclear-armed states, pushing for formal multilateral agreements or treaties may not be the most fruitful strategy in the short term. Nevertheless, encouraging nuclear-armed states to take action in a less formal manner, through unilateral, bilateral or plurilateral declarations, confidence-building measures or any kind of agreements (even non-verified) may be well worth the effort.

Although critics may claim that such encouragement efforts are too little, in the current geopolitical environment they seem to be the most realistic approach for the EU. Moreover, the practical policy options presented in this Policy Brief show that there are various concrete possibilities that could well be implemented in the relatively short term by one or more of the nuclear-armed states. In the meantime, the EU should also remain alert to any sudden opening of so-called 'windows of opportunity' that would enable bolder options regarding nuclear arms control and disarmament and be prepared to make proactive use of such abrupt opportunities.

About the Clingendael Institute

Clingendael – the Netherlands Institute of International Relations – is a leading think tank and academy on international affairs. Through our analyses, training and public debate we aim to inspire and equip governments, businesses, and civil society in order to contribute to a secure, sustainable and just world.

www.clingendael.org
info@clingendael.org
+31 70 324 53 84

 [@clingendaelorg](https://twitter.com/clingendaelorg)
 [The Clingendael Institute](https://www.facebook.com/TheClingendaelInstitute)
 [The Clingendael Institute](https://www.linkedin.com/company/the-clingendael-institute)
 [Newsletter](#)

About the author

Sico van der Meer is a Research Fellow at the Clingendael Institute. His research focuses on non-conventional weapons such as Weapons of Mass Destruction and cyber weapons from a strategic policy perspective.