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The Baltic Approach: A next step?

Prospects for an Arms Control Regime for Sub-strategic Nuclear Weapons in Europe

FREDRIK LINDVALL, JOHN RYDQVIST,
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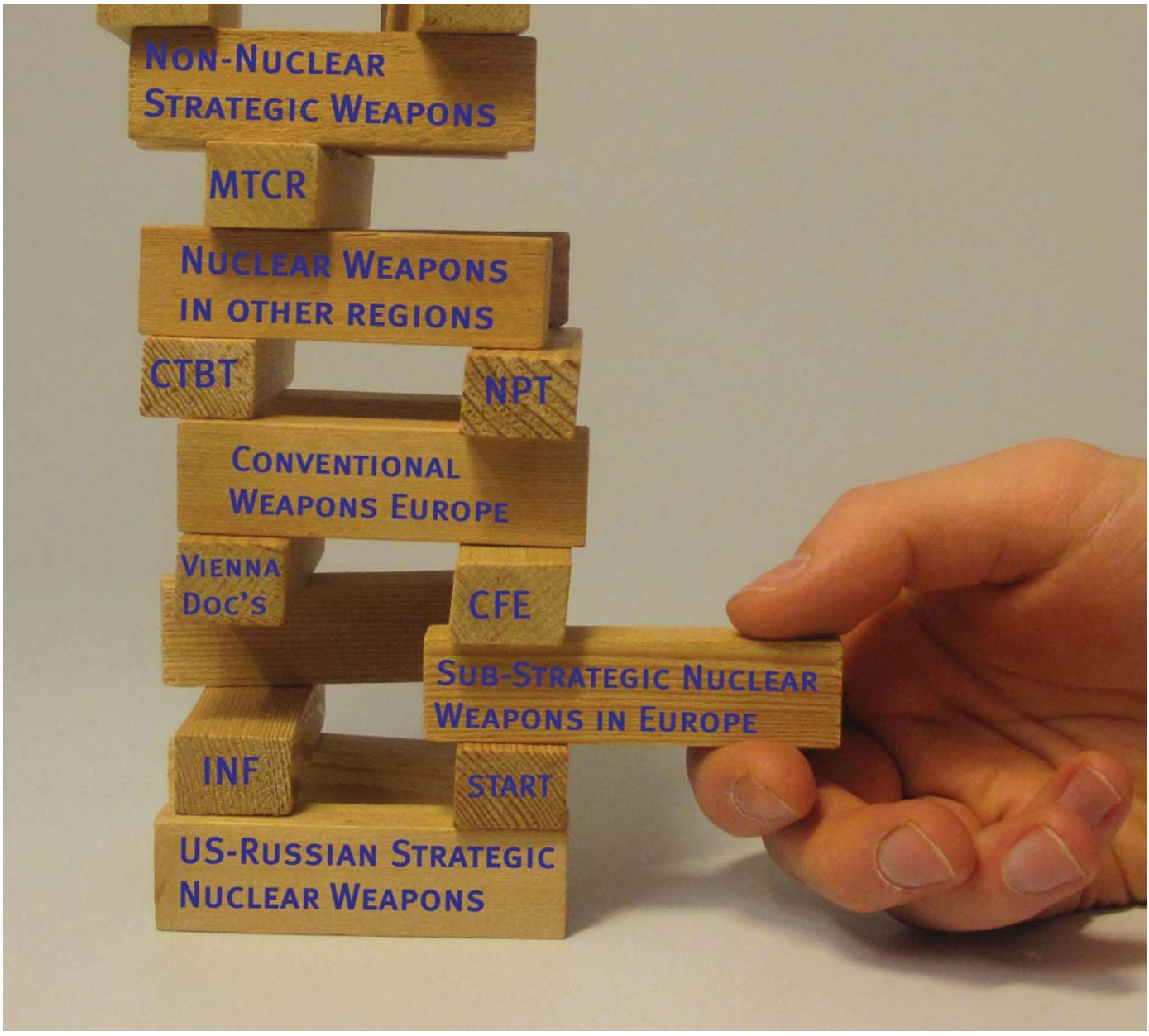

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Nuclear Weapons in Europe

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Abstract

This study addresses, from a security policy perspective, the issue of sub-strategic nuclear weapons (SSNW) in northern Europe and the conditions for constructing an arms control regime for SSNWs. Such a regime could eventually lead to the removal of this category of weapons from northern Europe. In addition to a conceptual discussion of the weapons category and the different types of arms control regime that could be applied to it, the study includes analyses of Russian, US, European NATO member states' and Chinese perspectives on SSNW issues. Finally the study outlines a possible regime for arms control and disarmament for SSNWs that focuses on the Baltic Sea area.

Keywords:

Sub-strategic nuclear weapons, tactical nuclear weapons, arms control regime, disarmament, regime type, Russia, USA, NATO, China, the Baltic region.

Sammanfattning

Denna säkerhetspolitiska studie behandlar frågan om de substrategiska (taktiska) kärnvapnen i norra Europa och förutsättningarna för att konstruera en rustnings-kontrollregim för dessa, som skulle kunna leda till att hela vapenkategorin avskaffades.

Förutom en konceptuell diskussion om såväl vapenkategorin som olika regimtyper som skulle kunna appliceras på den, omfattar studien också en analys av de ryska, amerikanska, övriga europeiska NATO-medlemmarnas samt de kinesiska synsätten på problematiken rörande substrategiska kärnvapen.

Avslutningsvis skisserar studien en möjlig rustningskontroll- och nedrustnings-regim för substrategiska kärnvapnen med fokus på Östersjöområdet.

Nyckelord:

Substrategiska kärnvapen; taktiska kärnvapen; rustningskontroll; nedrustning; regimtyper; Ryssland; USA; NATO; Kina; Östersjöområdet

Preface

Sub-strategic nuclear weapons have been an important part of European security for many years, and they are subject to few arms control measures. We are grateful that the Swedish Ministry for Foreign Affairs responded with enthusiasm to our suggestion that the Swedish Defence Research Agency (FOI) should undertake an initial study of the impact of sub-strategic nuclear weapons on European security policy, and of the necessary conditions for the creation of an arms control regime in northern Europe.

This report presents the conclusions of the study, with the aim of furthering the debate on arms control for sub-strategic nuclear weapons in general and in northern Europe in particular. We would like to express our gratitude to our colleague, Professor Katarina Wilhelmsen, who has commented on the report and suggested several improvements.

An early draft of this report was discussed at an international round-table on Nuclear Weapons and Arms Control, held in Stockholm on 24–25 January 2011. We are thankful for the many helpful comments made by the participants at the round-table, in particular Dr Karl-Heinz Kamp of the NATO Defence College, Rome, Dr Daryl Press of Dartmouth College, Hanover, and Mr Lukasz Kulesa of the Polish National Security Bureau, Warsaw.

We would also like to thank the Swedish Ministry for Foreign Affairs for financing this research project, and for conducting interviews on our behalf in several European capitals as part of the information gathering for this report. Finally, we would like to express our gratitude to Andrew Mash for skilfully and swiftly copy editing the report. Any errors and weaknesses that remain, however, are entirely the responsibility of the authors.

Stockholm, February 2011

Fredrik Westerlund

Project manager

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Executive summary

Strategic nuclear weapons have been the subject of arms control measures since the conclusion of the SALT negotiations in 1972. Many argue that the time is now ripe for further arms control of sub-strategic nuclear weapons (SSNWs). Typical arguments are the lack of any operational need for SSNWs and the risk of SSNWs falling into the wrong hands. Unlike several other categories of weapons, there is no transparency regarding SSNWs. This makes them a potential source of mistrust and uncertainty. From a security policy perspective, a breakthrough on SSNWs could provide positive momentum for other arms control processes and be perceived as an important step in the rapprochement between Russia and the NATO member states.

The objectives of this study are to analyse how SSNWs affect security policy in northern Europe and to explore the conditions in which an arms control regime for SSNWs could be constructed. The ultimate and long-term goal of such a regime would be to pave the way for the total elimination of this category of SSNWs. More general aims of this report are to contribute to the knowledge on arms control and sub-strategic weapons, and to present these issues to a wider audience.

To operationalise the objectives, the study set itself three main tasks: first, to analyse the military and technical requirements of SSNWs, including how they can be defined; second, to analyse the security policy setting for an SSNW regime, not just for the possessors of SSNWs but also for other concerned actors; and, third, to identify key factors and specify different regime options, including the possible advantages and disadvantages of a geographical focus on northern Europe.

What would be the potential objectives of an SSNWs arms control effort? An initial objective would be to achieve *basic transparency* in order to remedy the lack of knowledge regarding SSNWs in Europe. A second objective would be to achieve a *less threatening posture* for SSNWs in Europe. The third objective would be to *limit the arsenals* by agreeing on a ceiling on the number as well as limits on the composition and location of SSNWs in the form of a legally binding treaty. Finally, a potential objective would be to *reduce the size of the arsenals*, probably by sequentially lowering the ceilings for SSNW possession.

In Russia, SSNWs arguably play a role in defence and security policy. The Russian military still perceives a need for SSNWs, and it seems to have sufficient capability to employ such weapons. The signals from the political leadership in Russia have been mixed, and arms control for SSNWs appears to be a sensitive and complex issue for it.

In the light of the complexity of the issue, the vested interests and the lack of any significant groups of interest within Russia that argue for an extension of arms

control to this category of weapons, Russia cannot be expected to enthusiastically welcome – let alone push for – arms control for SSNWs. However, this would not exclude a positive response to Western initiatives if Russia perceived that there was a chance to address important interrelated issues – such as NATO conventional forces and non-nuclear strategic weapons – within the framework of such an initiative. Swift progress, however, should not be expected, in particular in the coming decade during which Russia's general purpose forces will probably continue to be weakened by their ongoing military transformation.

There are a number of diverging views within the US strategic community on the utility of the US SSNW arsenal. The same applies for the Obama Administration's general approach to nuclear weapons. It is possible to discern a certain tension between the president's clearly stated goals – in particular the end-goal of a nuclear-free world – and the obviously geopolitically influenced concepts that permeate his administration's official documents on such issues.

On the SSNW topic, however, one thing stands out: the USA is clearly not contemplating any unilateral moves regarding the US SSNWs in Europe. Instead, a strong emphasis is placed on the value of consultations with the European NATO members states. SSNW issues will therefore take considerable time to deal with, given the consensus rule that operates in NATO decision-making.

A wealth of different opinions exist within NATO on the SSNW issue. It seems fair to say, however, that most actors agree about the very limited value of the US SSNWs in Europe, although half the countries studied believe that they still perform a deterrence role.

Many actors, but not all, also agree on the continued political value of the weapons. A consensus on what to do with them seems to be far away, which, given that NATO's international structure gives every member state the right to veto any decision, makes the status quo the most likely outcome for at least the short term. That does not mean, however, that there can be no change in NATO's SSNW posture. A partial withdrawal, for example, from a number of sites in a particular region would be a possibility as long as a substantial proportion of the SSNWs in Europe were retained. Negotiations leading to that outcome would probably depend to a large extent on substantial Russian reductions of the same weapon category in the same region.

China does not make a distinction between tactical and strategic nuclear weapons. It regards all nuclear weapons as strategic. This fact, and possible future superiority of Chinese conventional forces in the Russian far east, means that Russo-Chinese relations have an impact on Russia's sub-strategic arsenal. Developments in China will be an important dimension for Russian military planning and therefore affect the West's negotiations with Russia on arms control in the SSNW field.

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What would an arms control regime for SSNWs in northern Europe entail? The most feasible format would be bilateral US-Russian negotiations. The nuclear host countries and the other European NATO member states need to be involved in the process but not necessarily the negotiations – even though a NATO consensus on the final outcome of these negotiations will be needed. The weapons definition for a US-Russia bilateral regime would be a fairly straightforward negative definition. The weapons covered by the treaty could be described as nuclear warheads not manufactured to be deployed on delivery vehicles covered by the New START Treaty. The definition would include non-deployed nuclear warheads in storage and production facilities within the area covered by the treaty. In order to erase any grey-zones, the parties should renew their pledges to keep all sub-strategic nuclear warheads dismantled from their intended delivery vehicles and in central storage facilities or selected sites.

The point of departure for defining geographical dimensions has to be the current known or presumed locations of sub-strategic nuclear weapon sites in northern Europe. An important aspect to take account of when suggesting the geographical scope is the need for parity and reciprocity between the parties. In order for the regime proposal to be acceptable to both Russia and the USA and its NATO allies, both NATO and Russian storage facilities need to be included in the area covered by the treaty. At the same time, it would be helpful if the area covered could be easily expressed in geographical terms. Based on the locations of present sub-strategic nuclear sites, the south-eastern Baltic Sea seems to be a reasonable centre point for a geographical dimension defined as a circle.

It may be expedient to begin with a small area, with the expressed intention of widening the area as a pattern is established and mutual confidence increase. A suggestion would be to initially design the geographical dimensions so that only one or two storage facilities for each party were covered. A radius of 750 kilometres from a point in the most south-western part of Sweden would allow for this. A 1,250 kilometre radius would cover all nuclear weapon sites in – and a large part of – northern Europe, while excluding the problematic Kola Peninsula.

A second milestone could be the mutual withdrawal of the nuclear warheads to central storage facilities outside the area covered by the treaty. The parties would be under no obligation to dismantle the storage facilities within the treaty area, but could keep them operational for future use. However, maintained storage areas would be subject to an inspection and monitoring mechanism to ensure that they remained empty.

A third and final milestone would be the irreversible dismantlement of all nuclear weapons facilities within the area covered by the treaty. Verification could

mainly be managed by national technical means,[1] possibly complemented by an inspection mechanism.

The level of success of a specific arms control concept is determined by how it combines different issues, such as actors and timing, and so on. It is important to single out key factors associated with the various stakeholders, and to analyse the conditions in which an SSNW regime would have a smooth interface with other weapons balances and arms control regimes.

Having started from the political context and explored different options for arms control regimes for SSNWs, we find that the Baltic option would be a promising approach. We have explored various concepts that take account of how different weapons complex and arms control issues affect each other. This led to the emergence of a concept which we call cascading. The sub-components and milestones of the Baltic approach must be synchronised with the components of other complexes. The first milestone on transparency is independent, but milestone number two is probably related to the initiation of additional conventional arms control, for example, in the Conventional Forces in Europe Treaty or the Vienna Document.

Similarly, any extension of the control area for SSNWs must be coordinated with operations related to French nuclear weapons and the Russian weapons in the Kola Peninsula. These, in turn, affect SSNWs in other regions as well as strategic nuclear weapons. The lessons learned from and the mechanisms of the regime for SSNWs in Europe could be useful for dealing with warheads in other weapons categories. Since the strategic balance includes both offensive and defensive weapons, long-range conventional systems and missile defence will also be affected.

The question remains: in which framework can these ideas be developed and realized? First and foremost, these problems are related and the responsibility mostly lies with the United States and Russia. However, because the process for SSNWs requires some interaction with others actors even in its first phase, other states, most notably NATO member states, also will be involved early on.

It is important that the process for dealing with nuclear weapons is synchronized with work related to other weapons regimes. These processes have previously been shown to take time – sometimes decades. However, it is time to start the discussions now, so that when the New START Treaty is up and running, NATO's review of its strategic posture is complete, and so on, it will be possible to draw on fully developed ideas to fit future arms control processes. This study has hopefully contributed new perspectives that can help with the next step.

[1] In this report, national technical means signifies tools for verification from the outside of the monitored area, primarily by signals intelligence and satellite reconnaissance.

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1 Introduction: The next step in nuclear arms control

Sub-strategic nuclear weapons have been an important part of European security for many years, yet they are subject to few arms control measures. Is nuclear arms control ready for a next step: a SSNWs regime?

This chapter provides a brief discussion of the relevance of an arms control regime for sub-strategic nuclear weapons. The second section outlines the objectives of the study. A discussion on defining sub-strategic nuclear weapons and arms control regimes follows, and the chapter concludes with a description of the report's structure and sources.

1.1 Background: "The time has come"

Strategic nuclear weapons have been the subject of arms control measures since the conclusion of the Strategic Arms Limitation Talks (SALT) in 1972. Meanwhile, other classes of nuclear weapons have been regulated by international agreements only to a limited degree over the years.[2] Many analysts and politicians now argue that the time is ripe for further arms control regarding sub-strategic nuclear weapons (SSNWs).[3]

Typical arguments in favour of such a regime are the lack of any operational need for SSNWs and the risk of SSNWs falling into the wrong hands. There is no transparency regarding SSNWs, unlike several other categories of weapons, and this makes them a potential source of distrust and uncertainty. From a security policy perspective, a breakthrough on SSNW could provide positive momentum for other arms control processes and could be perceived as an important step in the rapprochement between Russia and NATO member states. Even if the time has not yet arrived for reaching an international accord on arms control in this

[2] The Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of their Intermediate-Range and Shorter-Range Missiles, commonly referred to as the INF (Intermediate-Range Nuclear Forces) Treaty, which was signed on 8 December 1987 and entered into force on 1 June 1987, and bans ground-based missiles of intermediate range (500 to 5,500 kilometres), and the mutual, unilateral Presidential Nuclear Initiatives (PNIs) of the early 1990s are the only measures to touch on the subject of SSNWs.

[3] For instance, according to and op-ed in the *New York Times* by the foreign minister of Poland, Radek Sikorski, and the Swedish foreign minister, Carl Bildt, "One thing is absolutely clear: The time has come to cover sub-strategic nuclear weapons with an arms control regime, which would look like the one that was established long ago for strategic arms" (*New York Times*, 'Next, the Tactical Nukes', February 1, 2010).

field, it seems to be a good moment to start thinking and talking about what such a regime might look like.

Developments on the international scene in recent years have arguably made arms control of SSNWs a logical next step. The efforts of the Obama Administrations to move ahead on non-proliferation issues and the "reset" in US-Russian relations have paved the way for further arms control treaties. The signing and ratification of the New START Treaty was a vital step. The US Nuclear Posture Review (NPR) and the NATO Strategic Concept (NSC) of 2010 are both important documents, as is the new Russian military doctrine of the same year. The wording of the latter seemingly leaves little or no room for battlefield nuclear weapons, and the NPR testifies to an ambition to move forward with Russia on arms control over SSNWs.

Even more important than these documents is the improvement in relations between Russia and the West. Every step away from regarding each other as potential military adversaries gives hope. Building mutual trust and removing the military-political rationale for maintaining SSNWs are paramount to resolving this issue in the long term. It should be noted that a dialogue on sub-strategic nuclear arms control could in itself contribute to strengthening relations.

Although the time is ripe for discussing an arms control regime for SSNWs, several major challenges remain. For example, do the stated ambitions reflect genuine views on arms control in Russia, the USA and NATO today? Even if there is a common desire, working out the technicalities of a treaty will perhaps be more challenging than ever before, not least regarding verification measures. It is likely that it will take many years for a binding agreement on SSNWs to be finalised, but, as is noted above, it is still worthwhile to examine in greater detail what such a treaty might look like.

1.2 The objectives of this study

The purpose of this study is to contribute to knowledge on arms control and sub-strategic nuclear weapons and to present views on the issues to a wider audience. The objectives of the report are to analyse how SSNWs affect security policy in northern Europe, and to explore the conditions under which an arms control regime for SSNWs could be formulated. The ultimate and long-term goal of such a regime would be to pave the way for the total elimination of SSNWs. To achieve these objectives the study set itself three main tasks: first, to analyse the military and technical requirements for an arms control regime regarding SSNW, including how SSNWs are defined; second, to analyse the security policy setting for such a regime, not only for the owners but also for other concerned actors; and, third, to identify the key factors in and specify different options for such a regime, including the possible advantages and disadvantages of a geographical focus on northern Europe.

The focus of this study is to identify the main conditions for creating an effective arms control regime for SSNWs in northern Europe. However, an effort has also been made to address some general arms control issues and to touch upon SSNWs outside the European context. The report therefore to some extent discusses other types of weapons and other regions of the world, but its focus lies on aspects of concern for a SSNWs arms control regime in northern Europe.

1.3 Defining SSNWs and arms control regimes

One of the challenges for a future arms control regime, as well as for this study, is the lack of a generally accepted definition of SSNWs. This is not merely a question of terminology, but of how to find a definition that will prove useful to an effective arms control regime. Terms such as short-range, battlefield, theatre, non-strategic, sub-strategic, tactical and intermediate have been used for nuclear weapons, most of them with slightly different meanings.

An important, and most probably time-consuming, part of any negotiations on a future treaty would be defining what should be covered by it. None of the alternative ways of defining SSNWs is flawless.[4] Arms control treaties on strategic nuclear weapons usually base their definitions of the weapons covered on the delivery system. This was also done for SSNWs in the INF treaty. However, this treaty covers an entire class of weapons, regardless of the type of warhead used. A particular trait of sub-strategic delivery systems is that they often have both nuclear and conventional capacity (so called dual-use) which makes basing definitions solely on delivery systems difficult.[5]

Differentiating strategic and sub-strategic nuclear weapons by the range of the delivery vehicle or the yield of the warhead is also problematic. There is a substantial overlap in both these aspects (Arbman & Thornton, 2003: 9–10). Differentiation based on intended mission use – at the strategic, tactical, operational or theatre level, again risks overlap and grey areas. Alternatively, the definition may be based on the part of the military organisation by which the weapons are intended to be used. SSNWs are usually in service in general purpose forces, while strategic forces are often organised separately. No single definition is fool proof, but they may be useful when used in combination in an arms control treaty.

[4] For a discussion of definitions see Arbman and Thornton, 2003: 9–11.
[5] Dual-use strategic delivery systems have so far been only a minor problem, mostly limited to strategic bombers. However, dual-use ballistic missiles are in the treaty text of the New START Treaty.

For the purposes of this study, the definition based on exclusions used by most experts in the field is sufficient.[6] Consequently, sub-strategic nuclear weapons are those not covered by the New START Treaty and the INF Treaty. This definition is more than adequate for identifying the area of interest in this study, but it is not sufficiently precise for a treaty, in particular a multilateral one, as it includes all the nuclear weapons of some nations, including Chinese intercontinental ballistic missiles. Providing a more precise definition would be a vital part of future treaty negotiations, and this study attempts to indicate what needs to be covered in each suggested alternative arms control concept.

It is useful at this point to provide a basic classification of the different kinds of SSNWs. It is often, albeit not always, possible to differentiate between short-range nuclear weapons with tactical military missions and intermediate-range weapons primarily intended for theatre use. Possibly complemented by command level criteria, such a definition might be useful when devising a sequential arms control regime for SSNWs.

A second key concept in this study that needs to be defined is “arms control regime”, in particular the meaning of the word regime. Definitions of regime in international relations often involve a set of principles, norms, rules and governing arrangements that a group of international actors adheres to within a specific area of international relations.[7] Although the concept of international regime was developed in the academic discourse at a time when arms control was high on the security agenda, there is little connection between the two debates. In the area of arms control, regimes tend to relate to formal institutions and formal agreements or treaties.

The process of arms control arguably had more merit than just reductions or limitations related to weapons arsenals. Arms control was one of the few channels of engagement and ways to interact between the superpowers during the Cold War (Woolf, 2010: 6). Both perspectives are combined in this report. The concept of an arms control regime includes arrangements between two or more states on transparency and the limits on the handling and possession of specific categories of weapon. In recognition of the fact that there are informal and unwritten merits of arms control regimes, this study also includes principles, norms, rules and governing arrangements in the concept.

1.4 Study design and sources

The overall design of this study follows the three main tasks identified in the objectives. Each chapter relates to the different tasks. Chapter 2 is an analysis of

[6] See, e.g., Pomper*, et al.,* 2009: 5; Andreasen *et al.,* 2010: 1, footnote 2; and Zagorski, 2011: 9.

[7] See Krasner, 1993: 2; Müller, 1995: 361; and Young, 1989: 12ff

military and technical requirements, starting with the general components and phases of arms control regimes. It addresses potential objectives and military conditions.

Chapters 3–6 analyse the security policy setting for a SSNW arms control regime. The perspectives of Russia, the USA, the NATO member states and China are identified and analysed. Different key factors and regime alternatives are identified in chapter 7. The final section of chapter 7 outlines a conceptual framework for the establishment of a SSNW regime with a focus on Baltic Sea area. Some final conclusions are drawn in chapter 8.

The sources used for the empirical parts of the study are articles, reports and official statements on SSNWs and arms control. Interviews were conducted with officials and experts in Moscow, Washington, DC, and the European capitals, as well as with academics and policy specialists in other locations. The interviews were in some cases conducted by the authors and in others by personnel from the Swedish Ministry for Foreign Affairs. In all cases, the interviews were based on a pre-prepared set of questions. The information generated at an international round-table discussion in Stockholm in January 2011 was also used in this study.[8]

[8] For a thematic summary of the topics discussed at the round-table meeting on current nuclear issues that took place at the Swedish Defence Research Agency (FOI) in Stockholm on 24–25 January 2011 see Lagerström, 2011.

2 Arms control and SSNWs

Before broader security policy issues are examined, it is important to focus efforts by examining the military and technical requirements of arms control and SSNWs. This chapter identifies the general components, processes and potential objectives of arms control regimes and SSNWs. A military perspective on the specific conditions of SSNWs is provided in section 2.3.

2.1 The general components and process of constructing arms control regimes

There are typical steps towards and components of constructing arms control regimes. When examining past arms control regimes and treaties, many common themes can be identified, even though the specific path to an agreement varies considerably.

An arms control regime generally has four main elements. The first is *the scope* of the regime. Important factors are its overall ambition, the definition of the weapons, the regime participants and the geographical dimensions. Both the characteristics and the designation of the weapons are often used to define which weapons are included in the agreement.[9] Many regimes have zones or other subdivisions within their area of application. The second component is the different types of *goal*, such as milestones, the order of milestones, ceilings on arms holdings, and so on. The third part of a regime is *verification*, including transparency and inspection mechanisms or tools to confirm a party's commitment or compliance. The fourth component is the general *supporting framework* of the regime, for example, definitions of phases and regulatory mechanisms for the handling of non-compliance, suspension, amendment, and so on.

The process of arriving at a functional arms control regime involves at least four general steps. The first is the *initiating step*, which involves defining issues such as what goal should be achieved, which weapons and which parties should be included, and the venue or approach to be used in the process. The second is the *negotiating step*, in which the roadmap and the specifics of the regime can hopefully be worked out by the parties involved. Third, there is the *signing and ratifying step*, in which the parties endorse and legally authorise the regime or treaty. The fourth step is the *implementing step*, in which the regime is executed. Reviews are often used, and sometimes amendments, to rectify the regime after it as been put in place.

[9] Article II and article III of the INF treaty.

Measures that seek to reduce the perceived need for and benefits of offensive nuclear weapons could be a point of departure when constructing nuclear arms control regimes. During the Cold War, NATO member states perceived that their limited strategic depth on the central front was an important factor in arms control negotiations. One way of overcoming this problem was to achieve arms control measures that penalised fast and aggressive behaviour, including, among other things, operational issues such as preparedness and training activities (Davis, 1988). A more recent example of how the strategic balance based on offensive nuclear weapons can be exchanged for a defensive balance is provided by Wilkening (2010). His idea is that all ballistic missiles except the most short-range ones should be abolished, while missile defence systems should be expanded (Wilkening, 2010: 107).

2.2 The potential objectives of an arms control regime

What might be the objectives of an SSNW arms control effort? The ultimate objective would of course be the abolition of such weapons, but there are several potential objectives along the way to such a goal.

An initial objective would be to achieve *basic transparency* to remedy the lack of knowledge regarding SSNWs in Europe. This would encompass a declaration of the size, composition and location of the arsenals and preferably also the introduction of some kind of inspection regime. It is likely that such a regime would be based on a mutual (unilateral), politically binding agreement. Thereafter, an objective would be to achieve a *less threatening posture* for SSNWs in Europe. This is also most likely to be achieved through a politically binding agreement.

A later objective would be to *limit the arsenals* by agreeing on a ceiling for the size, and on limits on the composition and location of SSNWs. Verification and inspection mechanisms would be needed to monitor compliance with such an agreement. These would most probably take the form of a legally binding treaty.

Finally, a potential objective would be to *reduce the size of the arsenals*, most probably by sequentially lowering the ceilings for the possession of SSNWs. Such an agreement would also be a legally binding treaty.

2.3 SSNWs and military conditions

Weapons come into play if there is a perceived need for them and a corresponding capability to employ them. This is true for both strategic and sub-strategic nuclear weapons, which are usually perceived as fulfilling different needs. While strategic forces in their own right may be perceived as providing

deterrence and lending weight to a country in international politics, SSNWs are generally believed to strengthen conventional forces, indirectly contributing to deterrence and supporting claims to great power status.

The perceived military need for SSNWs is more general and theoretical, while capability is a more of a practical question. Such weapons could be regarded as necessary in order to compensate for quantitatively or qualitatively unsatisfactory conventional forces. From a military perspective, nuclear landmines and “heavy artillery” may compensate for insufficient force numbers, while nuclear warheads in ground- or air-defence, or anti-ship missiles may make up for lack of precision when destroying an intended target.

It is generally accepted by experts that SSNWs no longer fulfil any direct military purpose for NATO or the USA in the European context. During the Cold War, NATO perceived a need for such weapons to engage numerically overwhelming Warsaw Pact forces, but this perceived need died with the Soviet Union. However important the remaining warheads – some 150–200 gravity bombs located in five countries[10] – are for reassurance and NATO cohesion, the military value of these weapons appears extremely limited and continues to diminish as their delivery systems age.[11]

As is mentioned in the introduction, Russian military doctrine appears to ascribe no military role to SSNWs. However, there are ample reasons for doubting that this represents the genuine Russian view. Arguably, there is a widespread view in Russia, and not only in the Russian military establishment, that sub-strategic nuclear weapons are increasing in importance. This is discussed in greater detail below, as is Russia’s capacity to use SSNWs. In this context, it is sufficient to say that the perceived military utility and capability of these weapons still have to be reckoned with.

Other nations may also regard SSNWs as useful and be capable of employing them. China is an obvious candidate, as perhaps is France, depending on how some of the weapons in the French arsenal are defined. The USA has an overwhelming conventional capability, but nonetheless retains a considerable number of sub-strategic nuclear warheads in addition to the ones stored in Europe.

There is an argument that SSNWs are sometimes more suitable for tailored or calibrated deterrence. Traditional strategic nuclear weapons, such as intercontinental ballistic missiles and submarine-launched ballistic missiles, have the potential to hit targets anywhere in the world. At the end of the Vietnam War, US

[10] For a detailed account see Kristensen, 2010.
[11] On the aging of platforms see, e.g., Kamp, 2010: 7. Kamp also highlights the political constraints on using the weapons, which undermine their military use and credibility as a deterrent.

President Nixon tried to influence negotiations with Vietnam by putting US strategic bombers on high alert and starting new drills to persuade the Soviet Union to put pressure on the Vietnamese delegation in Paris. The results were at best mixed: it created concern in Moscow and elsewhere but did not affect the Vietnamese government (Sagan and Suri, 2003).

For a global strategic balance, based on the assumption that every nuclear great power could inflict intolerable damage on other states, it is important to retain uncertainty about what strategic nuclear arsenals are targeted at. If, however, the aim is to shield a specific region, or to further interests or deter external interference in a certain area, SSNWs would arguably be more suitable.

The US deployment of nuclear weapons in East Asia from the 1950s to the 1990s, in an attempt to influence the behaviour of North Korea, is a case in point. The nuclear arms provided strategic deterrence vis-à-vis North Korea but did not change the strategic balance vis-à-vis the Soviet Union.[12] Other nuclear powers could arguably benefit even more from using SSNWs. If the vital interests of the USA or its allies were not at risk, actors using a tailored approach might persuade Washington to refrain from interfering in specific regions or conflicts.

[12] *Washington Times*, "US often weighed North Korea 'nuke option'", 9 October 2010.

3 Russia: Contradictory signals and a military rationale for SSNW

Russian perspectives on nuclear weapons, first and foremost sub-strategic nuclear weapons, and on arms control are important to understand in order to successfully devise a possible future arms control regime for SSNWs. This chapter discusses the role such weapons play in Russia and the most prevalent views on arms control in the country.

3.1 The role of sub-strategic nuclear weapons in Russia

During the Cold War, the Soviet sub-strategic nuclear arsenal essentially fulfilled two functions. It provided deterrence from the use or threat of use of US nuclear weapons in Europe and it gave additional firepower to its conventional forces. The collapse of the Warsaw Pact and the Soviet Union fundamentally changed the geopolitical and military-strategic situation to the detriment of Russia, and with it its view on the utility of SSNWs.

The Russian Federation's military posture has arguably become increasingly dependent on nuclear weapons — not least on its sub-strategic arsenal.[13] The latter is often viewed as necessary in order to compensate for the continual degradation of Russia's conventional forces at a time when foreign forces are perceived to be being built up near Russia's borders. In recent Russian military doctrines, the risk of a large-scale war is toned down, but other types of warfare are depicted as increasingly likely. In the light of the current state of Russia's conventional forces, nuclear weapons seem to have a major role in deterring – and possibly defeating – potential enemies. In the case of regional and local wars, strategic nuclear weapons alone cannot provide credible deterrence. This is all the more apparent when facing an antagonist with strategic nuclear retaliatory capability, where a deterrent below the level of mutual annihilation may be a necessary supplement in order to achieve full spectrum deterrence.

One important question is whether the doctrine of nuclear de-escalation can be considered valid in Russia. This concept entails the selective use of nuclear weapons in order to convince an aggressor to stand down, by showing resolve and readiness for further nuclear escalation. Central to the doctrine of nuclear de-escalation is the ability to meet enemy aggression with a tailored nuclear response by inflicting a 'set level of damage'. Being able to tailor the nuclear response to different levels of armed conflict presupposes a wide range of

[13] See e.g. Cronberg, 2010: 24–28.

nuclear weapons in the inventory, not least sub-strategic ones.[14] In essence, this allows for an asymmetric response to an attack that Russian general purpose forces cannot effectively defeat, such as conventional long-range stand-off weapons, modern high-technology warfare methods or an overwhelming number of troops.

It should be noted that the doctrine of nuclear de-escalation is not explicitly referred to or mentioned in either the current or the previous Russian military doctrine.[15] However, in both doctrines the Russian Federation reserves its right to a first use of nuclear weapons in response to a critical conventional attack. Furthermore, concepts such the ability to inflict a 'set level of damage', closely associated with the doctrine of nuclear de-escalation, appear in the text. In view of this, the validity of the doctrine in Russia's nuclear posture cannot easily be dismissed, particularly while its conventional force capability remains limited and Russia continues to uphold its current military posture.

There are three main directions[16] in which SSNWs have the potential to play a major role. In Russia's 2009 National Security Strategy as well as its 2010 Military Doctrine, the military challenges related to the western strategic direction come to the fore. Russian conventional forces are perceived as qualitatively and quantitatively inferior to NATO troops in Europe. In April 2010, the chief of the Russian General Staff, Army General Nikolai Makarov, again stated that SSNWs were needed in order to counter the massive advantage in conventional armaments of NATO forces.[17]

US superiority in air attack over long distances in combination with its naval warfare resources also provide a dilemma in north-east Asia, although this is not explicitly mentioned in official security policy documents. In the opinion of one expert, a combined large-scale attack on Russian territory by US and Japanese forces could only be repelled by using nuclear weapons (Fedorov, 2008: 144). Even less is said officially about the threat from China. Russian forces are heavily outnumbered by Chinese troops in the Far East. The ground forces of the People's Liberation Army (PLA) alone number some 2 million. This would explain news reports on the simulated use of a nuclear landmine in the final

[14] For a recent discussion of this concept see Zagorski, 2011, Part II.
[15] Sub-strategic nuclear weapons are not mentioned in the current military doctrine. In fact the wording of the doctrine seems to rule out the use of battlefield nuclear weapons, as it is explicitly stated that nuclear weapons are to be used as a last resort in large-scale and regional wars and only after a decision by the President (Russian Federation Security Council, 2010: articles 16 and 22).
[16] Fedorov highlights the South as a fourth direction in which sub-strategic nuclear weapons may have a role, arguing that such weapons could be used to deter regional powers such as Turkey and Iran from expanding into the post-Soviet space (Fedorov, 2008: 149).
[17] Interfax-AVN, 21 April 2010.

phase of the VOSTOK-2010 military exercise.[18] In a commentary on the exercise, a military analyst highlighted the fact that the only military option for the Russian Armed Forces in order to stop or delay advancing PLA troops would be the early use of sub-strategic nuclear missiles.[19]

There is seemingly a role for SSNWs in Russian security policy and defence planning with regard to deterrence of and possibly the de-escalation of armed conflict. Does the Russian Federation have a corresponding capability? Russia continues to possess a wide variety of weapons and platforms for the delivery of SSNWs, including both short-range (battlefield, tactical or operational-tactical in the Russian context) and intermediate-range (operational or operational-strategic) nuclear weapons.[20]

These are found in the land, air and naval forces. Long-range aircraft (Tu-22M3) as well as frontal and naval aviation can be equipped with gravity bombs and air-to-surface missiles with nuclear warheads. There are numerous nuclear anti-ship and anti-submarine weapons, including torpedoes, as well as sea-launched cruise missiles for deployment on navy surface ships and submarines. Furthermore, sea- and ground-based air and missile defence systems have nuclear warheads as an option.[21]

In the army, ballistic missiles with nuclear warheads have been part of the inventory in the past and possibly still are. Furthermore, the army also possibly possesses the nuclear landmines mentioned above. This would, however, be inconsistent with repeated official Russian statements to the effect that Russia has eliminated SSNWs from within its ground forces in accordance with the Presidential Nuclear Initiatives of the 1990s. Nonetheless, the Rocket Troops and Artillery of the Ground Forces official webpage stated as late as 2010 that it was the main instrument for conventional and nuclear attack on an adversary.[22] Furthermore, a new delivery systems is seemingly being introduced, the *Iskander*

[18] Voenno-promyshlennyi kurer, 'Vostok 2010: Nachalo, kulminatsiia, epilog' [Vostok-2010: Start, climax and epilogue] , No. 29, 2010 (28 July 2010 — 3 August 2010).
[19] McDermott, Roger, *Eurasia Daily Monitor*, 2 June 2010.
[20] For Russian definitions of different sub-strategic nuclear weapons see Arbman and Thornton 2003: 11 and Zagorski, 2011: 11.
[21] For a breakdown by category see Zagorski 2011: 18, Table 3.
[22] The webpage of Rocket Troops and Artillery of the Ground Forces, http://www.mil.ru/848/1045/1272/1356/1357/20812/index.shtml, accessed 20 September 2010. The official website of the Armed Forces was altered in early 2011, and one of the changes was that separate troop information on ground forces has been removed. The text referred to was 'Raketnye voiska i artilleriia yabliaiutsia onsnovnym sredstvom ognevogo i yadernogo porazheniia.'

missile system, which is widely believed to have a nuclear warhead option,[23] as, according to some experts, will the future S-500 air-defence missile system.[24]

The number of Russian sub-strategic nuclear warheads has never been officially disclosed – as is the case with the US arsenal. Establishing the size and composition of these stockpiles would therefore be a desirable first step in any future arms control regime. Assessments of the Russian sub-strategic arsenal range from 2000 to 8000 warheads, with less than 3000 estimated as available for use. A fair and realistic assumption would be that the Russian Federation has in total between 5000 and 6500 warheads in its inventory, of which some 2000 are at the disposal of the armed forces and the rest held in reserve or awaiting destruction. It should be noted that, apart from weapons on ships and submarines on patrol, all sub-strategic nuclear warheads are believed to be kept in storage separate from their intended carriers.[25]

On the basis of openly available information it is extremely difficult to ascertain the extent to which Russian forces carry out nuclear exercises and training missions in order to maintain and develop their sub-strategic nuclear capabilities. However, based on the available delivery vehicles and the estimated number of deployable warheads, it is fair to say that Russia seems to have a sufficient capability to employ SSNWs. In fact, the arsenal seems to exceed the requirements even of the nuclear de-escalation doctrine. It should be noted, however, that a considerable proportion of the delivery vehicles will reach the end of their expected service life in a few years. This may have positive implications for future arms control efforts.

3.2 Russian views on arms control for SSNWs

In 2010 there seemed to be little movement in Russia towards arms control for SSNWs, but there were signs that Russia was prepared to enter into discussions on the issue after the ratification of the New START Treaty. The notion of the increasing utility of SSNWs is not uncontested in the Russian defence and security community, but has become mainstream thinking in military circles. The nuclear-related parts of the defence-industrial complex also support this line of thinking (Zagorski, 2011: 30). Furthermore, at the 2010 Non-Proliferation Treaty Review Conference, the Russian delegation blocked all references to SSNWs in the final document (Dhanapala, 2010: 9). This may be interpreted as a lack of interest in engaging in discussions on the issue.

[23] This was stated, for instance, by Pavel Podvig at a seminar in Stockholm on 26 January 2011.
[24] Pavel Felgenhauer, 'Putin and Medvedev Raise Prospects of a New Arms Race', *Eurasia Daily Monitor*, 2 December 2010.
[25] For an updated overview of different expert assessments of Russian sub-strategic nuclear weapon stockpiles see Zagorski, 2011: 15, Table 1.

The age of the weapon systems could be a reason for seeking an arms control agreement. In this way, the shrinking of the arsenal could be converted into political capital. Thus far, however, this has not been a sufficiently strong argument, and it is doubtful whether it has any weight at all. The recent official Russian line regarding SSNWs has been limited to demanding that all weapons should be deployed within national borders before the matter can be discussed further. [26] This is of course directed at the US warheads in Europe,[27] but it is unclear whether this is a genuine Russian concern or merely a way of avoiding the issue of SSNWs.

One likely reason for Russia's inertia is that the issue is highly complex and sensitive. It is sensitive for Russia for two reasons: first, because an effective arms control regime for SSNWs would have to centre on warheads, and verification of such a regime would entail intrusive mechanisms; and, second, because part of the deterrent effect of SSNWs is the secrecy and scarcity of information about its arsenal. This would be lost if a treaty entered into force.

An equally compelling argument is the complexity of the issue. The sub-strategic nuclear arsenal is not only related to the conventional capability of foreign powers. Apart from the imbalance in conventional forces in Europe, Russian officials have argued that SSNWs are interrelated with the development of weapons in outer space and of non-nuclear strategic weapons.[28] The latter includes both ballistic missile defence systems and offensive strategic weapon systems such as Prompt Global Strike.[29]

In relation to the USA, US superiority in cruise missiles and the development of advanced high-technology weapons are more or less directly linked to Russian nuclear capability and the possibility of maintaining strategic parity. Other conventional weapons that might affect the strategic balance would be anti-submarine warfare (ASW) systems and long loiter time unmanned aerial vehicles (UAVs) deployed with sensors or weapons.

As the Russian strategic arsenal shrinks, nuclear weapons in other states affect the overall strategic balance. In early 2011, the Russian Foreign Minister, Sergey Lavrov, expressed the opinion that other nuclear weapon states should be part of future negotiations on nuclear arms control. This indicates that French and British nuclear weapons may also be an issue for Moscow regarding arms control

[26] See, e.g., Russian Federation Ministry for Foreign Affairs, 2011.
[27] A widespread view in Russia is that the USA promised 20 years ago to withdraw its nuclear weapons at the same time as the Soviet weapons were being removed.
[28] See, e.g., Russian Federation Ministry for Foreign Affairs, 2011 and State Duma of the Russian Federation, 2011.
[29] Prompt Global Strike is a weapon system, preferably a missile system, armed with conventional warheads that is capable of striking anywhere in the world in less than one hour. The programme has been in development for several and would give the USA the ability to hit time-sensitive targets such as terrorist leaders.

regimes for SSNWs in Europe. Furthermore, Foreign Minister Lavrov argued that removing one component related to strategic stability from its context and trying to find a solution for that component alone would be impossible (Russian Federation Ministry for Foreign Affairs, 2011).

3.3 Conclusions

SSNWs play a role in Russian defence and security policy. Russia continues to see a need for SSNWs, and it seems to have sufficient capability to employ such weapons. Signals from the political leadership have been mixed, and arms control for SSNWs seems to be a sensitive and complex issue in Russia.

In the light of the complexity of the issue, the existence of vested interests, and the lack of any significant groups of interest within Russia that argue for an extension of arms control to this category of weapons, Russia cannot be expected to enthusiastically welcome — let alone push for — arms control for SSNWs. However, this does not exclude the possibility of a positive answer to Western initiatives if Russia perceived that there were a chance to address important interrelated issues, such as NATO's conventional forces and non-nuclear strategic weapons, within the framework of such an initiative. Swift progress, however, should not be expected, in particular in the coming decade, during which Russia's general purpose forces will probably be weakened by the ongoing transformation.

4 The United States: Heading towards global zero?

Alongside Russian perspectives on SSNWs and arms control, US perspectives are of equal importance. This chapter discusses the Obama Administration's views on nuclear issues in general and the US sub-strategic nuclear weapons in Europe in particular.

4.1 The Obama Administration and nuclear issues

The nuclear policies of the administration of US President Barack Obama differ in some important ways from earlier US policies. In the first place, the president has personally identified himself with a highly ambitious goal: full, global nuclear disarmament – in effect, the global abolition of nuclear weapons. This – usually labelled "global zero" – was the main message of his famous Prague speech of 5 April 2009, and it is referred to in most discussions of contemporary US nuclear policy.[30]

Although neither the administration nor the president himself has presented this goal as something that can be easily attained, advocates of nuclear abolition outside the White House initially raised considerable expectations regarding a radical shift in the administration's official nuclear policies. In many ways, these hopes did not materialise in the spring of 2010, when the Obama administration's Nuclear Posture Review (NPR) was published. Although some new concepts were introduced, there were no plans for unilateral US nuclear disarmament or even an explicit nuclear "no-first-use" policy. The latter has been put forward many times in the internal US debate, particularly within the Democratic Party.[31]

Nonetheless, the 2010 NPR contains a number of new nuances, at least compared to the Bush administration's policies. In the first place, the use of nuclear weapons other than to defend the USA and its allies in "extreme circumstances" was excluded. Secondly, it expresses a "negative security guarantee": the US will not use or threaten to use nuclear weapons against states that are party to and in compliance with the Nuclear Non-proliferation Treaty (NPT) (US DoD, 2010: 17).

Thirdly, it states an explicit aim of dramatically reducing the role of nuclear weapons in US policy and strategy. In line with Obama's speech in Prague, the

[30] See http://prague.usembassy.gov/obama.html.
[31] This was highly pertinent in the numerous interviews with Democratic Party representatives in the USA conducted during the research phase for this report in the autumn of 2010.

NPR underlines that the USA is committed to the goal of a world free from nuclear weapons. Stockpile stewardship and management programmes, i.e. the safeguards and life-extension measures regarding stored nuclear weapons, are presented as means of reducing the number of deployed nuclear weapons (US DoD, 2010: 30, 37ff).

However, the goal of a nuclear-free world is strongly linked to several traditional geopolitical conditions. Any US nuclear reductions post-START should strengthen deterrence against regional adversaries and contribute to strategic stability regarding Russia and China, as well as reassuring US allies and partners of continued US support. The NPR does not present Russia as an adversary, but it does state that the size of Russia's nuclear forces will remain a "significant factor" in the process of determining the pace of US nuclear weapons reductions (US DoD, 2010: 29f).

Thus, in general terms, US nuclear policies under the Obama Administration contain some changes in relation to those of its immediate predecessor, but there are also a host of traditional geopolitical potential brakes on developments in the nuclear disarmament field.

4.2 The Obama Administration and US SSNWs in Europe

In general terms, the US SSNWs can – after the full implementation of the 2010 NPR – be divided into two major categories: nuclear-tipped air-launched cruise missiles (ALCMs) and gravity bombs (primarily the B-61 bomb) delivered by bombers or fighter aircraft. Munitions of the latter kind are the only ones currently deployed in Europe. A number of such bombs are also stored in the continental USA. The issue of SSNWs in Europe did not play a big role in the early days of the Obama Administration. Even before the ratification process for the New START Treaty was concluded in the Senate in December 2010, the NPR had alluded to the possibility of a post-START treaty with Russia that would bind both countries to more reductions of "all nuclear weapons", including SSNWs (US DoD, 2010: 29).

In addition, the NPR contained a number of policy guidelines related to SSNW issues. First, the US policy of basing a limited number of forward deployed SSNW systems in Europe is based on the concept of extending deterrence to its European allies. Second, the Russian SSNW arsenal is explicitly mentioned as one of the major reasons why this is necessary, since parts of the arsenal are deployed near the territories of several NATO member states and are therefore of concern to NATO (US DoD, 2010: 27).

Thus, according to the NPR, SSNWs, both deployed and non-deployed, should be included in any future reduction arrangements between the USA and Russia,

but the USA will consult with its allies, rather than deciding unilaterally or bilaterally, in order to reach a NATO consensus on SSNW issues. This means that, in practice, the NPR defers to the NATO alliance on fundamental issues concerning the existence of US SSNWs in Europe.

However, a number of practical measures on US SSNWs are clearly set out in the NPR, aimed at keeping all options open. These include retaining a future US air force dual-capable aircraft, i.e. an aircraft such as the JSF able to deliver nuclear weapons. Furthermore, the only US SSNW system based in Europe, the B-61 gravity bomb, will undergo a full-scope life extension programme (US DoD, 2010: 27).

According to the NPR, the presence of SSNWs in Europe combined with NATO's nuclear sharing arrangements contribute politically to NATO cohesion and provide reassurance to member states and partners that "feel exposed to regional threats". Thus, any changes in NATO's nuclear posture should only be made after a review within – and a decision taken by – NATO (US DoD, 2010: 32). If we link these statements to the clear call on Russia to consolidate its SSNW systems to a "small number of secure facilities deep within Russia", (US DoD, 2010: 29) it seems obvious that the Russian nuclear posture and general political relations with a number of NATO member states are the explicit major drivers of the US view on the utility of US SSNWs in Europe. This might seem a somewhat paradoxical position, given the great efforts of the Obama Administration to present Russia as a partner and not an adversary in the nuclear field.

However, a number of US nuclear analysts and actors in the US international relations community voice other opinions regarding the US nuclear weapons in Europe. First and foremost, US SSNWs are seen as having no real military value, given the current threat environment and the difference in US-Russian relations compared to the Cold War era. In practice, some analysts argue that there is no difference between storing B-61 bombs in Turkey and storing them in Missouri. There is no military need for them to be in Europe, and for the purposes of a NATO reassurance mechanism the most important issue will always be the political will of the USA, not the physical location of the munitions.[32] Other US analysts, while essentially agreeing on the lack of military value of B-61 bombs deployed in Europe, concede that there is some symbolic value to NATO in having the weapons in Europe, seeing this as a token deployment – a residual heritage from the Cold War – having no real consequences if they are withdrawn or not.[33] Yet other US strategists see the whole SSNW issue as simply a

[32] Interview, Hanover, NH, Oct. 2010.
[33] Interview, Cambridge, MA, Oct. 2010.

bargaining chip in the general US-Russian arms control game, with little if any other value.[34]

Thus, from a strictly US perspective, the forward deployment of US SSNWs in Europe could be seen as nothing but another way of reassuring the European NATO member states that the USA is "coupled" to their defence efforts and there is a "linkage" between the US sub-strategic and strategic nuclear arsenals. In short, this means that the role of the SSNWs is purely political. Some analysts even argue that, from a military perspective, it would be much better to withdraw them from Europe. If the SSNWs were available in the continental USA, they could be put to use attached to strategic delivery systems for specific targets such as hardened, underground command centres in adversary countries.[35] Others underline the importance of military planning for all forms of nuclear weapons: a weapons system that cannot be used cannot logically have any deterrence capacity. This goes for SSNWs as well, and there are, according to these analysts, several possible targets for modernised SSNWs in the threat environments of today and tomorrow.[36]

In 2008, a major US Department of Defense taskforce on US nuclear weapons management found that even senior US military commanders in Europe (e.g., at EUCOM, the regional combatant command based in Stuttgart, Germany) doubted the value of the US SSNWs in Europe, and suggested that their deterrence role should be taken over by US nuclear weapons stationed outside the continent. The taskforce forcefully recommended that the president counter this opinion, and argued that US SSNWs in Europe still play important roles, both as deterrence and instruments of reassurance for NATO member states:

> [T]he presence of US nuclear weapons in Europe remains a pillar of NATO unity. The deployment of nuclear weapons in Europe is not a Service or regional combatant command issue—it is an *Alliance* issue. As long as NATO members rely on US nuclear weapons for deterrence—and as long as they maintain their own dual-capable aircraft as part of that deterrence—no action should be taken to remove them without a thorough and deliberate process of consultation (US DoD, 2008: V, 60).

Furthermore, the taskforce noted that even if "the deterrence value of US nuclear weapons in Europe may be less than before to the United States […] they are of greater value to Alliance solidarity, and the cost to maintain them in Europe is low and worth paying" (Norris and Kristensen, 2010: 60).

[34] Interview, Washington, DC, Dec. 2010.
[35] Interview, Hanover, NH, Oct. 2010.
[36] Interview, Washington, DC, Dec. 2010.

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4.3 Conclusions

There are a number of diverging views in the US strategic community on the utility of the US SSNW arsenal. The same goes for the Obama Administration's approach to nuclear weapons. It is possible to discern a certain tension between the president's clearly stated goals – in particular the end-goal of a nuclear-free world – and the obviously geopolitically influenced concepts that permeate his administration's official policy documents on the issue.

One thing is clear: the USA is not contemplating any unilateral moves regarding US SSNWs in Europe. Instead, the US. strongly emphasises the value of consultations with NATO's European member states. We might therefore conclude that the European SSNW issues will take some considerable time to resolve, given the consensus rule in NATO decision-making.

5 NATO and its member states: Conflicting ambitions within an unified framework

Any discussion of arms control for SSNWs in Europe has to take the views of the European NATO member states into account. Even a negotiating format that formally includes only the owners of such weapons, Russia and the USA, would have to allow for a process in which host nations and other European NATO member states could participate. Up until now, arms control regimes for strategic nuclear weapons have been negotiated in a strictly bilateral format, but SSNWs are too closely related to conventional forces and strategic stability in Europe to be a matter for the USA and Russia alone. They are also a vital part of the NATO structure in Europe.

This chapter therefore examines the debate within NATO over SSNWs as well as the views of individual member states on the issue. French views on nuclear weapons are discussed in a separate section, as France is not integrated into NATO nuclear policy and planning. First, however, Section 5.1 gives a brief description of the US SSNWs currently deployed in Europe.

5.1 US sub-strategic nuclear weapons in Europe

All information concerning US sub-strategic nuclear weapon systems in Europe is classified. The discussion below is therefore built up from a number of sources, such as scholarly assessments and the research of advocacy groups as well as leaks from governmental sources made available through organisations such as Wikileaks.

Based on these sources, the number of US SSNWs in Europe is thought to be between 150 and 200. The most exact figure, quoted in a leaked 2009 US diplomatic cable, is 180. This is a fraction of the number in the Cold War era, or specifically about 2.5 per cent of the 1973 peak of more than 7000 weapons (Norris and Kristensen, 2010: 64).

The current bomb stockpiles in Europe, exclusively B-61 gravity bombs, are believed to be located in six bases in five countries: Belgium (around 10–20 bombs at Kleine Brogel airbase), Germany (around 10–20 at Büchel airbase), the Netherlands (around 10–20 at Volkel airbase), Italy (around 50 bombs at Aviano airbase and 10–20 at Ghedi Torre airbase) and Turkey (around 70 bombs at Incirlik airbase).

While the munitions are identical, the delivery systems vary quite considerably. In Belgium and the Netherlands, Belgian and Dutch F-16s provide the means of delivery. In Germany, German Tornados and US F-16s based in Germany are assigned the same role. The same arrangements exist in Italy, where US F-16s out of Aviano and Italian Tornados out of Ghedi Torre would undertake the role. In Turkey, the bombs would be delivered on in-rotating US aircraft and Turkish F-16s from bases other than Incirlik. Turkey has rejected a US request to deploy a fighter wing at the Incirlik airbase, and no Turkish fighters are based permanently at Incirlik (Norris and Kristensen, 2010: 66).

5.2 NATO member states and the Conceptual framework around SSNWs

This section presents the most important arguments made in favour of retaining NATO's current posture, as well as a number of counter arguments that have been raised in the scholarly debate. A number of theoretical NATO policy options, which have been framed in debates in recent years, are also discussed.[37] This section also analyses 2010 developments in official policy, most notably the relevant national US and multilateral NATO documents.

5.2.1 The Nuclear Logic of NATO's SSNW Posture

There are, and have historically been, many ways of defining the logic behind the NATO SSNW posture in Europe. Some issues constantly recur in this debate, and can be identified as the following concepts: deterrence, political reassurance, nuclear participation, nuclear non-proliferation, nuclear placeholdership, and the issue of technical expiration.

Deterrence

First and foremost, NATO's SSNW system has been used for deterrence purposes, primarily as a logical expression of US deterrence extended to its European allies. This has also been regarded by most of the newer NATO member states as its primary benefit. For the more long-standing members states, however, the system has had a clear-cut impact on the credibility of the transatlantic link: the USA must be regarded as being prepared to use nuclear weapons in the defence of its allies in Europe.

However, since the end of the Cold War, the concept of deterrence has been less clear than it was before 1991. To some NATO member states, the idea that NATO would need to use nuclear arms to deter Russia from invading Western

[37] This sub-chapter builds, where no other source is referred to, on Kamp (2010); and Yost (2010).

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Europe is close to preposterous. Others, however, see Russian policy as still potentially a huge problem. For them, SSNW systems in Europe clearly contribute to a NATO reassurance policy against a future Russian threat. These countries tend to argue that the importance of the Russian SSNWs based in Europe that Russia explicitly and frequently underlines, merits a NATO response in the form of the current US SSNWs in Europe.

Most analysts agree that the idea of using NATO SSNWs to deter any other actors, such as distant rogue states or non-state actors, is quite far-fetched. The deterrence role of the NATO SSNWs in Europe is, according to most accounts, very traditional, that is, primarily focused on Russia.

Political reassurance

After deterrence, transatlantic and NATO political reassurance is usually regarded as the most important role of the SSNW posture. This is the key issue for many NATO member states – especially the newest ones.

In many ways, the issue of political reassurance is the most salient one and thus trumps strictly military-strategic considerations (i.e. whether the weapons are the best suited for a number of military tasks). Political logic sometimes differs from military logic. Some suggestions about the basic consequences that should flow from this have been made in the current debate: some argue that the member states that want them most should host them. However, this is politically impossible due to NATO's 1997 statement on the "three nos" (NATO stated that it had no intention, no plan and no reason to station nuclear weapons on the territories of the new member states)[38] and the current political situation, in particular US attempts to pursue more friendly relations with Russia.

Even if the military value of the US SSNWs in Europe is regarded as highly limited, their unilateral removal could, according to many analysts and politicians, signal the beginning of a US decoupling from Europe, which would be a bad sign for NATO.

Arguments against this position have been made using the Japanese example. Japan is a country without nuclear weapons that relies heavily on extended US nuclear deterrence without demanding – not least for historical reasons – that US nuclear weapons of any kind should be stationed on Japanese territory. This argument is interesting, but there are also important differences. One outcome of World War II was that the Japanese defence establishment was essentially run by, or at least heavily integrated into, the US military until only a few years ago. The historical context thus makes comparisons difficult.

[38] See the so-called NATO-Russia Founding Act of 1997, ch. 4, www.nato.int/cps/en/natolive/official_texts_25468.htm.

Nuclear participation

Many NATO member states, with the notable exception of France which does not participate in it, see the NATO Nuclear Planning Group (NPG) as a success story. The USA has provided information on and granted influence over nuclear issues to NATO members states, even the smallest ones. Logically, this could have been done without the physical presence of US SSNWs in Europe but, according to most analysts, the SSNW "host allies", that is, those NATO member states in which the SSNWs are stationed, have a greater say in the NPG than others. Being a nuclear host nation thus entails a special status within NATO, and therefore by extension in the general European security arena.

Nuclear non-proliferation

Another argument that appears in the debate is the issue of nuclear non-proliferation among allies. The existence of the US nuclear deterrent, embodied in the presence of US nuclear weapons in Europe, means that NATO member states have little incentive to develop their own nuclear arms. France and the UK are of course the exceptions to this, since they have been established nuclear weapons states for many years. Countries such as Germany and Turkey, however, with similar technological capabilities, have not gone down the nuclear routes and, according to many, the US nuclear presence in Europe is one explanation for this.

Nuclear placeholder

Another argument often made in the European debate in favour of keeping the US SSNWs in Europe is that it is easier to replace existing weapons than to introduce new ones after a withdrawal. The inherent problem related to this issue is whether the security or threat environment will ever demand NATO nuclear weapons either now or in the future. Some argue that Russia will never be an adversary of the kind that would require such arrangements, and thus they could safely be completely withdrawn. Others argue that if Russia returned to a confrontational foreign policy, it would not be impossible to persuade the general European public that nuclear weapons would be good hedge against it, and therefore such weapons could then be reintroduced on the continent.

Technical expiration

Finally, in the debate over the future of the nuclear systems, the issue of the SSNW delivery system is among the most salient. Most, if not all, European Tornados will go out of service at some time between 2015 and 2020. The US and European F-16s will probably be replaced by JSFs (F-35s). It is far from certain that these will have a dual-capability, that is, be able to carry both conventional bombs and the B-61 nuclear bomb (Norris and Kristensen, 2010: 66). Only two countries – Italy and the Netherlands – are seriously considering a

JSF/F-35 alternative that could offer dual-capability. Turkey is a special case, given the arrangements at Incirlik (Anthony and Janssen, 2010: 20).

However, as is noted above, the US NPR states that the JSF (F-35) will have a dual-capability and the B-61 bombs will get a life extension programme. The Eurofighter could theoretically get a DCA role as well, although this is problematic for political, rather than technological, reasons. Thus, it seems fair to say that before 2020 there are no fundamental technological pressures for the withdrawal of US SSNWs from Europe.

5.2.2 NATO policy options

As can be seen from the above discussion, a number of fairly entrenched positions and arguments seem to favour the status quo in terms of the future of the US SSNWs in Europe. However, calls for the USA and NATO to reduce or eliminate these forces have increased in strength in the past year or so.[39] Some concrete policy options for NATO and the USA have been proposed. The four major themes are summarised below.

Non-nuclear replacement

One salient idea in the field of non-nuclear replacement is to develop and deploy new conventional weapons in Europe in combination with a NATO-wide missile defence system. Another conventional option is increase the number and regularity of NATO conventional troop exercises in countries that feel geopolitically exposed. Yet another way of replacing nuclear weapons while simultaneously strengthening the political reassurance policy would be a bilateral strengthening of US ties with European countries, along the lines of the 2008 Polish-US declaration written in the aftermath of the Russia-Georgia war.

Finally, reaching a rapprochement with Russia, including vastly improved political relations, through the NATO-Russian council, perhaps in combination with legally binding obligations to not deploy nuclear weapons in the newest NATO member states, could provide a fundamentally new situation in Europe in which US SSNWs would lose their political importance (Anthony and Janssen, 2010: 29).

Nuclear arms control

Bringing the SSNWs into the traditional fold of nuclear arms control is another quite widespread idea in the debate. However, the focus of the arms control establishment in many countries has generally been on strategic nuclear arms, rather than sub-strategic or tactical ones. Furthermore, SSNW systems are

[39] See e.g. the 2010 New York Times op-ed article by the foreign ministers of Sweden and Poland, Carl Bildt and Radek Sikorski (http://www.nytimes.com/2010/02/02/opinion/02iht-edbildt.html).

difficult to fit into traditional arms control verification and surveillance – they are small and thus easy to hide.

In addition, given the vast imbalance in European SSNW numbers, and the role of British and French nuclear weapons, both US and Russian policymakers might have great difficulty in even starting negotiations on SSNW reductions. According to some voices in the debate, the idea that SSNWs could be used as bargaining chips in other forms of arms control negotiations might be the key to overcoming these difficulties.

Unilateral withdrawal

Unilateral withdrawal of the US SSNWs from Europe is an idea that has also been put forward in the debate, perhaps more by analysts and academics than by politicians. The logic behind this idea is to make a benevolent gesture to Russia – and in the process of course to placate anti-nuclear domestic opinion – with or without getting something back in return. Since this option is normally embraced by the same analysts and politicians who argue that the US SSNWs in Europe have no military and very little political value, they would argue that NATO would lose very little even if Russia did not reciprocate in kind.

Nuclear modernisation or a move to new host nations

Two final options exist in the debate but are rarely stated: a nuclear modernisation in Europe – that is, replacing the current B-61 bombs with more modern and "usable" nuclear devices – or to move them to other host nations. Both these options would be politically very difficult, to say the least, in the current European context and the latter would be almost impossible due to the above-mentioned 1997 NATO commitment not to station nuclear arms on the territories of the new member states.

5.2.3 Official Developments in 2010

In early 2010, the foreign ministers of five European NATO member states (Belgium, the Netherlands, Luxembourg, Norway and Germany) sent a letter to Anders Fogh Rasmussen, the NATO Secretary General. The letter did not contain many substantive proposals, but called for the inclusion of SSNWs in the general arms control process. Several of the countries involved had recently been debating the NATO SSNW policy, and the letter was interpreted as a call for the withdrawal of US SSNWs from Europe.

During an April 2010 NATO meeting in Tallinn, US Secretary of State Hillary Clinton formulated five general principles that govern US views on NATO nuclear issues:

1) As long as nuclear weapons exist, NATO will remain a nuclear alliance.

2) Sharing nuclear risks and responsibilities is fundamental for NATO

3) The USA aims to reduce the role and number of nuclear weapons.

4) Deterrence must be broadened, for example, through missile defence systems.

5) Any further reductions in US nuclear weapon numbers in Europe must be related to Russian transparency and the relocation of Russian SSNWs away from the territories of NATO member states (Andreasen et al., 2010: 10).

According to some participants at the Tallinn summit, the five principles "made everybody step back in line", since they presented the need for and the logic of a collective NATO response to nuclear issues (Lunn, 2010: 6). From the Tallinn meeting onwards, the NATO debate became collective and unofficial rather than unilateral and public.

Most of the five Clinton principles were also present in the final documents of the 2010 NATO summit in Lisbon. Numbers 1 and 3 were already established in the preface to NATO's new Strategic Concept, which was adopted at the summit.[40] Although the 2010 NATO Strategic Concept argues that the use of nuclear weapons by NATO is an extremely remote option, deterrence based on a mix of nuclear and conventional arms is put forward as a "core element" of NATO's overall strategy. Furthermore, the NSC advocates the "broadest possible participation of Allies in collective defence planning on nuclear roles, in peacetime basing of nuclear forces, and in command, control and consultation arrangements".[41] The Concept, despite calling for general future reductions in nuclear arms, also specifically links the SSNW issue to the "disparity with the greater Russian stockpiles of short-range nuclear weapons".[42] At the Lisbon summit, however, the North Atlantic Council – NATO's highest decision-making body – was asked to conduct a thorough review of NATO's nuclear strategy.[43] No final date was set for this review.

Thus, the decisions of the 2010 Lisbon summit were not definitive. As is noted above, the 2010 US Nuclear Posture Review defers to NATO the final decision on US SSNWs in Europe, and the NATO process has so far resulted in an open-ended review of deterrence issues in general. Analysts and others have interpreted this in different ways. Some note that the explicit linkage between the US SSNWs in Europe and the US strategic arsenal found in the 1999 Strategic Concept is now gone, and that the 2010 NSC theoretically "leaves the door open for full removal" (Norris and Kristensen, 2010: 71). At the same time, some note that, in recent years, NATO has increasingly de-emphasised nuclear weapons whereas Russia has become increasingly reliant on them (Anthony and Janssen, 2010: 4). The political difficulties this entails lead some to draw the conclusion

[40] NATO (2010a), Preface. The first principle was also confirmed in §17.
[41] NATO (2010a), §§ 17, 19.
[42] NATO (2010a), § 26.
[43] NATO (2010b), §30.

that the US SSNWs in Europe are primarily a political weapon. Given the very different views within NATO, however, the status quo might be the most likely outcome – even in the medium and long term.[44]

5.3 The Views of NATO Member States

To many analysts, a credible NATO nuclear posture requires participation by the European NATO member states in collective defence planning that includes nuclear weapons and the peacetime basing of nuclear forces on their territories. In addition to France and the UK, which are nuclear states in their own right, there are three categories of NATO members in this regard: (a) the group of countries that has accepted the stationing of nuclear weapons on their territory; (b) countries that are not believed to host US weapons but whose air forces still might train for nuclear delivery tasks, most notably Greece; and (c) countries which for various reasons cannot undertake nuclear missions but participate in NATOs nuclear planning (Anthony and Janssen, 2010: 13). The post-1997 NATO member states are currently unable to participate in physical sharing arrangements due to the 1997 decision mentioned above.

In the course of the research for this report, a number of interviews were conducted in ten different European capitals. Most of these were organised by personnel from the Swedish Ministry for Foreign Affairs, and conducted as "background" or under "Chatham House rules", which means that they cannot be individually attributed. However, all the interviewees were either officials or senior policy analysts of the countries involved. In the analysis below, the results are divided into the three groups of countries: the nuclear host nations, the non-nuclear pro-change nations, and the non-nuclear pro-status quo nations.

5.3.1 The nuclear host nations

Belgium: According to Belgian interlocutors, the five-nation letter to the NATO Secretary General in February 2010 was a balancing act between domestic disarmament-oriented opinion and relations with the USA. Belgium wants a gradual, balanced and negotiated – not unilateral – nuclear disarmament.

The Netherlands: The Netherlands sees little military value in the US SSNWs, but a certain political value. Deterrence of Russia and transatlantic cohesion are the biggest factors. The US SSNW could also be used as an asset in bilateral US-Russian bargaining. Reduction negotiations should be initiated soon since NATO otherwise might face disarmament by default for technical reasons (ageing aircraft, etc.).

[44] Interview, US official, Stockholm, August 2010.

Missile defence cannot be a replacement for SSNWs, but could strengthen the transatlantic link if the SSNWs were withdrawn. If they are withdrawn to the USA, however, this would mean a final withdrawal – it would be politically impossible to reintroduce them into Europe. One potentially negative development after withdrawal might be that Turkey embarks on a nuclear weapons programme.

Germany: In Germany, domestic opinion is very anti-nuclear and the government is somewhat split. There is a common view that the SSNWs have no military value, but the German Ministry of Defence argues that the political linkage to fundamental NATO policies is clear, such as NATO solidarity, general nuclear policy and article 5 mutual defence issues. Consensus decision-making within NATO is thus the only way to resolve the problem. The MoD also underlines that the US SSNW on German soil give Germany a special role within NATO. In terms of delivery systems, the Eurofighter could be certified for nuclear missions, but it is likely to be very difficult to get the Reichstag to finance this.

The Ministry of Foreign Affairs, however, had been advocating unilateral NATO disarmament in the SSNW field, but gave this up at the Lisbon summit. It still believes, however, that NATO could decide to withdraw the US SSNWs from German territory without withdrawing such weapons from anywhere else. Furthermore, missile defence, strategic arms control and SSNWs must be discussed together. Russia would want to reduce its own arsenal anyway since it is ageing. Finally, one of the few up-sides to having US SSNWs in Europe is that they stop Turkey from developing nuclear weapons, which is a good thing.

Italy: There is almost no public debate in Italy on the SSNW issue. The Italian government embraces the Obama "global zero" goal in the long term, but Italy does not like unilateral disarmament. Issues of arms reductions should be discussed in the NATO-Russia Council. According to Italian officials, the US SSNWs are not in Italy to protect Italy, but in line with US wishes and to give Italy influence and prestige within NATO – as a model, burden-sharing ally. Other than this, the SSNWs are of little importance to European security. Their withdrawal would require a highly unlikely NATO consensus. If that were reached, Italy would accept such a withdrawal. Missile defence, however, is not a replacement for nuclear deterrence.

Turkey: According to Turkish officials, nuclear weapons are NATO's most important deterrence capability. Changes to NATO's nuclear policy would need a consensus, which is unlikely today. Turkey also notes that there is a strong linkage between SSNWs and conventional forces in terms of arms control negotiations.

5.3.2 Non-nuclear hosting, pro-change states

Norway: According to Norwegian officials, Norway has been active in reducing the role of nuclear weapons in NATO policy. The US SSNWs are only politically valuable today – not militarily. Thus, they should be withdrawn from Europe but only after a successful arms control dialogue with Russia. The new US NPR and the negative security guarantees it contains are a welcome development, and a shift in US policy which Norway applauds. In this context it should be noted that the non-NATO Nordic countries seem to a large extent to share Norway's view of SSNWs. Both Finland and Sweden are in favour of moving towards the withdrawal of these weapons from Europe, albeit coupled to reductions in the Russian SSNWs deployed in Europe.[45]

5.3.3 Non-nuclear hosting, pro-status quo states

Poland: The current Polish Minister of Foreign Affairs has been advocating SSNW disarmament in public – not least in op-ed articles written together with his Swedish and Norwegian colleagues, respectively. In general, Poland is in favour of a policy of continued nuclear deterrence and sees missile defence as a part of this. The US and Russian SSNWs, however, should be placed on the disarmament/arms control agenda, although it is far-fetched to see a functioning US-Russian balance of power in Europe without SSNWs. There are ways to reduce or even eliminate US SSNWs in Europe but that option demands several other actions in the non-nuclear field. One of these would be the development of a missile defence structure in the NATO context in Europe.

However, transparency and predictability are needed for successful arms reductions – and Russia is nowhere close to either of these concepts. Furthermore, cooperation with Russia and SSNW disarmament demand stronger defence installations on Polish soil to provide additional security guarantees.

Estonia: Estonia supports the current SSNW status quo and is explicitly suspicious of Russia. There is no public debate in Estonia regarding the SSNWs. Estonian officials see the need for Russia to take the first step in SSNW reductions, given the current SSNW imbalance between Russia and NATO. SSNW negotiations must be bilateral US-Russian ones, but cannot be pursued over the heads of other NATO member states. In terms of other options, Estonia rejects the idea that other NATO countries should permanently base troops or SSNWs on Estonian soil, even if the nuclear issue needs to be dealt with in the upcoming Host Nation Support exercises. Nor can SSNWs be replaced by missile defence.

[45] Swedish views on sub-strategic nuclear weapons were expressed by Foreign Minister Carl Bildt in the previously mentioned op-ed in *New York Times* on 1 February 2010. For a Finnish view see Cronberg 2010: 87, 93. A different Finnish view is expressed in Forss 2010.

Latvia: Latvian policy is governed by the 1997 NATO decision, so there is no way the SSNWs could be based on Latvian territory. Latvia currently prefers the SSNW status quo, and there is no domestic debate on the issue. US SSNWs must be linked to Russian military doctrine and to whether Russia regards NATO as a threat. If negotiations are to begin, the New START Treaty would be key to momentum. Unilateral moves from NATO are not possible: Russia needs to move first given the numerical imbalance.

Lithuania: According to Lithuanian representatives, SSNWs can play an important role in future Euro-Atlantic security structures. Russia could easily forward deploy its SSNWs to the Lithuanian border, and NATO must be able to counter this. Furthermore, the US SSNWs are the guarantor of US military-political links with Europe and this must continue to be the case. There are no current alternatives to US SSNWs on European soil. Increased Russian transparency would be welcome but would be not be a reason to cut the number of US SSNWs. Theoretically, there would be no domestic problems if NATO decided to base US SSNWs on Lithuanian soil, but the 1997 NATO decision makes this an unlikely development. Should NATO decide to reduce or eliminate its SSNWs, however, an alternative could be foreign NATO troops permanently based in Lithuania.

5.4 French nuclear weapons

The French nuclear weapons arsenal has been an independent deterrent force since the 1960s. French nuclear capabilities were never integrated into the NATO structure. This was part of the self-imposed exile from NATO's integrated military command as a result of the decisions in 1966of the then President of France, Charles de Gaulle. Although France has recently (2009) rejoined the integrated military command structure of NATO, there have been no moves to join the nuclear planning group (NPG), France is not likely to participate in the NPG in the near future. This is one of many signals that France is not ready to compromise its independent capability to deter adversaries from threatening its sovereignty or survival.

Since the end of the Cold War, France has scaled down its deterrent force. The ground to ground component has been decommissioned. The submarine force has been reduced from six to four submarines. Free fall nuclear bombs have been eliminated and France is the only nuclear weapons state to decommission and dismantle its entire nuclear testing centre.

The current French force structure relies on a mix of submarine-launched ballistic missiles (SSBN) and attack aircraft carrying nuclear armed cruise missiles (SIPRI, 2009: 363). The French arsenal has undergone marked changes and upgrades in recent years. It has been equipped with new platforms and delivery vehicles, and in a few years time warheads of new designs will be

introduced. Since 1997, the submarine arm of the French force has been refitted with the new Le Triomphant class of nuclear powered submarine. Four Le Triomphant class submarines were in service as of 2010. Three of these carry the M45 ballistic missile, a missile with a range in excess of 4000 km. The M45 is assumed to carry between four and six warheads of the TN75 type (Norris and Kristensen, 2008). The TN75 was introduced in the 1990s and has an estimated yield of 100-150 kt. The fourth of the Le Triomphant class submarines, *Le Terrible,* went into service in September 2010. It carries a new ballistic missile, the M51.1, which according to some reports has a range of around 9000 km, improved penetration aids and the capacity to carry more warheads than the M45.[46] A successful first underwater launch flight test of the M51.1 was conducted in early 2010 – a cross-Atlantic test of several thousand kilometres (Kingston, 2009). The three remaining Le Triomphant class ships will be retrofitted with an upgraded M51.2 employing a new warhead design (the TNO) by 2018.

The airborne component of the French nuclear force has also been upgraded and modernised in recent years. New aircraft, a new upgraded version of the nuclear delivery cruise missile and a new warhead are being introduced. The 60 Mirage 2000N aircraft that make up three land-based squadrons and the around 20 Super Étendard aircraft that are deployed on the *Charles de Gaulle*, the French aircraft carrier, are being replaced by land- and sea-based versions of the new Rafale jet. The Rafale/ASMP-A medium range cruise missile combination was declared operational in mid-2010. The ASMP-A was first commissioned on the legacy Mirage 2000N in 2009.[47] Compared to its predecessor, the ASMP, the ASMP-A has an improved range of up to 500 km and improved manoeuvrability. The ASMP-A will eventually be fitted with the predecessor to the 300 kt TN81 warhead, the TNA. The yield of this warhead has not been disclosed publicly.

The French Air Force employs its three squadrons of nuclear capable Mirage 2000N at two airbases – Luxeuil, 130 km south-west of Strasbourg, and Istres, 40 km north-west of Marseille.[48] During a speech in 2008, French President Nicolas Sarkozy announced further downsizing of the airborne leg of the French nuclear deterrent (Ministère des Affaires étrangères, 2008). One squadron is to be disbanded as the transition from Mirage 2000N to Rafale is undertaken. This will reduce the number of aircraft from 60 to 40. France will keep one carrier-based

[46] "SSBN Triomphant Class Ballistic Missile Submarines, France", *Naval Technology*, accessed 4 February 2011, www.naval-technology.com/projects/triomphant/; and Pierre Tran "French Sub-Launched M51 Missile Test-Fired", *Defense News*, 27 January 2010.
[47] "Acutalité: Mise en service opérationnelle: Rafale/ASMP-A", *Ministere de la Défense et des Anciens Combattants*, 13 July 2010.
[48] Claire Taylor (2010) *French Nuclear Deterrent*, International Affairs and Defence Section, Library of the British House of Commons, 30 June 2010.

squadron. According to the 2008 presidential speech, France will reduce its arsenal to less than 300 warheads (Ministère des Affaires étrangères, 2008).

The basis for this nuclear force realignment is a re-evaluation of the national security needs of France. The political and doctrinal debate was initiated in earnest in the mid-1990's. Two public speeches by former President Jacques Chirac, one in 2001 and one in 2006, set out the main characteristics of the new nuclear weapons policy. These statements have been further refined in a Defence White Paper published in 2008 as well as several speeches by senior politicians in the aftermath of the White Paper's publication. The French position was further reinforced during the 2009–2010 non-proliferation and counterproliferation debates preceding the 2010 NPT review conference, as well as the arms control debate centred around the new US-Russian START follow-on negotiations,

The 2008 Defence White paper sets out the basis for France's future nuclear deterrent:

> **Nuclear deterrence remains an essential concept of national security**. It is the ultimate guarantee of the security and independence of France. The sole purpose of the nuclear deterrent is to **prevent any State-originating aggression against the vital interests of the nation** wherever it may come from and in whatever shape or form. Given the diversity of situations which France might be confronted in an age of globalisation, the credibility of the deterrent is based on the ability to provide the President **with an autonomous and sufficiently wide and diversified range of assets and options**.[49]

France adheres to the principle of "strict sufficiency", meaning that the number and type of weapons deployed are kept to a minimum. This is driving the above-mentioned downsizing. Nominally, France also has a posture of non-targeting and the president has confirmed that "none of our weapons are targeted against anyone" (Ministère des Affaires étrangères, 2008).

During the 2010 NPT and START processes, the President of France was compelled to publicly defend the French position and to stress that no further draw downs were planned. In a US television interview broadcast live in April 2010, President Sarkozy commented on the arms control and disarmament steps taken by the USA and Russia. He stated that France had already taken the draw downs and de-targeting steps the USA and Russia were now committing to. According to Sarkozy, "it is excellent that we leave the Cold War behind us" but he added that France had already done so. At the same time, Sarkozy, in line with the White Paper, makes clear that the zero vision of Obama is not realistic given

[49] French White Paper on Defence and National Security 2008, (English version), p. 7. Bold text in original.

the current world order. “It is a dream, a wonderful dream…but I will not get rid of our nuclear deterrent…not in a world as dangerous as the one we live in”.[50]

David Yost has highlighted some of the key components of the French doctrine (Yost, 2006). Deterrence between great powers remains important because of action-reaction dynamics coupled to nuclear arsenals, but new regional actors are the true focus of the new doctrine. Iran is consistently named in official statements as an example of such a new actor. In particular, deterrence against states and entities that support terrorism is a novel element in France’s declared policy. A 2006 speech by President Chirac gives a clear indication of this:

> …nuclear deterrence is not intended to deter fanatical terrorists. Yet, the leaders of States who would use terrorist means against us, as well as those who would consider using, in one way or another, weapons of mass destruction, must understand that they would lay themselves open to a firm and adapted response on our part. And this response could be a conventional one. *It could also be of a different kind.*[51]

The consequence is that the force modernisation has brought with it new operational planning. The force is to be employed more flexibly and against a wider variety of targets in a wider variety of contingencies. An example Yost gives is the discussion of single warhead, single missile strikes from submarines, an idea quite different from the standard employment of second strike forces.

The new French doctrine and posture could complicate the discussion on tactical nuclear weapons in Europe. Although it still only envisages “strategic targets” such as power centres, actual employment could just as well be envisaged to have operational (but not tactical) use, given presumed but unknown yields of the new warheads coming into service.

5.5 Conclusions

As is demonstrated above, a wealth of different opinions exists within NATO on the SSNW issue. It seems fair to say, however, that most actors agree about the limited value of the US SSNWs in Europe – although half the countries studied believe they still perform a deterrence role.

Many actors, but not all, also agree that the weapons continue to have a political value. In any case, a consensus on what to do with them seems to be far away. Given NATO’s international structure, in which every member state has a right of veto over all decisions, this makes the status quo the most likely outcome.

[50] Transcript: France’s Sarkozy Talks Nuclear Security”, CBS News, www.cbsnews.com/stories/2010/04/12/eveningnews/main6389488.shtml.
[51] Speech by Jacques Chirac, President of the French Republic, to The Strategic Air and Maritime Forces at Landivisiau / L'Ile Longue, 19 January 2006, www.elysee.fr.

This does not mean that the NATO SSNW posture can never change. A partial withdrawal, for example, from a number of sites in a particular region, would be possible as long as a substantial proportion of the SSNWs in Europe were kept. Negotiations leading to that outcome would probably depend to a large extent on substantial Russian reductions in the same weapons category in the region.

6 China: Postponing strategic arms control

This chapter discusses the influence of China's nuclear weapons. Section 6.1 discusses the role and posture of China's nuclear weapons complex. Section 6.2 discusses the dynamics linking these issues to those related to SSNWs. The conclusion is that Russo-Chinese relations have an impact on Russia's sub-strategic arsenal and that developments in China will affect future negotiations with Russia on arms control regarding SSNW. For the purposes of this study, it is important to note that China's arsenal is slowly but steadily increasing in both size and quality.

6.1 The role of nuclear weapons in China

Ever since China became a nuclear weapons state in 1964, it has had the most defensive declared nuclear weapons policy of all the overt nuclear weapon states. Among the five *de jure* nuclear powers it is the only one to pledge no-first-use (NFU), providing extensive negative security guarantees. China also consistently argues that its small nuclear arsenal is proof of its defensive stance.[52] In other words, China signals that it possesses a minimal, purely retaliatory, second strike deterrent and has never opted for parity with its nuclear rivals.

Technical, financial and, in the 1960s, ideological restraints were important factors in explaining why China's posture evolved in the way it did. The fundamental drivers of nuclear developments and evolution in China, however, are the security environment coupled to perceived operational and military requirements during the Cold War.

Assessments throughout the past decade have concluded that it is fair to assume that there is little visible contradiction between nuclear policy and operational planning. The assessments have been based on the limited number of open sources available on the equipment, training and planning of the Second Artillery Corps – the nuclear missile troops. The Second Artillery is, as far as is publicly known, organised for high-yield retaliatory strikes against large population centres in adversary states. A majority of analysts assesses China's early warning, and command and control systems as unable to support any other operational posture than that characterised as "launch after attack". Its nuclear forces train and plan for hiding and survival of a nuclear strike and then retaliation.

[52] State Council of the Peoples Republic of China, 2009: chapter XIV

While there is wide agreement about these fundamental characteristics, there has been an intensified debate in neighbouring countries and in the USA about the future of the nuclear arsenal and the future intentions of the Chinese leadership. The meaning and impact of modernisation programmes such as the move from an obsolete silo-based liquid fuelled missile force to a more modern mobile one, or the construction of the second generation SSBN force now under way, have been hot topics. A central theme in all these debates has been the lack of transparency. The 2010 US NPR has a characteristic passage:

> [T]he United States and China's Asian neighbors remain concerned about … quantitative and qualitative modernization of its [China's] nuclear capabilities. China's nuclear arsenal remains much smaller than the arsenals of Russia and the United States. But the lack of transparency surrounding its programs – their pace and scope as well as the strategy and doctrine guiding them – raises questions about China's future strategic intentions (US Department of Defense, 2010: 6).

China does not accept such criticisms and Chinese experts instead object that the USA in not transparent enough. By remaining staunchly against any NFU policy and holding on to the posture of strategic ambiguity, the USA, in the Chinese view, creates unnecessary uncertainty that is detrimental to the atmosphere of security. [53] This unwillingness to declare when and how nuclear weapons would be used leads to increased insecurity, which promotes excess arming.

These different views on transparency have several explanations. The Chinese posture depends on hiding and survival. This, in combination with the limited size and capability of the arsenal, means the Second Artillery is required to conduct its operations under a veil of secrecy and deception. In a small and technically limited force deception, dispersal and deceit is a critical force enhancer – something which is sometimes commented on in the Chinese media.[54]

In addition, China has not had national technical means (NTM)[55] capable of verifying the nuclear capabilities of adversaries. China therefore has not developed any method akin to the ones which the USA and the Soviet Union/Russia have refined to verify and manage nuclear security between them. The concept of the use of NTM for verification purposes or to increase transparency is therefore not generally accepted in China. At the negotiations on the Comprehensive Test Ban Treaty (CTBT), for example, China rejected NTM because such information would be "selective and discriminating".[56] This is in sharp contrast to the USA or Russia, which has relied on and developed rigorous

[53] "US Nuclear Review Misreads China", *Global Times*, 8 April 2010.
[54] "US Nuclear Review Misreads China", *Global Times*, 8 April 2010.
[55] The definition that China uses is somewhat unclear but focuses on the technical capability of signals intelligence and satellite reconnaissance.
[56] "China's Attitude Towards National Technical Means (NTM) of Verification", Nuclear Threat Initiative, www.nti.org.

methods for the use of information gained by NTM to verify treaties and assess whether capabilities and declaratory intentions are contradictory.

The accelerating change in the security landscape not only globally but also in China's region affects the future of nuclear deterrents, including China's. This change is a key element in the debate about China's future nuclear posture. The expectation is that China must change the composition of its arsenal to make it capable of a wider range of operational postures. Another factor in nuclear decision-making in China is the increasing interrelation between nuclear capabilities and other high-end military capabilities. The debate in China about conventional superiority is not new but has taken on new dimensions in the past ten years, and it is widely accepted that it has influenced decisions on defence development and procurement in the nuclear field. The offence/defence debate over missile defence as well as the militarisation of space is also assessed as having influenced nuclear planning. It is in times of rapid change that declaratory trust might not be sufficient, and that is why China is hard-pressed to move towards more transparent and, crucially, more verifiable ways of behaving.

6.2 China and European SSNWs

A link between Chinese and European arms control for SSNWs is found primarily in the context of Sino-Russian relations. The adversarial relationship during the Cold War has given way to a strategic partnership and considerable improvements in security for both Russia and China. Nonetheless, a security dynamic with important nuclear dimensions continue to exist between the two.

From a Chinese perspective, and in keeping with its declared policy, there is little difference between strategic and sub-strategic nuclear weapons.[57] It is first and foremost a matter of posture. China neither has nor plans for any counterforce or first strike public policy, so any Russian nuclear weapons, or any nuclear weapons for that matter, are viewed as equal. According to one Chinese expert, any use of nuclear weapons would be viewed as a strategic attack and "therefore catastrophic".[58] The Chinese arsenal consists of short-range, medium-range and intercontinental ballistic missiles, some of which have dual capabilities. The arsenal is tailored to deter and be able to hit high-value targets in India or Russia as well as US bases in Guam, Japan, and targets in the continental USA. China is therefore not interested in a definition of SSNWs based on delivery range.

A regime that covered European SSNWs would not affect China substantially. If weapons were eliminated it would be positive for China as the threat from Russia would decrease still further. If newer Russian weapons were moved to Asia, this would be detrimental to China. Although the outcome of any regime would be

[57] Interviews, research institute, Beijing, March 2010.
[58] Interviews, research institute, Beijing, March 2010.

positive for China it would not be seen as a firm next step in a globally relevant arms control or disarmament initiative.

In order for China to consider any binding regime, the USA and Russia would first have to make deep cuts in their arsenals. Precisely what deep cuts means is open to debate, and not all Chinese experts accept that deep cuts would be sufficient for Chinese disarmament. There are those who argue that current US initiatives for arms control and disarmament are only in the interests of the USA, as the conventionally superior power would have increased capacity to dissuade and coerce other states.

6.3 Conclusions

China has the most defensive declaratory nuclear weapons policy of all the overt nuclear weapon states. It pledges no-first-use and provides extensive negative security guaranties. The small size of its nuclear arsenal is offered as proof of its defensive stance. China also argues, however, that the size of its arsenal makes it necessary to keep its nuclear posture and planning highly secret. Political transparency is extensive, but transparency over capabilities and planning are not. This makes it difficult to judge whether declared and actual intentions align.

China does not make a distinction between tactical and strategic nuclear weapons. It views all nuclear weapons as strategic. This fact, and possible future superiority of Chinese conventional forces in the Russian far east, means that Russo-Chinese relations have an impact on Russia's sub-strategic arsenal. Developments in China will be an important dimension for Russian military planning and therefore affect the West's negotiations with Russia on arms control in the SSNW field.

7 Analysis of alternative arms control regimes

This chapter uses the military and technical factors identified in chapter 2, along with the various geopolitical factors outlined in chapters 3 to 6, as a basis for analysing various options for arms control. The analysis is first deepened by highlighting the conclusions drawn above and adding questions related to other weapons and other arms control regimes. Finally, various regime alternatives are constructed, and a path forward is suggested based on a Baltic Sea approach.

7.1 The strategic setting for an arms control regime

The success of a specific arms control concept is determined by how it combines different issues, such as actors and timing. It is important to single out the key factors associated with the various stakeholders, and to analyse the conditions in which an SSNW arms control regime would have smooth interfaces with other weapon balances and arms control regimes. This section sets out the background factors before the options for various regimes are analysed below.

7.1.1 Geopolitical conditions and conclusions

A number of key factors and potential objectives behind SSNW arms control are suggested in the above chapters. One key factor is the need for a thorough analysis of the utility of SSNWs in the context of European security. Both NATO and Russia would benefit from an internal debate, as both parties lack a coherent and up-to-date view on the issue. It is a positive development that NATO has begun discussing its SSNWs arsenal, and it should encourage Russia to follow suit.

Another key factor is that NATO uses a consensus approach, where any national step must be taken within a common NATO framework. This does not necessarily mean that the different member states will take the same nuclear policy decisions at the same time. For example, there will be many individual national decisions about dual-capable aircraft.

A third key factor is that the Obama administration has expressed a desire to include SSNWs in the arms control agenda.[59] Furthermore, NATO will "seek Russian agreement to increase transparency on its nuclear weapons in Europe and relocate these weapons away from the territory of NATO members. Any further steps must take into account the disparity with the greater Russian stockpiles of short-range nuclear weapons" (NATO, 2010a: para. 26).

The Russian Federation has the upper hand regarding the size and composition of its SSNW arsenal, and will not give this up without being duly compensated. Russia can be expected to want to obtain a balance of both conventional and nuclear forces in Europe as well as influence over US military-technological development, in particular regarding missile defence, conventional weapon systems with strategic significance and the militarisation of outer space. Russia may also want to secure strategic nuclear parity with the USA by obtaining reductions in US non-deployed strategic warheads and thus curtailing US (theoretical) upload capability. It can also be assumed that Russia wants to be able effectively to deter China from military aggression, despite Russia's insufficient conventional forces in the Far East.

Another key factor is the need for new mechanisms for verification. National technical means[60] will not be sufficient for verifying compliance, as warheads will need to be accounted for and monitored inside nuclear weapon storage and production facilities. Negotiating new verification and inspection mechanisms is likely to be very difficult.

Perhaps the most important factor for success is the strengthening of European security. This would allow official Russian doctrine to take precedence over military and defence industry views on the utility of SSNWs, while also allaying Russian security concerns in its western strategic direction. Similarly, a perception of increased security would help NATO to find the necessary

[59] US secretary of State Hillary Clinton has said that she wants to "include non-strategic nuclear weapons in the next round of US-Russian arms control discussions alongside strategic and non-deployed nuclear weapons" (Bergenäs et al., 2010: 4). Furthermore, according to the 2010 Nuclear Posture Review, sub-strategic and non-deployed strategic nuclear weapons should be part of the arms control agenda. At the special briefing by Secretary of State Clinton and Secretary of Defense Robert Gates on the publication of the Nuclear Posture Review on 6 April 2010, Gates said "…what the NPR does is draw attention to the number of tactical nuclear weapons, and also to the number of non-deployed weapons that we're looking at; and that these clearly should be part of the arms-control agenda as we move forward.

[60] In this report, national technical means signifies means for verification from the outside of the monitored area, primarily by signals intelligence and satellite reconnaissance.

consensus. Initially, further confidence-building measures will be of the utmost importance.[61]

It is also apparent from the above chapters that there are several actors, such as France and China, as well as other nuclear weapons states, such as India and Pakistan, that, for the purposes of this analysis, must be treated as constraints. France has invested in a new, modern and smaller arsenal and declared that it can take no further steps towards disarmament. China for other reasons will not reduce the size of its arsenal in the foreseeable future. This must be taken into consideration when weighing alternatives.

7.1.2 Arms control concepts and the influence of other weapon balances

It is important to consider other weapon balances when constructing a conceptual framework for an arms control regime for SSNW in Europe. SSNWs and their delivery vehicles are part of the overall balance, which also includes conventional and strategic weapons systems. If an SSNW regime regulates the use of dual-capable fighter aircraft, it also affects the balance of conventional arms. The military balance of many regions and concerning many actors could be affected when constructing a regime for SSNWs in Europe. Examples of related weapons complexes are: strategic nuclear weapons with global reach, mainly US and Russian but also the Chinese, British and French nuclear arsenals; regional nuclear balances in the Middle East and the Far East; conventional weapons in Europe; and non-nuclear strategic weapons, such as strategic missile defence systems or space-based weapon systems and long-range cruise missiles.

The overall aim is an SSNW regime that fits well with other established or potential regimes. There are many factors at play and it is the right mix of tracks, actors, timing, and so on, that governs how successful a specific arms control concept will be. Multiple actor combinations and engagements are needed.

Engaging multiple stakeholders is difficult, but will eventually be essential. All nuclear arms reduction agreements have so far been between Washington and Moscow. It is easier to have bilateral negotiations than multilateral ones. It is interesting to note that many of the NATO-Russian negotiations on conventional forces were in reality semi-multilateral, with the USA negotiating for the NATO member states. US and Russian strategic arsenals are now at a level where the next step will make the other nuclear arsenals significant factors in the overall nuclear strategic balance. So far the UK and France have reduced their own

[61] Unilateral initiatives, such as a withdrawing all US sub-strategic warheads from Europe, have been suggested by some experts as a promising first step. However, acting unilaterally may instead confuse or arouse suspicions about hidden motives. Confidence is generally built through mutual action and dialogue.

inventories, but there is probably a need for more transparency and engagement with more actors. The SSNW regime probably needs to involve different sets of actors for each new phase.

Timing could be used to ease some of the problems related to the multiplicity of factors, for example, using sequencing or parallel processes to combine different tracks and actors. In the right circumstances time could also be used to make issues less controversial, linking different political processes to each other or postponing the resolution of complex issues to a date when they will possibly be less controversial.

There are at least four ways in which an SSNW arms control regime for Europe could be either mixed with other arms control initiatives or adjusted so as not to undermine other weapon balances. One way to tackle the different issues would be to handle them in sequence, taking a step-by-step approach. Another way would be to make them all part of a grand bargain. A different suggestion is to resolve all arms control issues in Europe in a single all-encompassing process through one treaty or an integrated set of treaties.[62] A third possibility is parallel approaches, for example, starting negotiations on SSNWs while at the same time trying to unlock the deadlock over conventional forces in Europe.

The fourth alternative conceptual framework for handling the different weapons complexes and weapon balances would be a cascade approach. This alternative starts with SSNW in Europe, and the processes of the other weapons are initiated and synchronised through milestones as the related issues arise. The main benefit of a cascade approach is that it allows for starting small. Few parties are involved initially and the process may be kick-started and momentum built. Furthermore, by starting with bilateral negotiations and adding issues and stakeholders gradually, each achievement becomes a stepping stone for the next achievement. One main drawback with this alternative is that negotiations on the milestones – in what order to handle the other weapons complexes and when to initiate negotiations – may be cumbersome and time-consuming. Another potential drawback is that a large number of interrelations at an early stage may not allow for a cascade approach.

Of the alternative concepts we have looked at, the cascade approach seems to be the most promising for making headway with sub-strategic nuclear arms control in Europe. The cascade approach includes many of the benefits of the alternative concepts, while avoiding several of their major drawbacks. The possibility of starting small and allowing interrelated issues to be addressed as they arise is the primary strength of this concept.

[62] A similar “grand package” has been suggested by researchers at the James Martin Center for Nonproliferation Studies. See Pomper et al., 2009.

7.2 Arms control regime alternatives

This section explores and broadly outlines alternative arms control regimes for SSNWs. The alternatives are briefly described and analysed to give a rough picture of what each regime might entail. It should be noted that further analysis would be necessary before moving forward with any of the alternatives. The focus lies on the particular characteristics of a regime for these weapons, while keeping in mind that there are multiple interrelations with other weapon systems and issues.

As a starting point, three distinct regime options have been constructed. There are several factors to consider, but the most important are defining the weapons, geographical boundaries, and which parties should be involved. In addition, the alternatives must include specific objectives, milestones, end-states and timetables as well as something about verification mechanisms.

As is noted above, an effective arms control regime for SSNWs will have to be based on the warheads. All three alternatives in this study focus on the nuclear warheads. The reasons are the difficulty in distinguishing conventional weapon carriers from nuclear ones and the ambition to pave the way for future warhead-related regimes. Counting warheads will be important when trying to cover non-deployed US and Russian strategic nuclear arms, and when seeking to engage other nuclear powers.

The main variable in the three alternatives is the geographical scope, as the number of actors involved is to a large extent dependent on the area covered by the suggested regime. Similarly, the larger the area covered, the more categories of weapon system need to be involved. The alternatives range from covering a small area to a global regime, and thus give us an interesting spectrum of different actors and weapon systems.

7.2.1 Banning battlefield nuclear weapons in the Baltic Sea

A first alternative could have the overall ambition of removing all short-range sub-strategic nuclear weapons from northern Europe (the Baltic area). The SSNWs in focus would be warheads for tactical-operational military use carried by short-range vehicles, for example, attack aircraft, navy vessels, air defence systems, artillery and short-range missiles. The primary parties would be the owners of the warheads, Russia and the USA, but European NATO member states would also need to be included – particularly nuclear host countries. Geographically, this alternative would include all or part of the territories of the NATO member states in northern Europe, the western-most part of Russia (roughly equal to the former Leningrad military district) and possibly also Belarus, Finland, Sweden and the Ukraine.

The end-state could be that no warheads would be present in the designated area, although storage facilities may be kept in operational condition – albeit under supervision. Important milestones would be to establish transparency regarding the size, composition and location of the respective arsenals, to achieve a less threatening sub-strategic nuclear posture and to limit and subsequently reduce the number of warheads in the designated area. Verification could initially comprise voluntary inspections and the monitoring of storage facilities in the area covered by the treaty. In later stages, when legally binding ceilings and a gradual reduction of inventories would be introduced, a stronger verification mechanism could also be added.

The main advantages of this alternative would be the small treaty area and the small number of parties directly concerned, as this would make the negotiations less complicated. By including only a small part of the Russian Federation's territory, it would be possible for Russia to withdraw its SSNWs further away from European NATO member states while not disarming the entire western military district. From a NATO perspective, leaving Turkey out would greatly facilitate reaching consensus as the question of how to handle Turkey and its relations with its neighbours would be avoided. It would probably be possible to reach a NATO consensus on such a regional arrangement, especially if the most exposed NATO member states received guarantees on transparency regarding Russian SSNWs in their own neighbourhood and, at a later stage, their removal.

Another advantage would be that the USA and Russia have an arms control legacy to build on, which facilitates negotiations. The possibility under the treaty of keeping the warheads for future contingencies after a withdrawal might also make it easier for the parties to reach an agreement.

The main drawbacks to this alternative would be that it does not abolish SSNWs, but only moves them to other areas, and that it only deals with part of Europe. In addition, if Russian strategic nuclear warhead storage facilities on the Kola Peninsula were to be covered, this would most probably be of less interest in Moscow.

7.2.2 No sub-strategic nuclear weapons in Europe

A second alternative arms control regime might have the overall ambition of removing all sub-strategic nuclear weapons from Europe. The area covered would be the whole of Europe, including Turkey and Russia to the Urals, and the regime would cover all the non-strategic nuclear warheads in this area. The primary parties would still be the USA and Russia, with the possible addition of France depending on how the weapons in the French arsenal were defined. All the European NATO member states would have to be included as their entire territories would be covered by the regime. European states that are not members of NATO would also be affected by such a regime.

The desired end state would be that no warheads were present in the area. Storage facilities might be kept operational for future use, albeit under supervision, but with the option of eventually dismantling them. The main milestones would be similar to those in the alternative presented above, i.e., transparency regarding arsenals and attaining a less threatening sub-strategic nuclear posture before moving on to the limitation and reduction of the number of nuclear warheads in Europe. Verification procedures could initially be based on voluntary inspections and the monitoring of storage facilities in the area covered by the treaty. In later stages, legally binding verification mechanisms would need to be introduced.

The main benefits with this alternative would be that a larger area could be covered, but still with relatively few parties directly involved. For the USA and Russia, a definition of non-strategic nuclear weapons would probably be relatively simple to arrive at. Another factor that might facilitate the negotiations is that it would still be possible for both the USA and Russia to withdraw warheads and keep them under the treaty.

One of the main drawbacks with this option is that it would not abolish SSNWs, but merely move them to areas outside Europe. Another major drawback is that Russian strategic nuclear warhead storage facilities located inside the proposed area (on the Kola Peninsula) would be covered by the verification mechanisms. Russia would most probably not agree to this, at least not without a corresponding right to inspections or the monitoring of US strategic nuclear storage facilities. The French nuclear arsenal might also be a stumbling-block in negotiations. The British submarine-launched ballistic missiles would probably not present a major challenge as they most probably could be regarded as strategic nuclear weapons and thus be excluded. However, there may be difficulties in classifying France's weapons as purely strategic. Moreover, apart from the NPT, neither France nor the UK has experience of nuclear weapons arms control. Last but not least, Turkey may not be happy to be included, which could seriously undermine the possibility of reaching consensus within NATO.

Even without Turkey, it would probably be impossible to reach a consensus within NATO on this scenario in the foreseeable future, since it would entail a total withdrawal of US SSNWs from Europe. The demands for replacement options might be more conflict-prone and generate more instability than the current situation, for example, US troops permanently based in the Baltic States and Poland. In the long term, a NATO consensus could emerge, but this would probably require a fundamental shift in Russian foreign policy leading to new attitudes among its neighbours.

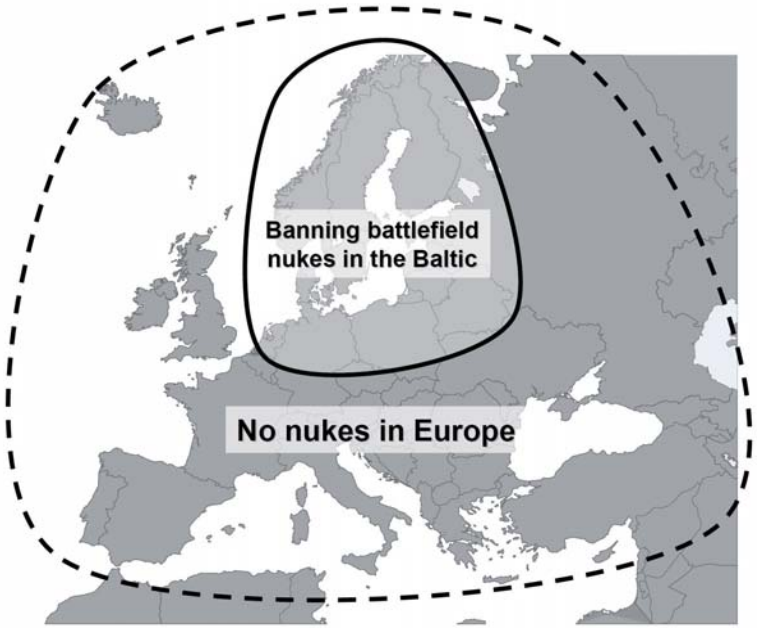


Figure 1 Geographical extension of a European and a Baltic alternative for an arms control regime for sub-strategic nuclear weapons. .

7.2.3 A global ban on sub-strategic nuclear weapons

The third alternative entails an overall ambition to abolish sub-strategic nuclear weapons globally. All non-strategic nuclear warheads would be covered and the primary parties to such a regime would be the nuclear weapons states. All other nations would be able to become a party to such a regime.

The desired end state would be no SSNWs in the world. The main milestones towards that goal would be achieving transparency regarding national arsenals, and agreeing on limitations and subsequent reductions in the number of warheads. Like the two regime alternatives discussed above, verification could initially be based on voluntary inspections and the monitoring of storage and production facilities. At later stages, legally binding verification mechanisms would be needed.

The main benefit of this option is that it would remove SSNWs as a class of weapon. There are, however, a number of serious drawbacks. The number of

parties involved makes negotiations more complicated, in particular as it is not obvious which countries should be considered primary parties. The *de jure* nuclear states of the permanent 5 (P5) would be included, but it is unclear whether the *de facto* states, India, Pakistan and Israel, could be included – not to mention North Korea and Iran. Furthermore, these countries have different, if not conflicting, security policy interests related to nuclear weapons, and several of them do not recognise the distinction between sub-strategic and strategic nuclear weapons. Even among the P5, a common approach may be hard to reach with regard to China and France. This will of course have serious implications when trying to design verification mechanisms, which would include access to nuclear weapon storage and production facilities. From a NATO perspective, the concerns discussed in connection with the alternative arms control regimes presented above would be valid in this case as well. Initiating negotiations on such a regime would almost certainly be extremely time-consuming, if not impossible.

7.2.4 Assessing the alternative regimes

As is stated above, this report only provides a general outline of the three alternative arms control regimes for SSNWs, without going into greater detail. Furthermore, additional alternatives could also be constructed.

One such alternative would be a minimalist approach that does not entail an arms control regime but still addresses the issue. A possible minimalist approach would focus on the security and safety of the sub-strategic nuclear warheads, without making demands for a reduction in their numbers.[63] No warheads would have to be withdrawn or destroyed as long as they were kept in central storage facilities. This would be part of a long-term strategy to de-emphasise SSNWs to the point were they would be considered obsolete. A related element would be to encourage both NATO and Russia to thoroughly review their respective needs for SSNWs. The third element of such a strategy would be to encourage the parties to discuss voluntary basic transparency measures regarding their sub-strategic nuclear arsenals, such as being more open about the size and composition of the arsenal. With greater understanding of the limited utility of these weapons as well as increased confidence-building, the issue of SSNWs may in the future become less controversial and perhaps even irrelevant.[64] This minimalist approach does not entail an arms control regime or visible moves towards reducing and abolishing SSNWs, but could generate the first steps in a long term development towards abolition.

[63] See Podvig, 2011.
[64] E.g., in the 2010 NPR it is stated that the USA has removed its cruise missiles with nuclear warheads from its naval surface vessels. Apparently, the USA has concluded that there is no need for such weapons.

Another non-regime alternative would be to continue along the track of the Presidential Nuclear Initiatives (PNIs) of the early 1990s.[65] The PNIs were unilaterally, but reciprocally, announced limitations on SSNWs. The warheads were to be removed from active service to storage facilities and the numbers were to be reduced significantly. Both the US and the Russian Federation have reported, and are generally believed, to have implemented the PNIs. There is however no comprehensive and verifiable information on the implementation. The number of warheads and the composition of the arsenals were not disclosed when the PNIs were launched and has so far not been divulged by either side. The successive reductions have only been reported in official statements as percentages of the original arsenals. Even if the reductions of SSNW warheads may have exceeded the cuts envisaged in the PNIs, the contribution to European security is limited by the lack of verifiable information on the implementation.

A thorough internal review in Russia and within NATO is essential and would probably be conducive to reductions in the number of SSNWs in Europe, particularly if coupled with confidence-building measures such as an exchange of views in the NATO-Russia Council and basic transparency on a voluntary basis. However, we believe that some kind of regime needs to be established in order to make tangible progress towards the goal of abolishing SSNWs.

Assessing the three arms control regime alternatives sketched above, the first alternative stands out as the most promising. Its focus on a small area and few parties as well as a less controversial definition of the weapons covered by the regime seem to be a good starting-point. The favourable conditions for initiating an arms control process and reaching an agreement on an arms control regime in the foreseeable future outweigh the drawback of making only limited progress towards the goal of abolishing SSNWs. Such a regime could be seen as a first step towards that goal by establishing a format, or at least serving as a precedent, for further arms control initiatives. Establishing a regime in this so far uncharted territory could be regarded as having a value in its own right.

7.3 Outlining a Baltic approach

What would an arms control regime for SSNWs in northern Europe entail? This section briefly describes the main components of such a regime, starting with the parties, the weapon definitions and the geographical scope before moving on to milestones and verification mechanisms. Some optional additional measures are also suggested.

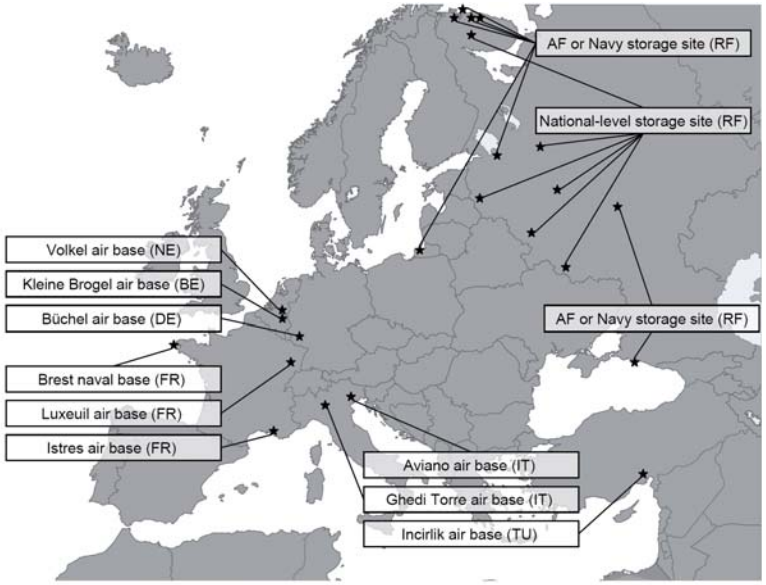
The most feasible format would be bilateral US-Russian negotiations. They are the sole owners of the SSNWs in northern Europe and they have an arms control

[65] For further details on the PNIs, see, e.g., Arbman and Thornton, 2003: 12-14; and Zagorski, 2011: 13ff-

legacy to build on. However, this should not preclude the possibility of an exchange of information on SSNWs as part of the NATO-Russia Council agenda. The nuclear host countries as well as the other NATO countries need to be involved in the process, but not necessarily in the negotiations. A preceding – or at least an earlier initiated, parallel – review process within NATO could ensure that the main concerns of the European NATO member states are addressed. NATO-Russia Council information sharing could in some parts be extended to include other concerned non-NATO members in Europe such as Finland and Sweden, and perhaps also Belarus (Zagorski, 2011).

The definition of the weapons in a US-Russian bilateral regime would be a fairly straightforward negative definition. The weapons covered by the treaty could be described as nuclear warheads not manufactured to be deployed on delivery vehicles covered by the New START Treaty. It would include non-deployed nuclear warheads in storage and production facilities within the area covered by the treaty. In order to erase any grey zones, the parties should renew their pledges to keep all sub-strategic nuclear warheads dismantled and stored separate from their intended delivery vehicles in central storage facilities or selected sites. If, at a later stage, other nuclear weapon powers — such as France and Great Britain — are to be included, the weapon definition would need to be revisited, but could perhaps centre on weapon yield.

The point of departure for defining the geographical area covered by such a treaty has to be the current known or presumed locations of SSNW sites in northern Europe. An important aspect to take into account when suggesting the geographical division is the need for parity and reciprocity between the parties. In order for the regime proposal to be acceptable to both Russia and the USA (and the NATO members states), both NATO and Russian storage facilities need to be included in the area covered by the treaty. At the same time, it would help if the area covered were easily expressed in geographical terms. Based on the locations of sub-strategic nuclear sites presented in Figure 2, the south-western Baltic Sea would seem to be a good centre point.



Sources: "Estimated Nuclear Weapons Locations 2009", by Hans M. Kristensen, *FAS Strategic Security Blog* (2009-11-25) and "Russias scattered tactical arms a temptation for terrorists", the *Boston Globe* (2002-06-18).

Figure 2 Examples of potential SSNW storage sites in Europe[66]

It may be expedient to start with a small area, with the intention of widening the area as a pattern is established and mutual confidence is increased. One suggestion would be to initially design the geographical dimension so that only one or two storage facilities for each party are covered. A radius of 750 kilometres from a point in the most south-western part of Sweden would allow for this (see Figure 3). A 1,250 kilometre radius would cover all the nuclear weapon sites in, and a large part of, northern Europe, excluding the problematic Kola Peninsula.

[66] The Boston Globe's information on potential SSNW sites should be seen as indicative data and not as reliable facts. Russian officials have repeatedly made statements to the effect that nuclear weapons are not stored in the Kaliningrad Oblast, while officials in several states around the Baltic Sea have more than once expressed serious suspicions about SSNW presence in Kaliningrad. The question being contentious and the fact that nuclear weapons were stored in Kaliningrad Oblast during the Cold war is reason enough to include a possible SSNW storage site in Kaliningrad.

French territory would be affected, but only one of France's nuclear bases, the Luxeuil airfield, is inside this area. The SSBN base outside Brest and the Istres airbase would remain outside.

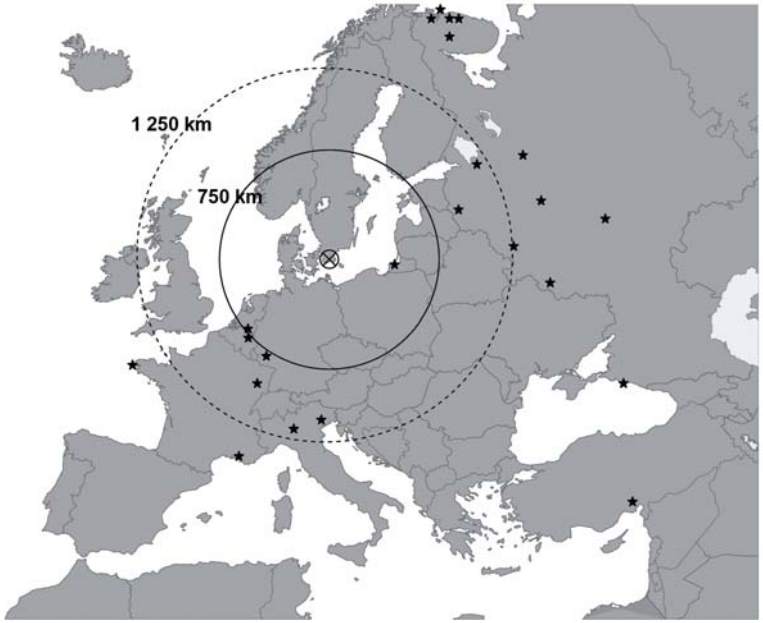


Figure 3 Illustrative example of storage control zones with a radius of 750 and 1,250 km

Starting with the 750 kilometres radius, an initial milestone would be to establish mutual transparency regarding the number of warheads in the storage sites within the area and the kind of delivery vehicles the warheads are intended for.[67] The size and composition of the arsenal within the treaty area could be verified by an inspection mechanism.

A second milestone could be the mutual withdrawal of the nuclear warheads to central storage facilities outside the area covered by the treaty. The parties would be under no obligation to dismantle the storage facilities within the treaty area, but could keep them operational for future use. However, maintained storage

[67] If a party prefers not to reveal this information, it could voluntarily withdraw the warheads prior to the treaty coming into effect.

facilities would be subject to an inspection and monitoring mechanism to ensure that they remain empty.[68]

A third and final milestone would be the irreversible dismantling of all nuclear weapons facilities within the area covered by the treaty. Verification would mainly be managed by national technical means, possibly complemented by an inspection mechanism.

The same milestones could be used with the 1,250 kilometre radius. Implementation of the first milestone would not necessarily need to be initiated after all three milestones of the 750 kilometre radius were reached. A parallel, but time-shifted, process is conceivable. When the third milestone of the 1,250 kilometre radius process is reached, a large part of northern Europe could be considered free from nuclear weapons.

A possible parallel nuclear arms control track would be to start to voluntarily include parts of the national territory outside the treaty area in which no nuclear weapons are currently located.[69] Although this would provide no guarantees about future deployments, it could still contribute to building confidence. Gradually increasing such nuclear-free areas would over time limit the parts of Europe where SSNWs could be deployed. The opportunity to inspect the voluntarily declared areas could later be added in order to further deepen mutual confidence.

Stimulating a broad discussion on the utility of these weapons and their impact on regional security and stability could strengthen the treaty process outlined above and generally further arms control for SSNWs . Discussion of definitions, the possible military and political uses of and alternatives to SSNWs, and the strengths and weaknesses of these weapons would assist the assessment of the current security context. Such a discussion would help provide assurances of security and stability with smaller arsenals than today.

Reciprocity and mutual understanding are the key to progress on arms control. It has been suggested by some experts that a reduction in the number of SSNWs could be kick-started by the unilateral withdrawal of US bombs from Europe. While proponents acknowledge that such an initiative might not prompt Russia to engage in negotiations, it is argued that such unilateral action would raise the political price paid by Moscow for continuing to stall on the issue (Pomper, et al., 2009: 37). There are, however, several serious objections to this proposal. One objection is that a non-negotiated unilateral withdrawal might just be taken

[68] For the sake of reciprocity and parity, it would be advisable for the parties to arrive at a common understanding on when to dismantle the storage facilities, so that unilateral initiatives would not jeopardise confidence-building and the overall process of removing nuclear weapons from Europe.

[69] Suggested by Pavel Podvig at a seminar in Stockholm on 26 January 2011.

for granted by Russia and thus provide no incentive for Moscow to react. Another objection is that it may be interpreted by Russia as evidence of the fact that NATO conventional forces are so strong that the US bombs are no longer needed. That would leave little incentive for Russia to follow suit and reduce its own arsenal of sub-strategic nuclear weapons. More importantly, non-negotiated unilateral initiatives, however well-meant, may cause more harm than good by their very nature. A fundamental flaw of such an approach is the evident risk of undermining rather than building confidence. Mutual trust and confidence are deepened through dialogue, mutual understanding and negotiated acts. A one-sided removal signals that there is nothing to talk about or find consensus on.

The Baltic approach to arms control for SSNWs described above needs to be analysed and examined in greater detail, but it will hopefully be sufficient in its present form to stimulate further discussion. The details of weapon definitions, geographical divisions and verification mechanisms would be very much part of the negotiations on a future treaty and thus for the parties to decide.

8 The way ahead

After starting from a political context and exploring different regimes, we have found that the Baltic option could be a promising approach to arms control regarding SSNWs in northern Europe. We explored various concepts that take account of how different weapons complexes and arms control issues affect each other. This led to the concept of what we call cascading emerging as a possible mechanism. The subcomponents and milestones of the Baltic approach must be synchronised with components from other complexes. The first milestone on transparency is independent, while milestone number two is probably related to the start of the track for conventional arms control, for example, within the Treaty on Conventional Armed Forces in Europe (CFE) or the Vienna Document.

Similarly, the extension of the control zone for SSNWs must be coordinated with operations related to French nuclear weapons and Russia's weapons in the Kola Peninsula. These in turn affect SSNWs in other regions as well as strategic nuclear weapons. The lessons and mechanisms of the regime for SSNWs in Europe could be useful for dealing with warheads in other weapon categories. Since the strategic balance includes both offensive and defensive weapons, the questions of long-range conventional systems and missile defence will also be affected.

The question remains: in which framework can these ideas be developed and realised? First and foremost, these problems are related and the responsibility lies mostly with the United States and Russia. Nonetheless, the process for SSNWs requires some interaction with others actors in the first phase, which means that other states, most notably NATO member states, will be involved early on.

It is important that the process for dealing with nuclear weapons is synchronised with the work related to other weapon regimes. These processes have previously shown to take time – often decades. However, it is critical to start the discussion now, so that once all pieces are in place — the New START Treaty is up and running, NATO's review of its strategic posture is complete and so on — it will be possible to have fully developed ideas to promote future arms control processes. This study can hopefully contribute with new perspectives and ideas in order to facilitate the next step.

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The Baltic Approach: A next step?
Prospects for an Arms Control Regime for Sub-strategic Nuclear Weapons in Europe

Strategic nuclear weapons have been the subject of arms control measures since the conclusion of the SALT negotiations in 1972. Many argue that the time is now ripe for further arms control of sub-strategic nuclear weapons (SSNWs). Unlike several other categories of weapons, there is no transparency regarding SSNWs. This makes them a potential source of mistrust and uncertainty. From a security policy perspective, a breakthrough on SSNWs could provide positive momentum for other arms control processes and be perceived as an important step in the rapprochement between Russia and the NATO member states.

The objectives of this study are to analyse how SSNWs affect security policy in northern Europe and to explore the conditions in which an arms control regime for SSNWs could be constructed. To this end, three main tasks are undertaken: first, to analyse the military and technical requirements of SSNWs, including how they can be defined; second, to analyse the security policy setting for an SSNW regime, not just for the possessors of SSNWs but also for other concerned actors; and, third, to identify key factors and specify different regime options, including the possible advantages and disadvantages of a geographical focus on northern Europe.

Having started from the political context and explored different options for arms control regimes for SSNWs, we find that the Baltic option would be a promising approach. It is important that the process for dealing with nuclear weapons is synchronized with work related to other weapons regimes. These processes have previously been shown to take time – sometimes decades. However, it is time to start the discussions now. This study has hopefully contributed new perspectives that can help with the next step.

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