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THE RETURN OF TACTICAL NUCLEAR WEAPONS?

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Research Fellow in Nuclear Deterrence and Disarmament at IRSEM

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BIOGRAPHY

Tiphaine de Champchesnel holds a PhD in political science and is a specialist in nuclear arms control, deterrence and the nonproliferation of weapons of mass destruction. She joined IRSEM in September 2017 to conduct research on these topics, following a decade spent working for France's Ministry of the Armed Forces as a Deterrence Advisor to the Director of Strategic Affairs. In her thesis, titled *Mobiliser au sein des Nations Unies : le cas de l'interdiction des armes nucléaires* (Mobilization within the United Nations: the case of the ban on nuclear weapons), she studies the sociology of social movements, particularly focusing on the role of "humanitarian" framing in formal agenda-setting during negotiations for a new treaty.

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SUMMARY

Over the past decade, strategic experts have noted that nuclear weapons have become more prominent on the international stage, despite them not having been used since 1945. A recent and significant milestone in this regard is the way Russia used nuclear signaling during the invasion of Ukraine. Questions regarding the possibility of Moscow using nuclear weapons extended beyond expert circles, as the media began to question whether people should fear the use of a tactical nuclear weapon and an escalation into nuclear war. These concerns echoed the questions raised by several researchers regarding a possible "return" of tactical nuclear weapons, which seemed to have been relegated to the background of the geopolitical arena since the end of the Cold War.

The present study raises the issue of tactical nuclear weapons being rehabilitated, starting from the hypothesis that the latter increase the risk of escalation from conventional to nuclear warfare, due to them being easier to utilize than strategic nuclear weapons. The first part focuses on terminology and aims to shed light on the notion of tactical nuclear weapons. The second part focuses on three very different arsenal- and doctrine-related cases. Finally, the third part examines the possibilities for a normative framework to regulate these systems, despite the current unfavorable political context.

INTRODUCTION

Over the past decade, strategic experts have noted that nuclear weapons are becoming increasingly present on the international scene. This observation is based on the actual presence of this type of weapon, i.e. the development of existing arsenals and proliferation programs, as well as on the fact that they have resurfaced amid the increasing operational and rhetorical demonstrations surrounding Russia's war with Ukraine.[1]

When Russia annexed Crimea in 2014, Europe and the United States saw these actions – which were often referred to as "saber-rattling" (i.e. threats, demonstrations of force) – as part of an intimidation strategy by Russia.[2] These developments seem to have gone relatively unnoticed by the public, compared to statements in support of the current invasion that led many observers to wonder whether the Kremlin would resort to tactical nuclear weapons.[3] Thus, "nukes" are making a comeback in the news, and a brutal one at that, given that the war in question is being waged only a few hours' flight from even the most distant European capitals. Nuclear weapons constitute both a risk and a threat, both on a civilian and military level. What's more, the protective framework of international law is being called into question following the multiple violations that have occurred during this conflict, starting with violations of national sovereignty and territorial integrity.

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1. On the role of nuclear weapons during the annexation of Crimea, see Jacek Durkalec, "*Nuclear-Backed 'Little Green Men': Nuclear Messaging in the Ukraine Crisis*", The Polish Institute of International Affairs, July 2015. On the invasion of Ukraine, see Jean-Louis Lozier, "*Premiers enseignements nucléaires de la guerre en Ukraine*" [The first nuclear lessons from the war in Ukraine], Briefings by the French Institute of International Relations, May 18, 2022, URL: https://www.ifri.org/fr/publications/briefings-de-lifri/premiers-enseignements-nucleaires-de-guerre-ukraine [last accessed August 25, 2022].

2. See Part II, Case study No. 2.

3. For example, see the articles published in the French daily press in September 2022.

At the end of the Cold War, the role of nuclear weapons in official national doctrines and international politics gradually declined. As the risk of a conflict between the Great Powers receded, fears of nuclear war were replaced by concerns regarding the proliferation of weapons. By that point, the world's stockpile of nuclear weapons had declined considerably, despite China, India and Pakistan's growing arsenals. Yet, this trend was limited to Asia and may be viewed as a temporary anomaly within a deeper movement; one that was structured by the ongoing arms control agreements between the United States and Russia.

Similarly, in terms of doctrine, the idea of a continuum between conventional and nuclear weapons and the latter's use on the battlefield appeared outdated. Increasing the threshold for the use of nuclear weapons to truly existential levels seemed likely to become the norm; so much so that Pakistan's announcement in the early 2010s, stating that it had nuclearized a 60 km range missile, also appeared to be a temporary anomaly. Thus, the outcome of these developments was the relinquishment of tactical nuclear weapons. The Federation of American Scientists' *Nuclear Notebook* – a major reference in nuclear arsenal monitoring – goes so far as to state that "[o]ne of the most dramatic effects of the end of the Cold War was that nonstrategic or short-range tactical nuclear weapons faded into the background of military and political planning and rhetoric."[4]

In political declarations, however, the relinquishment of the topic of nuclear weapons was neither absolute nor definitive. A convincing illustration of the partial nature of this *hiatus* is the way Russia raised the prospect of setting up its Iskander missile system at its Kaliningrad enclave during the 2000s, as a way of opposing the development of NATO's missile defense program.[5]

4. See Hans Kristensen and Matt Korda, "Tactical Nuclear Weapons, 2019", *Bulletin of the Atomic Scientists*, 75:5, 2019, p. 252-261.

5. The situation reached its apogee in 2007/2008, following speeches by senior Russian officials in reaction to elements from NATO's missile defense system being set up in Europe. On this topic, see Frank Tétart, "Kaliningrad, tête de pont de l'armée russe face au bouclier antimissile américain?" [Kaliningrad: the Russian army's bridgehead against the American missile shield], *Hérodote*, 128:1, 2008, p. 43-55. On page 53, the author specifically refers to the events of 2007. His analysis of Russia's use of the "Kaliningrad card" and the way it resonated throughout NATO shows that the Kaliningrad/Iskander combination may have had a compounded political effect, by rekindling the anxiety of neighboring states. The author also shows how the suspension of the Treaty on Conventional Armed Forces in Europe (CFE), which was announced during the same period, added to the anxiety felt by all Europeans.

However, these threats differ from those issued during the war in Ukraine, which not only raise the possibility of deployment, but also point to the use of nuclear weapons. Having been issued during a conflict, these statements have often been thought to imply the tactical use of nuclear weapons on the battlefield.[6] A recent announcement regarding the deployment of tactical nuclear weapons (TNWs) in Belarus further added to these concerns.[7]

The present study focuses on the "return"[8] of TNWs as a paroxysmal symbol of nuclear weapons' growing presence on the international stage. It features several case studies to paint a more precise picture of this state of affairs.

6. Let us note that, since the invasion of Ukraine, Russian threats do not specify what type of weapon or means will be used. The idea that tactical nuclear weapons could be used is purely a matter of interpretation.

7. V. Putin made this announcement on March 25, 2023. The prospect had already been announced in June 2022. See V. Putin's exchange with Alexander Lukashenko, "Meeting with President of Belarus Alexander Lukashenko," Communiqué from the Kremlin, June 25, 2022, URL: http://en.kremlin.ru/events/president/news/68702 [last accessed January 24, 2023]. On the evolution of the Belarusian constitution and related developments, see Isabelle Facon, "Le nucléaire dans la relation Belarus-Russie" [Nuclear weapons in the Belarus-Russia relationship], *Bulletin of France's Deterrence Observatory*, 97, April 2022, URL: https://frstrategie.org/programmes/observatoire-de-la-dissuasion/nucleaire-dans-relation-belarus-russie-2022 [last accessed January 19, 2023].

8. André Dumoulin, "Le 'retour' des armes nucléaires non stratégiques" [The 'return' of non-strategic nuclear weapons], Security and Strategy Report, Royal Higher Institute of Defense, 144, April 2020.

I. ELUSIVE WEAPONS?

The difficulty with TNWs is the absence of an internationally agreed definition. One of the reasons underlying this absence is the fact that TNWs have never been covered in any treaties, unlike strategic nuclear weapons, which became regulated through bilateral arms control negotiations between the United States and Russia.[1]

Research on TNWs almost invariably identifies this problem and provides a variety of solutions. In order to determine why TNWs remain terminologically elusive, the present study approaches the question by analyzing frequently used criteria. This inquiry is also necessary in order to shed light on the topic of capabilities, as the lack of transparency surrounding these weapons reinforces the impression that they cannot be controlled.

MULTIPLE YET CONVERGENT DEFINITIONS

The various forms of literature on TNWs lead multiple definitions to coexist. What's, more, results have been known to differ when capabilities are included in the discussion. While the criteria of system range and nuclear payload power are commonly used, they are also generally considered insufficient and are thereby supplemented with other parameters. We will start by analyzing some of the internationally circulated official definitions, before reviewing those used by researchers.

International studies, national definitions

Despite the lack of an internationally agreed definition, TNWs do appear in some documents on nuclear terminology devised

1. And the USSR before it.

in a bilateral (China/U.S.)[2] or multilateral (NATO/Russia)[3] setting. TNWs do not appear in the most recent glossary for the five nuclear-weapon states (P5),[4] which was presented for the first time in 2014 during a meeting for the review process of the Nuclear Non-Proliferation Treaty (NPT).

A review of these different documents reveals a discrepancy in terms of vocabulary: in the NATO/Russia glossary,[5] Russia makes a distinction between tactical and operational tactical weapons. Meanwhile, the United States mentions non-strategic weapons and NATO only broaches sub-strategic weapons. France simply defines strategic weapons.[6]

In the China-U.S. lexicon,[7] the term "tactical nuclear weapons" is used by both sides, yet is viewed through two different prisms. While the Chinese definition refers back to the *Chinese Military Encyclopedia* (1997), the U.S. definition is based on the arms control lexicon,[8] which suggests that the United States does not believe that it possesses tactical systems. This is corroborated by the fact that the *Nuclear Posture Review* – America's main

2. *English-Chinese, Chinese-English Nuclear Security Glossary*, National Academies Press, 2008, URL: https://www.nti.org/wp-content/uploads/2021/09/CISAC_English_Chinese_Glossary.pdf [last accessed October 27, 2022].

3. *NATO-Russia Glossary of Nuclear Terms and Definitions*, 2007, URL: https://www.nato.int/docu/glossary/eng-nuclear/index.htm [last accessed October 27, 2022]. The document consists of three parts: the first part is in English, the second is in French and the third is in Russian.

4. See *P5 Glossary of Key Nuclear Terms*, https://2009-2017.state.gov/documents/organization/243293.pdf. It would be interesting to know whether this term was considered for use and to understand the reasons for its absence.

5. *NATO-Russia Glossary of Nuclear Terms and Definitions*.

6. The definition reads as follows: "A strategic nuclear weapon is a weapon to whose use or threat of use only the highest authority of the State can resort, conceptually and structurally. The definition of the strategic nuclear weapon is fundamentally linked to France's doctrine of deterrence rather than to technical characteristics which, however important they may be, are merely consequences of that doctrine." (definition taken from the NATO-Russia Glossary, Part 2, Appendix 3, p. 2-30).

7. *English-Chinese, Chinese-English Nuclear Security Glossary*.

8. The definition reads as follows: "Nuclear weapons such as artillery shells, bombs and short-range missiles for use in battlefield operations".

nuclear policy document – refers to U.S. non-strategic nuclear weapons, yet reserves the term "theater or tactical" nuclear weapons to the context of fully rescinded Cold War arsenals or descriptions of the Russian threat.[9]

Finally, there appears to be an overall convergence regarding the criteria that define a "tactical mission", particularly in the Russian and Chinese definitions – despite the former making a distinction between "tactical" and "operational tactical" depending on the weapon's range (300 km/500 km).[10] This notion is also reflected in the American definition of "non-strategic nuclear forces", which are forces "located in an operational area with a capability to employ nuclear weapons [...] against opposing forces, supporting installations, or facilities." These forces can bolster "operations that contribute to the accomplishment of the commander's mission within the theater of operations."[11]

Tactical nuclear weapons are intended for targets in tactical depth within the theater of operations and the operational arena.[12] The terminology suggests that this category of weapon is associated with a doctrine that is diametrically opposed to deterrence, the latter being reserved for strategic nuclear weapons. However, the same operational terms appear, for example, in the Russian definition of strategic nuclear weapons, "designed to engage objects in geographically remote strategic regions (over 5,500 km) to accomplish strategic missions." Thus, the distinction between

9. *Nuclear Posture Review*, 2018, p. 48. The 2022 NPR does not use the term "tactical" to describe nuclear weapons, even regarding Russia. Only the term "non-strategic" is used.

10. The Russian definition states that tactical nuclear weapons can be combined with operational and strategic missions "under certain conditions", thereby adding to the complexity of this topic. What's more, Russia's clarification regarding "operational nuclear weapons" is different: "Under certain conditions operational nuclear weapons may be involved in the accomplishment of strategic missions and in exceptional cases, in the accomplishment of tactical missions" (see NATO/Russia Glossary, Part 2, Appendix 1, p. 2-31).

11. Ibid., p. 2-32.

12. The Chinese definition uses the word "campaign" to designate a series of combat operations conducted by corps-level forces to achieve partial or overall objectives.

strategic and tactical cannot be directly associated with opposing doctrines – i.e. deterrence on one hand and the use of nuclear weapons on the other.

The analysis of these various documents highlights a convergence on the notions of "combat" and "theater of operations", as well as the absence of a common definition.[13]

To conclude this section, let us look back on France's position: France stands out by merely providing a definition for "strategic weapons", while other states contributing to the glossary define "tactical nuclear weapons", or at least come close to doing so, by using terms such as "non-strategic" or "sub-strategic". The absence of a French definition for tactical nuclear weapons in this type of international document may be viewed as an extension of the major doctrinal turn that occurred during the early 1980s. In fact, this period marked a shift in France's understanding of the contrast between "tactical" and "strategic", a shift that is also visible at the semantic level, as the adjective "tactical" was replaced by "pre-strategic".[14] Previously, France had developed TNWs for use on the battlefield, as explained in its 1972 White Paper: "The existence of these weapons brings a new dimension to war, due to their destructive power and, even more so, due to the use of nuclear heads. While our maneuvers on the ground have to take into account the levels of dispersion imposed by the adversary's tactical nuclear weapons, we in turn force them into similar maneuvers, thereby curbing the impact of our numerical inferiority and allowing us to create the amount of delays that the Government requires. Moreover, the very decision to use tactical nuclear weapons against an adversary that can no longer be contained in any other way gives the Government the possibility of

13. The documents mentioned here may not have aimed at agreeing on a common definition.

14. See Louis-Marie Baille, "Histoire et doctrine d'emploi de l'armement nucléaire tactique français (1959-1996)" [A history of, and the doctrine for, the use of France's tactical nuclear weapons (1959-1996)], *Cahier de la pensée mili-Terre*, June 6, 2020, URL: https://www.penseemiliterre.fr/histoire-et-doctrine-d-emploi-de-l-armement-nucleaire-tactique-francais-1959-1996-2-2_244_1013077.html#_ftnref15 [last accessed August 16, 2022].

signaling to said adversary that, were their military pressure to be enacted, the use of strategic nuclear weapons would become unavoidable."[15] However, France has renounced this doctrine and simply considers issuing an "ultimate warning";[16] one that compels the adversary to understand that it has overstepped and lets it know that it has misunderstood the boundaries of France's vital interests. Thus, France boasts a very clear-cut position: it refuses the use of tactical nuclear weapons, adding to the array of approaches to this topic.

Criteria used in research

Research on the topic is no more univocal than the multilateral discussions mentioned above, since it is divided between capability criteria and/or the parameters that justify the use of TNWs.

TNWs are often defined according to capability criteria, i.e. in terms of their range or payload. In classical military thought, the distinction between tactical and strategic is primarily based on the level of combat. During the inter-war period, however, the theorization of air combat gave rise to a corollary notion, that of a fusion between the tactical and strategic dimensions.[17] Thus, the general understanding of TNWs follows the overall evolution of the conventional domain, yet is also based on developments

15. White Paper on Defense, 1972, p. 12, URL: http://www.livreblancdefenseetsecurite.gouv.fr/pdf/le-livre-blanc-sur-la-defense-1972.pdf [last accessed January 25, 2023].

16. This "ultimate warning" became synonymous with a nuclear warning and remains unique to France's doctrine to this day. The expression "ultime avertissement" (ultimate warning) appeared in France's rhetoric in 1981, thereby replacing the expression "dernier avertissement" (last warning), which was publicly used for the first time in 1977. See Nicolas Roche, *Pourquoi la dissuasion* [*The reason for deterrence*], Presses universitaires de France, 2017, p. 104-105.

17. Harald Müller, Annette Schaper, "Part II. Definitions, types, missions, risks and options for control: a European perspective", in William C. Potter, Nikolaj Sokov, Harald Müller and Annette Schaper, "Tactical Nuclear Weapons: Options for Control", UNIDIR, 2000.

that are specific to nuclear doctrinal thought. The tactical dimension of nuclear weapons began to be formalized once the need to compensate for the opponent's conventional superiority became apparent, especially in America's doctrine of graduated response.[18] Prior to that, nuclear weapons – as ultimate weapons that render war impossible – could not, by definition, be considered tactical. This historical overview provides elements to better understand the use of the range criterion.

Several studies on TNWs define them in exclusive terms, based on the bilateral treaties on strategic arms. Thus, any use of weapons that is not covered by these treaties is viewed as tactical. "Tactical" becomes synonymous with "non-strategic" and refers to delivery systems with a range of less than 5,500 km. Another option would be to also exclude systems covered by the Intermediate Nuclear Forces (INF) Treaty.[19] TNWs would thereby be weapons with a range of less than 500 km. Nevertheless, further clarification is required, as the INF Treaty only covers ground-launched systems.

The other frequently used capability criterion is power. Though figures may vary depending on the source, they often include power levels in the same range as the weapons used in Hiroshima and Nagasaki. Yet this criterion poses several problems. The first regards access to information on these technical aspects. The second concerns the criterion's reliability, since the effects of a weapon are not entirely dependent upon its power. It has been shown that explosions on the ground and ones at higher altitudes do not have the same consequences in terms of contamination and damage to infrastructure. Moreover, a 150-kiloton (kT) weapon does not produce ten times (but approximately

18. See Nicolas Roche, *Pourquoi la dissuasion* [*The reason for deterrence*], *op. cit.*, p. 149 ; also see Bruno Tertrais, "Principles of Nuclear Deterrence and Strategy", *NDC Research Paper*, May 2021, p. 144.

19. For example, this approach was adopted in a UNIDIR report from 2017 (i.e. before the completion of the INF Treaty). See Pavel Podvig and Javier Serrat, "Lock Them Up: Zero-Deployed Non-Strategic Nuclear Weapons in Europe", UNIDIR Report, March 29, 2017, p. 8.

twice) the effects of a 15-kT weapon.[20] Thus, this criterion does not appear to be of much use.

Ultimately, capability criteria seem insufficient. Researchers are therefore turning to other variables and are primarily focusing on the function of these weapons. For example, in a document entitled The first nuclear lessons from the war in Ukraine, Admiral Lozier explains that "strategic and non-strategic nuclear weapons can sometimes be similar in power and range," and that "the main difference is that a strategic weapon is used for deterrence, while a non-strategic weapon can be used on the battlefield to achieve a tactical objective."[21] This definition, which associates strategic weapons with deterrence, marks a very clear distinction between deterrence and use on the battlefield. The adjective "tactical" still needs to be defined, including in the above-mentioned context of battlefield objectives. Nevertheless, this notion seems more easily accessible than that of "tactical nuclear weapons". For example, the authors refer to "tanks on the battlefield, bombers and fighters in the air, submarines and ships at sea, and troops on the ground."[22] Thus, an approach that accounts for a weapon's function – particularly when factoring in the nature of its target – seems more useful than a mere quantification of physical variables pertaining to the weapon's characteristics and effects.

ON THE DIFFICULTY OF PAINTING A GLOBAL PICTURE

In the absence of a stable definition for TNWs, how can the corresponding capabilities be described? In the following section, we aim to provide a global overview of the subject, based on the definition used in arsenal monitoring reference documents

20. Bruno Tertrais, *L'arme nucléaire* [*The nuclear weapon*], Que sais-je, 2008, p. 17.

21. Jean-Louis Lozier, *Premiers enseignements nucléaires de la guerre en Ukraine* [*The first nuclear lessons from the war in Ukraine*], p. 4, Note 15.

22. Alex Wallerstein, "Low-Yield Nukes Are Still Dangerously Destructive", *Outrider* (blog), May 25, 2022, https://outrider.org/nuclear-weapons/articles/low-yield-nukes-are-still-dangerously-destructive.

(*Nuclear Notebook*, *SIPRI Yearbook*).[23] Though this definition is neither satisfactory nor sufficient, as we have pointed out in previous paragraphs, it remains relevant and interesting for analytical purposes by virtue of its inclusive nature. Thus, systems that fall outside the scope of existing arms control agreements – including the Intermediate Nuclear Forces (INF) Treaty, despite the latter being outdated – are considered tactical. Therefore, this definition primarily includes systems with a range of less than 500 km.

This leaves us with a broad category, which includes three characteristics that are useful to consider before attempting to describe these capabilities. Firstly, this category of weapon saw a sharp decline after the end of the Cold War, in sync with the dwindling of strategic arsenals. This trend can partly be explained by conventional systems having increased in strength, thereby replacing tactical nuclear weapons within national doctrines. When combined, the world's two largest arsenals (United States and Russia) are thought to have decreased from a total of 20,000-30,000 units in the late 1980s to less than 2,500 in the late 2010s.[24] The lack of precision surrounding these figures can be explained by an absence of transparency, which is much more pronounced than for strategic weapons. As a matter of fact, the legal framework surrounding strategic weapons has often been established according to verified data. What's more, several systems are described as being dual-capable, i.e. that can be either conventional or nuclear.

Secondly, the sheer breadth of this definition invariably includes a variety of different weapons: defining TNWs in exclusive terms – i.e. by excluding strategic weapons – leads to the inclusion of multiple systems, from very short to intermediate

23. Let us note that while the *SIPRI Yearbook* is not an American publication (SIPRI is based in Stockholm), the authors of the section on nuclear arsenals are the same as those that wrote the Federation of Atomic Scientists' *Nuclear Notebook*.

24. This data is taken from the *Nuclear Notebook*. This scale was provided as a starting point in the 1980s, yet its sheer imprecision – with a range of 10,000 units – remains striking, even though it can mainly be explained by the total absence of transparency that characterizes these two arsenals.

ranges, or even artillery units and anti-submarine warfare (ASW). Most of the latter became obsolete at the end of the Cold War.[25] However, the alleged withdrawal, dismantling and destruction of these weapons have not been verified, leaving the topic shrouded in a great deal of uncertainty.

Thirdly, there is a discrepancy between the way weapons systems are portrayed by observers – using the definition from arms control agreements – on the one hand, and by nuclear possessors on the other. Several authors have noted this discrepancy, explicitly stating that if the United States or Russia possessed these types of weapons, the latter would be considered tactical.[26] This notion stems from the common view according to which "tactical systems" exclude all systems that fall within the scope of bilateral agreements on strategic arms. For example, in the latest edition of the *Nuclear Notebook* on TNWs, H. Kristensen and M. Korda state that "Pakistan explicitly deploys tactical nuclear weapons, and its arsenal includes several other types of nuclear weapons that would be considered tactical if they were part of Russian or American arsenals. This is also the case for China, India, Israel and North Korea."[27] Moreover, H. Kristensen and M. Korda consider that the ASMPA missiles (French airborne component) have "similar characteristics" to certain Russian tactical systems.

In view of these preliminary remarks, an unavoidable observation in the global picture of TNWs is the supposed immensity of Russia's arsenal. It is thought to count one or two thousand warheads,[28] while the United States counts ten times less. These figures are derived from studies that have not yet been confirmed

25. André Dumoulin, "Le "retour" des armes nucléaires non stratégiques" [The "return" of non-strategic nuclear weapons], p. 1.

26. Hans Kristensen and Matt Korda, "Tactical nuclear weapons, 2019", p. 252.

27. North Korea has recently indicated that it is engaging in specific efforts to strengthen its tactical nuclear weapons. See Kim Jong-un's speech to the Supreme People's Assembly, September 9, 2022.

28. Figures vary depending on the source, including within the U.S. administration. The *SIPRI Yearbook* points out that the 2018 NPR features the figure 2,000, while the 2021 DIA report provides a scale from 1,000 to 2,000.

by the possessor states.[29] The data on Russia's arsenal comes from American sources, while recent Russian statements on the topic remain relatively vague.[30] Over the years, the statements and documents that Russia has submitted to multilateral forums, in particular in the context of the NPT review process, feature a similar choice of words: "The Russian Federation has significantly, by several times, reduced the quantity of its non-strategic nuclear weapons. At present, non-strategic nuclear capabilities of Russia is less than 25 per cent of that of the Union of Soviet Socialist Republics (USSR) possessed in 1991. All non-strategic nuclear weapons of Russia have been shifted to non-deployed status. They are located exclusively within the national territory and are consolidated at centralized storage facilities where a top-level security regime is assured, ruling out any possibility of theft, as well as accidental or unauthorized use."[31] However, this percentage cannot be verified due to a lack of figures from previous declarations. Therefore, Russia's current arsenal cannot be evaluated with certainty. The same is true for its composition, despite available open source inventories being relatively precise.[32] The latter highlight the diverse nature of Russia's arsenal, featuring several naval systems[33] (including the recent Kalibr missile),[34] as well as air

29. Hans Kristensen and Matt Korda, "Tactical nuclear weapons, 2019".

30. Ibid.

31. 2020 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, National Report of the Russian Federation, NPT/CONF.2020/17/Rev.1, March 19, 2021. The report also expressly states that Russia does not possess deployed non-strategic nuclear weapons.

32. See Hans Kristensen and Matt Korda, "Russian Nuclear Weapons 2022", *Bulletin of the Atomic Scientists*, 78:2, p. 111-114.

33. See Hans Kristensen and Matt Korda, "Tactical nuclear weapons 2019", p. 255-256. The authors include the Poseidon torpedo as part of this tactical arsenal, though they believe it has a very long range. Other experts indicate that it may have an intercontinental range. See Hanna Notte, Sarah Bidgood, Nikolai Sokov, Michael Duitsma and William Potter, "Russia's novel weapons systems: military innovation in the post-Soviet period", *The Nonproliferation Review*, 2021, p. 6.

34. The Kalibr missile is dual-capable, with a range of 1,500 to 2,000 km (see the "Missile Threat" website, https://missilethreat.csis.org/missile/ss-n-30a/). This system was put into service in 2015. The conventional version was used against

capabilities (including the new hypersonic Kinzhal missile)[35] and lastly, land capabilities, the main elements of which (Iskander-M[36] and 9M729[37]) have regularly preoccupied NATO. Most of these capabilities are dual-capable (i.e. that can be equipped with conventional or nuclear charges).

In comparison, America's arsenal appears to be smaller (about 200 warheads in total), less varied and mainly based on airborne components. Its uniqueness stems from the fact that these capabilities are located on United States territory (for use outside of Europe) on the one hand, and within several NATO member states (Germany, Belgium, Italy, the Netherlands and Turkey) on the other. In recent years, a program to modernize its B-61 bombs was implemented: they have been replaced by the B61-12 version, featuring improved accuracy and a standoff capability.[38] Naval TNWs were phased out at the end of the Cold War, yet Washington has since acquired a non-strategic capability, following the decision to equip nuclear-powered ballistic

targets in Syria in October 2015. Russia has also used the Kalibr missile against Ukraine.

35. The Kinzhal missile is part of a series of new systems, which President V. Putin presented during a speech to the Federal Assembly on March 1, 2018 (http://en.kremlin.ru/events/president/news/56957). The Kinzhal missile is thought to have a range of 2,000 km.

36. The Iskander M missile is dual-capable and features a range of 350 km. It has frequently been used rhetorically as a nuclear signaling tool vis-à-vis NATO (see the introduction to this study). It should be noted that V. Putin referred to these weapons during his meeting with A. Lukashenko in June 2022 (http://kremlin.ru/events/president/news/68702). V. Putin indicated that these missiles would be transferred to Belarus in the coming months, specifying that the Iskander M is dual-capable. These remarks created uncertainty and ambiguity regarding the nature of these warheads.

37. The United States considered the 9M729 missile to be a violation of the Intermediate Nuclear Forces (INF) Treaty.

38. The B61-12 is thought to have been put in service in late 2022. See Bryan Bender, Paul McLeary and Erin Banco, "U.S. Speeds up Plans to Store Upgraded Nukes in Europe," *Politico*, October 26, 2022, URL: https://www.politico.com/news/2022/10/26/u-s-plans-upgraded-nukes-europe-00063675 [last accessed January 3, 2023].

missile submarines (SSBNs) with lower-yield warheads (W76-2), as announced in the 2018 NPR.[39]

Russia and the United States are not the only states to possess capabilities that can be defined as non-strategic according to the criteria used here – particularly in terms of range in areal, naval or land environments. Studies on tactical nuclear arsenals are generally very detailed when it comes to America and Russia, but this is not always the case for other countries. For example, the *Nuclear Notebook* provides specific details on Russia, the United States and Pakistan, followed by a section on "other states" (China, France, India, Israel and North Korea). At a first glance, the reader may wonder why Pakistan is singled out from these other states. In practical terms, it is due to Pakistan's singular position: Islamabad's arsenal now features a 60-70 km range missile with a nuclear warhead. Other states' capabilities are described as having longer ranges, mainly between 500 and 5,500 km (which fall within the ranges covered by the INF Treaty). Yet, the *Nuclear Notebook* seems to focus less on the types of capabilities than on the way different states view these weapons. The "other states" category highlights the fact that, oftentimes, states that possess capabilities with ranges that do not fall under the strategic category still view these weapons as strategic. This suggests that defining TNWs based on their range is insufficient. According to H. Kristensen and M. Korda, the range-based definition merely reflects the vision of superpowers that have developed weapons with intercontinental ranges, while neglecting the characteristics and history of other states' nuclear arsenals.[40] It also ignores certain regional and/or geographical particularities, linked to the notion of strategic depth and potential front lines that need defending.

Once again, these observations constitute an argument in favor of a definition based on the function or mission assigned to these weapons. This implies taking a closer look at the doctrines

39. See 2018 NPR, p. 54.

40. Hans Kristensen and Matt Korda, "Tactical nuclear weapons 2019", p. 254.

of the states in question. In order to examine the issue in further detail, the second part of this study analyses three cases, all of which include recent developments that have contributed to shaping the perceived return of tactical nuclear weapons.

II. THREE CASE STUDIES ON THE "RETURN" OF TACTICAL NUCLEAR WEAPONS

In this second part, we will explore the question of the return of TNWs through three case studies, all of which include the integration of so-called tactical (or non-strategic) systems. The objective here is to highlight current issues linked to the development of non-strategic capabilities by coupling them with doctrinal issues.

The first case is independent from the two others and regards Pakistan's decision to integrate a short-range system to its nuclear arsenal. The second and third cases regard the bilateral relationship between Russia and the United States, yet focus on different issues: one pertains to the uncertainties surrounding Russia's nuclear doctrine, particularly the possible use of tactical nuclear weapons in the context of a conventional conflict; the other concerns America's attempts to restore deterrence at infra-strategic levels, particularly by developing new capabilities.

CASE STUDY NO.1: PAKISTAN NUCLEARIZES THE NASR MISSILE

This first case study is of prime importance: H. Kristensen and M. Korda have noted that "Pakistan is unique among the small nuclear-weapon states in that it is the only one to have explicitly and publicly committed to a tactical nuclear weapons development program."[1] Pakistan developed its land-based Nasr (Hatf-9) missile with a range of 60 km and announced that its first test was successful in 2011.[2] In the 2010s, the world was still headed toward nuclear disarmament: the Obama administration issued

1. Hans Kristensen and Matt Korda, "Tactical nuclear weapons 2019", p. 259.

2. For the announcement of the first test, see the Inter Services Public Relations (ISPR) press release, April 19, 2011. The missile's range was reportedly later extended to 70 km. See ISPR press release, July 5, 2017, URL: https://www.ispr.gov.pk/press-release-detail.php?id=4097 [last accessed January 12, 2023].

a speech in favor of a world without nuclear weapons,[3] the New START Treaty was finalized and the eighth NPT review conference was viewed as successful by participating states.[4] In a context that seemed ripe for a rise of the threshold for the use of nuclear weapons, with TNWs foreseeably becoming a deterrence tactic of the past, the fact that Pakistan acquired this type of tactical system seems all the more anomalous.

At a first glance, this type of system indeed appears to be tactical in nature. Its characteristics mean that it can only be used at the theater level, a priori against Indian forces. By expanding the range of its nuclear arsenal, Pakistan's doctrine has shifted from "credible minimum deterrence" to "full spectrum deterrence".[5] Within this framework, short-range missiles and lower-yield weapons are acquired to "counter military threats below the strategic level."[6] In light of various speeches by Pakistani officials, it appears that this missile constitutes a means of deterring India from carrying out incursions into Pakistani territory, as a response to India's Cold Start military doctrine.[7] The latter was developed by India in response to terrorist attacks and mentions

3. Barack Obama, speech in Prague, April 5, 2009, URL: https://obamawhitehouse.archives.gov/the-press-office/remarks-president-barack-obama-prague-delivered [last accessed January 26, 2023].

4. For example, see Harald Müller, "A nuclear nonproliferation test: Obama's Nuclear Policy and the 2010 NPT Review Conference", *The Nonproliferation Review*, 18:1, 2011, p. 219236.

5. ISPR press release, September 5, 2013, URL: https://www.ispr.gov.pk/press-release-detail.php?id=2361 [last accessed January 12, 2023].

6. Ibid. Researchers have focused on the way Pakistan learned from the experience of Cold War nuclear actors, including from NATO's doctrine of graduated response. See Sadia Tasleem and Toby Dalton, "Nuclear Emulation: Pakistan's Nuclear Trajectory", *The Washington Quarterly*, 41:4, October 2, 2018, p. 148.

7. For example, see General Kidwai's interview at the Carnegie Conference in 2015; he explains that conventional operations in the context of India's *Cold Start* doctrine revealed a "gap" in Pakistan's tactical nuclear infrastructure. This gap is thought to have led to the Nasr missile being developed. See Khalid Kidwai, *A Conversation with Gen. Khalid Kidwai*, March 23, 2015, URL: https://carnegieendowment.org/2015/03/23/conversation-with-gen.-khalid-kidwai-pub-58885 [last accessed January 10, 2023].

rapid conventional retaliation on Pakistani territory in the event of a new attack supported by Islamabad.[8] The prospect of nuclear escalation was ruled out by the fact that these conventional operations were to remain below Pakistan's threshold for the use of nuclear weapons.[9] Pakistan's acquisition of the Nasr missile marks a break with this rationale, as it indicates that a nuclear response is indeed possible.

Some experts have identified other, longer-range capabilities (between 200 and 350 km) in Pakistan's arsenal that are likely to fulfill the same operational objectives.[10] This leads one to question the real benefit of developing such missiles. If other systems can reach the same targets as Nasr, why invest in a new weapon? Experts explain this by pointing to the size of Pakistan's arsenal, which is deemed insufficient: were Pakistan to use its existing systems, it would lose a significant part of its total arsenal.

Another answer may lie in overarching concerns regarding the return of tactical nuclear weapons; Pakistan may have anticipated this trend and used it to its advantage. Indeed, Pakistan's announcement raised concerns regarding a heightened risk of nuclear weapons being used – facilitated by the possibility of equipping these weapons with conventional charges – and, in turn, of nuclear escalation.[11] The idea that a nuclear possessor

8. In a way, the *Cold Start* doctrine is presented as an attempt to deter non-state actors. However, this framework seems fragile at the political level. As Nicolas Blarel notes: "How can India dissuade non-state actors that are directly supported by the state apparatus of a nuclear power, or are based in, and free to act from, the territory of a nuclear power?" (Nicolas Blarel, "La stratégie nucléaire indienne, un dilemme insoluble ?" [The Indian nuclear strategy, an unresolvable dilemma?], *Hérodote*, 173:2, 2019, p. 103-120).

9. In the early 2000s, Pakistan's declaratory policy revolved around four types of threshold for the use of nuclear weapons: geographic, military, economic and political. For example, see Manpreet Sethi, "Pakistan's nuclear doctrine and strategy", *Air Power Journal*, 2:3, 2007, p. 90.

10. Hatf-2 (Abdali), Hatf-3 (Ghaznavi), Hatf-7 (Babur) and Hatf-8 (Ra'ad).

11. What's more, some experts have mentioned the need for pre-delegation for the use of tactical nuclear weapons, which in turn raises the issue of political control. For example, see Sadia Tasleem, "Pakistan's Nuclear Use Doctrine", Carnegie Endowment for International Peace (blog), June 30, 2016, URL: https://carnegieendowment.org/2016/06/30/

will refrain from using its nuclear weapons, except in extreme cases, works at the strategic level, yet becomes more uncertain at the tactical level – where the line between conventional and nuclear is often much thinner. When it comes to restraint before crossing the nuclear threshold, a 60 km range missile – specifically designed to respond to conventional aggressions – is more likely to be used than a missile with a 200 km range, the use of which would thereby be considered tactical. The relationship between conventional and nuclear weapons is neither fixed nor universal. However, in theory, establishing a watertight boundary between conventional and nuclear weapons constitutes a safeguard against the risk of escalation. In this regard, Pakistan's rhetoric is worrisome: while it asserts that Nasr is meant for deterrence, its stance also suggests that conventional and nuclear weapons are not viewed as separate.[12]

On the other hand, Pakistan attributes the responsibility for an eventual nuclear war to India's behavior. Senior Expert at the Carnegie Foundation Peter Lavoy asked General Khalid Kidwai, the former head of Pakistan's nuclear program, whether the Nasr missile would increase the risk of nuclear war. General Kidwai replied that it actually lowered the risk, as India would have to "think twice" before implementing its doctrine. Thus, the Nasr missile is creating a shift, particularly in terms of strategy. Pakistan's approach is based on a declaratory policy that portrays India as being responsible for nuclear escalation. The nuclearization of a short-range missile sends a message to India and to any other actors who may become involved in a crisis following a terrorist attack. By insisting that the Nasr missile is intended to deter India from launching a given type of operation, Pakistan seems to be trying to lead all actors to believe that India will have to refrain from taking action, due to the risk of nuclear escalation.

pakistan-s-nuclear-use-doctrine-pub-63913 [last accessed January 12, 2023]. The possibility of these systems being stolen has also been discussed.

12. Khalid Kidwai, *A Conversation with Gen. Khalid Kidwai.*

In light of these developments, experts have pondered the means India might use to deter Pakistan from employing this theater capability, and whether India should acquire similar systems. Certain experts also raised the possibility of India using pre-emptive strikes in the event of activities that signal imminent deployment.[13] Indian experts stand divided on the issue.[14] One of India's official responses can be found in a speech by Shyam Saran, then Chairman of the National Security Advisory Board (NSAB)[15] from April 2013. In this speech, he stated that the category of nuclear weapon – be it strategic or tactical – used against India was meaningless from India's perspective, that a limited nuclear war was "a contradiction in terms", and that any type of nuclear exchange, once initiated, would quickly and inexorably escalate to the strategic level. This declaratory policy appears to follow recommendations issued by experts, who foresaw a risk of uncontrollable escalation were India to develop TNWs, and who advocated sticking to a doctrine of massive retaliation, whatever the location and level of Pakistan's nuclear aggression.[16]

This first case highlights previously discussed issues regarding definitions. It illustrates the importance of nuclear policy and describes the way Pakistan sought to bolster its doctrine's political credibility with technical and operational arguments, by emphasizing the integration of a new capability to its arsenal.

13. Vipin Narang quoted in Jean-Marc Durandau, "Vers un retour des stratégies de guerre nucléaire limitée : défis et enjeux pour la dissuasion française" [Towards a return of limited nuclear warfare strategies: challenges and issues for French deterrence], *Un monde en turbulence*, Regards du CHEM 2019, 68th session.

14. See Gurmeet Kanwal, "Does India need tactical nuclear weapons?", *Strategic Analysis,* 24 (2), May 1, 2000, p. 258-259.

15. Shyam Saran, "Is India's Nuclear Deterrent Credible?", India Habitat Centre, New Delhi, April 24, 2013, URL: http://krepon.armscontrolwonk.com/files/2013/05/Final-Is-Indias-Nuclear-Deterrent-Credible-rev1-2-1-3.pdf [last accessed January 16, 2023].

16. See Gurmeet Kanwal, "Does India need tactical weapons?", p. 257. He points out that strikes against Indian forces may take place on Pakistani territory.

CASE STUDY NO.2: THE TACTICAL ISSUE IN RUSSIAN NUCLEAR POLICY

This second case study deals with doctrine and nuclear declaratory policy rather than with capabilities, though the latter are also part of the discussion. The uncertainty surrounding Russia's tactical component is linked to the lack of transparency concerning this part of its arsenal, yet mainly stems from political factors. As was the case with Pakistan, this issue arose in a context in which nuclear possessor states appeared to be diminishing the role of nuclear weapons in their doctrines, by strictly limiting them to deterrence functions. Conversely, Russia appeared to be returning to the idea that the use of nuclear weapons could be considered to regain the advantage in a conventional conflict. Strategic think-tanks have raised this issue, as well as the more general question surrounding the way the threshold for the use of nuclear weapons is characterized in Russian strategic thought. While these concerns were reignited in the mid-2010s after the annexation of Crimea, they are in fact deeply rooted in the evolution of Russian doctrine since the end of the Cold War, as well as in the general perception of Moscow's nuclear signaling.

Firstly, researchers agree on the fact that Russia intended to compensate for its conventional inferiority in relation to the United States by betting on nuclear weapons.[17] Thus, the end of the 1990s gave rise to the possibility of carrying out limited nuclear strikes that could lead one's adversary to yield and thereby help put an end to a conflict. While the issue of TNWs had not necessarily been raised at the time, this framework for the use of nuclear weapons led us toward the current state of affairs. While some experts firmly assert that Russia's military doctrine featured the concept of "de-escalation"[18] in the year 2000, others

17. For example, see Kristin Ven Bruusgaard, "Russian nuclear strategy and conventional inferiority", *Journal of Strategic Studies*, 44:1, 2021, p. 3.

18. See Nikolai Sokov, "Why Russia calls a limited nuclear strike 'de-escalation'", *Bulletin of the Atomic Scientists,* March 2014, URL: https://thebulletin.org/2014/03/why-russia-calls-a-limited-nuclear-strike-de-escalation/ [last accessed July 20, 2022].

adopt a more cautious approach and merely expose the signs that indicate that Russia had effectively adopted this notion. In a study published in 2008, Isabelle Facon and Bruno Tertrais retrace the evolution of what is often referred to as "escalation for de-escalation",[19] based on the analysis of official documents, statements by Russian officials and the conducting of major military exercises.[20] The expression "escalation for de-escalation" did not appear in major doctrinal documents at the time, yet the latter's ambiguity does not to allow a definitive conclusion to be drawn.[21] In any case, these analyses reflect a first episode of Russia's doctrine being brought into question, in a context marked by nuclear signaling and the threat of the Iskander missile system being deployed.[22] Subsequently, these concerns began to fade as bilateral relations improved and new arms control treaties were concluded. Moreover, Russia's increase in conventional capabilities suggests that the role of nuclear weapons is being significantly reduced within its security doctrine.

When Crimea was annexed in 2014, a new wave of questioning emerged concerning Russia's nuclear doctrine. In strategic thought, these concerns appeared in documents and

19. The expression first appeared in an article from a Russian Ministry of Defense journal: V. I. Levchine, A. V. Nedeline, M. E. Sosnovskiï, "O primenenii iadernogo oroujiia dlia deeskalatsii voennykh deïstviï", *Voennaïa Mysl'*, 3, May-June 1999, p. 34-37, quoted in Isabelle Facon and Bruno Tertrais, "Les armes nucléaires "tactiques" et la sécurité de l'Europe" ["Tactical" nuclear weapons and Europe's security], *Recherches et documents*, France's Foundation for Strategic Research, 3, 2008, p. 23.

20. See Isabelle Facon and Bruno Tertrais, "Les armes nucléaires "tactiques" et la sécurité de l'Europe" ["Tactical" nuclear weapons and Europe's security], p. 17-23.

21. See "Russia's military doctrine", English translation on the Arms Control Association website, URL: https://www.armscontrol.org/act/2000-05/russias-military-doctrine [last accessed January 26, 2023].

22. The role of the Iskander missile system within Russia's nuclear rhetoric was discussed in the introduction to this study. Here, we have highlighted an early episode, but Jacob Kipp notes that by the late 1990s, the media were already speculating about the role of TNWs in Russia's defense policy. See Jacob W. Kipp, "Tactical Nuclear Weapons and NATO", Strategic Studies Institute, US Army War College, 2012, p. 124-125.

presentations on the topic during strategic colloquia.[23] These concerns were primarily due to an emphasis on nuclear weapons in Russian communications regarding these events. In terms of impact on the media, the most striking illustration was a television interview in March 2015, during which Vladimir Putin indicated that he had considered putting nuclear forces on alert.[24] Other speeches, as well as operational demonstrations, contributed to casting a nuclear threat over a situation that was considered a crisis.[25] From a broader standpoint, this new wave of concern also stemmed from Russia's actions, which were perceived as aggressive and as part of a "hybrid" strategy, in which nuclear weapons were thought to play an intimidating role.[26]

The invasion of Ukraine in February 2022 was accompanied by a set of reminders concerning Russia's nuclear arsenal and its determination to use it if necessary. This form of communication occurred very early in the war's outbreak[27] and used a

23. In particular: Nikolai Sokov, "Why Russia calls a limited nuclear strike 'de-escalation'", *Bulletin of the Atomic Scientists*, 13, March 2014; Jacek Durkalec, "Nuclear-Backed 'Little Green Men': Nuclear Messaging in the Ukraine Crisis"; Dmitry Adamsky, "Cross-Domain Coercion: The Current Russian Art of Strategy", *Proliferation Paper*, November 2015, URL: https://www.ifri.org/fr/publications/etudes-de-lifri/proliferation-papers/cross-domain-coercion-current-russian-art-strategy [last accessed August 25, 2022] ; Elbridge Colby, "Russia's Evolving Nuclear Doctrine and Its Implications", Note from France's Foundation for Strategic Research, January 12, 2016 ; Kristin Ven Bruusgaard, "Russian Strategic Deterrence", *Survival*, 58:4, 2016.

24. "Ukraine Conflict: Putin 'Was Ready for Nuclear Alert'", BBC News, March 15, 2015, URL: https://www.bbc.com/news/world-europe-31899680 [last accessed January 26, 2023].

25. For a condensed analysis of the nuclear dimension of the Ukrainian crisis, see Mélanie Rosselet, "La crise ukrainienne a aussi une dimension nucléaire" [The Ukrainian crisis also features a nuclear dimension], *Le Monde*, February 2, 2022.

26. See Jacek Durkalec, "Nuclear-Backed 'Little Green Men:' Nuclear Messaging in the Ukraine Crisis". Also see Dmitry Adamsky, "Cross-Domain Coercion: The Current Russian Art of Strategy", Proliferation Paper 54, URL: https://www.ifri.org/fr/publications/etudes-de-lifri/proliferation-papers/cross-domain-coercion-current-russian-art-strategy [last accessed August 25, 2022].

27. See V. Putin's speech from February 27, 2022.

wide range of vectors: from a video in which V. Putin gives a speech asking for his nuclear forces to be put on alert, to scenarios for targeting European capitals being broadcast by several Russian media.[28] Many observers have linked the developments in the conflict around Zaporizhia nuclear power plant to Russia's nuclear signaling, despite the two events occurring on different strategic levels.[29] This civilian aspect may be considered to have contributed to the anxiety surrounding Moscow's possible intention to use nuclear weapons.

Thus, given the scale of the conflict and the risks it would pose if it were to spread, the issue of tactical nuclear weapons resurfaced emphatically. The fact that Russia has never ceased to make political use of its tactical nuclear arsenal vis-à-vis the United States and, above all, NATO, does not mean that Russia excludes the actual use of nuclear weapons. The conditions for the use of nuclear weapons, as set out in Russia's doctrine, do not allow this possibility to be ruled out either.[30] In the version published in 2020,[31] Russia's doctrine reveals the general principles

28. For an overview of Russia's nuclear signaling and a precise analysis of its main symptoms, see Isabelle Facon, "Guerre en Ukraine : le sens du signalement nucléaire russe" [War in Ukraine: the meaning behind Russia's nuclear signaling], Note from France's Foundation for Strategic Research, 30, July 26, 2022, URL: https://www.frstrategie.org/publications/notes/guerre-ukraine-sens-signalement-nucleaire-russe-2022 [last accessed January 10, 2023].

29. The media made this connection and spoke of "*nuclear terrorism*" in broader terms, particularly referring back to the words of Volodymyr Zelensky. In a bulletin by France's Deterrence Observatory on the invasion of Ukraine, B. Tertrais mentions the fear that followed military operations around the Ukrainian power plant, leading to the idea that the conflict is taking place in a "nuclear atmosphere". See Bruno Tertrais, "L'ombre du nucléaire sur la guerre en Ukraine" [The shadow of nuclear weapons looms over the war in Ukraine], *Bulletin of France's Deterrence Observatory*, 96, March 2022, p. 5, URL: https://frstrategie.org/sites/default/files/documents/programmes/observatoire-de-la-dissuasion/bulletins/2022/96-2.pdf [last accessed January 10, 2023].

30. Beyond the ambiguous wording of Russia's doctrine, the issue of Moscow's compliance with said doctrine remains. It is a unilateral commitment.

31. For the first time, Russia has published a document entirely devoted to its nuclear doctrine. Previously, various elements were integrated into military strategy documents. An English translation is available on the Defense

and – in more precise terms – the conditions that could lead Russia to use nuclear weapons.[32] These general principles feature two main conditions: Russia "retains the right to use nuclear weapons in response to the use of nuclear weapons and other types of weapons of mass destruction against it and/or its allies, and also in the case of aggression against the Russian Federation with the use of conventional weapons, when the very existence of the state is put under threat." The wording used here is similar to previous doctrinal statements and suggests that the threshold for the use of nuclear weapons is strategic in nature. The rest of the text, however, remains equivocal: "[the] document does not offer a clear answer to the question that has generated the most controversy, namely whether Russia is guided by a doctrine of (nuclear) escalation for de-escalation (of a conflict with which its forces would fail to cope) […]."[33] While ambiguity exists in all doctrines and is necessary for deterrence strategies to work, it can be destabilizing when embedded in a coercive context.[34]

This second case study allows us to examine the relationship between capabilities and the political realm. While Pakistan has based its strategy on a particular capability, Russia relies more on communication, through speeches and operational signals. The Iskander missile system is a typical example of Moscow's use of TNWs in the political arena. However, when compared to Nasr in Pakistan's strategy, this argument does not play as predominant a role. This may lead one to believe that, in the case of Russia, the destabilizing factor is more closely related to the ambiguity of its

Technical Information Center website (among others), URL: https://apps.dtic.mil/sti/citations/AD1130221 [last accessed January 10, 2023].

32. On this topic, see Olga Oliker, "New Document Consolidates Russia's Nuclear Policy in One Place – Russia Matters", June 4, 2020, URL: https://www.russiamatters.org/analysis/new-document-consolidates-russias-nuclear-policy-one-place [last accessed September 12, 2022].

33. Isabelle Facon, "Une doctrine nucléaire pour la Russie" [Russia's nuclear doctrine], *Bulletin of France's Deterrence Observatory*, 77, June 2020, p. 8.

34. Conversely, some of Russia's statements outline a context in which it is reacting to a threat. On the issue of weapons of mass destruction, see the speech by Russian Minister of Foreign Affairs, Sergei Lavrov, at the Conference on Disarmament on March 1, 2022.

doctrine than to its lack of transparency on TNWs. However, this ambiguity would certainly be perceived differently if Russia had been proven to lack systems that supposedly increase its ability to "take action". In this sense, TNWs are destabilizing regardless of the doctrine in which they are included.

Analyzing these two cases allows us to highlight a common trait among the states in question, i.e. their will to force other states to refrain from carrying out actions that are deemed unfavorable. The aim here is to deter one's adversaries and preserve one's freedom to act. Similar objectives appear in several other nuclear strategies. In Russia's case, however, they extend beyond the context of a defensive framework and turn the atom's otherwise stabilizing power into a form of aggressive sanctuarization.[35]

CASE STUDY NO.3: THE UNITED STATES AND THE RETURN OF DETERRENCE

This third case study focuses on developments in the United States' capabilities, which the latter portrays as being intended to restore deterrence against its adversaries – ones that may consider using nuclear weapons to compensate for their conventional disadvantage. This brings us back to the uncertainties surrounding Russia's doctrine. Yet, from America's standpoint, the issue concerns other states as well, particularly North Korea and China. While the issue had already been taken into account by the Obama administration, the first concrete measures would only come to be mentioned publicly under Donald Trump.

The NPR published in 2018 announced the strengthening of U.S. deterrence, with the addition of two new types of nuclear capability, justified by a need for flexibility. On one hand, in the short term, the U.S. planned to modify the warheads of some of its ballistic missiles – designed for nuclear-powered ballistic missile submarines (SSBNs) – in order to reduce their power. On

35. The notion of aggressive sanctuarization applies to a situation in which a state, after developing a nuclear arsenal and feeling emboldened by its status, becomes more inclined to carry out offensive actions.

the other hand, in the medium term, the U.S. planned to acquire a new naval nuclear cruise missile. Thus, the NPR set in motion the renewal of America's non-strategic nuclear arsenal (the term "tactical" being reserved for adversary weapons), which was sometimes criticized for lowering the threshold for the use of nuclear weapons and for increasing the risk of escalation.[36]

However, at the time, the administration's stated objective was precisely the opposite. The officials in charge of the issue repeatedly stated that these decisions were intended to raise the threshold for use by deterring adversaries from using nuclear weapons, including at a non-strategic level. The NPR assumes that "escalation for de-escalation" is a part of Russia's doctrine,[37] despite Russia not mentioning it. Experts remain divided on whether "escalation for de-escalation" is indeed part of Russia's doctrinal corpus. In the NPR, the issue is presented as follows: "[...] Russia may also rely on threats of limited nuclear first use, or actual first use, to coerce us, our allies, and partners into terminating a conflict on terms favorable to Russia. Moscow apparently believes that the United States is unwilling to respond to Russian employment of tactical nuclear weapons with strategic nuclear weapons."[38] The NPR does not discuss non-strategic capabilities in the U.S. arsenal and focuses on the idea that certain states might exploit what they perceive as a gap in America's range of capabilities and possible responses. Were America's adversaries to bank on paralyzing the U.S., they may be tempted to resort to the limited use of nuclear weapons. Thus, the intended purpose of developing non-strategic capabilities is to prevent the non-strategic use of nuclear weapons.

36. For more details on the content of the 2018 NPR and the criticism it has raised, see Tiphaine de Champchesnel, "Quel rôle pour les armes nucléaires après la nouvelle revue de posture américaine ?" [What role do nuclear weapons play in view of the new US posture report?], Research Paper, 57, IRSEM, June 28, 2018.

37. The NPR states that Russia "mistakenly assesses that the threat of nuclear escalation or actual first use of nuclear weapons would serve to "de-escalate" a conflict on terms favorable to Russia" (2018 NPR, p. 8).

38. 2018 NPR, p. 7.

This issue is nothing new. As Corentin Brustlein explained in a 2017 IFRI study, "the question of the limited use of nuclear weapons has forced the United States to confront old – and to a large extent unsurpassable – dilemmas once again."[39] The U.S. is strengthening its deterrent power by expanding its range of options, in order to avoid a form of self-deterrence. Its goal is distinct from escalation dominance: here, the objective is not to plan for a limited nuclear war, but to acquire options that deter the adversary from taking actions that could lead to an exchange of nuclear strikes. Thus, the addition of these "complements" (in the words of the 2018 NPR) is said to prevent the United States' actions from being blocked, lest it be forced to assume the responsibility for escalation.

The first of these short-term complements was quickly set in motion. The Pentagon announced the deployment of a lower-yield nuclear warhead (W76-2) on an SSBN in February 2020.[40] On the other hand, its nuclear naval cruise missile project was finally abandoned, as indicated in the latest NPR published in December 2022. This cancellation does not mean that the Biden administration assesses the situation differently; it merely reflects the fact that it does not see this capability as necessary. The 2022 NPR's insistence on strengthening deterrence is in fact a continuation of the 2018 NPR, yet it is expressed differently, through strategic choices (particularly through the concept of integrated deterrence)[41] and a carefully crafted declaratory policy.

39. Corentin Brustlein, "La guerre nucléaire limitée : un renouveau stratégique américain" [Limited nuclear war: an American strategic renewal], Strategic focus, 77, November 2017, p. 10, URL: https://www.ifri.org/fr/publications/etudes-de-lifri/focus-strategique/guerre-nucleaire-limitee-un-renouveau-strategique [last accessed July 11, 2022].

40. Aaron Mehta, "Trump's New Nuclear Weapon Has Been Deployed", *Defense News*, February 6, 2020, URL: https://www.defensenews.com/smr/nuclear-arsenal/2020/02/04/trumps-new-nuclear-weapon-has-been-deployed [last accessed January 20, 2023].

41. For a summary of this topic and additional bibliographical references, see Tiphaine de Champchesnel, "La revue de posture nucléaire américaine 2022" [The American nuclear posture review 2022], Strategic Brief, 51, IRSEM, November 29, 2022.

The core message of the NPR is that U.S. nuclear forces serve to deter the use of nuclear weapons, regardless of their scale ("of any scale"), in order to prevent limited nuclear strike scenarios in the context of a conventional conflict. Thus, the NPR warns that "[a]ny adversary use of nuclear weapons, regardless of location or yield, would fundamentally alter the nature of a conflict, create the potential for uncontrolled escalation, and have strategic effects." The 2018 NPR had previously used similar wording, but only addressed two states: Russia and China.[42] These paragraphs also echo the wording of NATO communiqués that were updated during the Warsaw summit.[43]

This third case study presents similarities with the case of Pakistan, with capability development playing a central role. However, these similarities are limited. Firstly, it is clear that we are dealing with very different categories of weapons, and secondly, the strategies for their use are on opposite sides of the spectrum. While Pakistan's strategy is one of deterrence, it also entails first use in response to the use of conventional weapons, whereas the United States simply intends to deter the use of nuclear force. Similarities between the cases of Pakistan and Russia are more pronounced, in that both involve first use in response to conventional weapons, without necessarily reaching an existential threshold.[44]

42. "Our strategy will ensure Russia understands that any use of nuclear weapons, however limited, is unacceptable," and "Our tailored strategy for China is designed to prevent Beijing from mistakenly concluding that it could secure an advantage through the limited use of its theater nuclear capabilities or that any use of nuclear weapons, however limited, is acceptable."(2018 NPR, p. 30 and 32).

43. "*Any employment of nuclear weapons against NATO would fundamentally alter the nature of a conflict*" (Warsaw Summit Final Declaration, paragraph 54, URL: https://www.nato.int/cps/en/natohq/official_texts_133169.htm [last accessed January 20, 2023]).

44. The idea of an existential threshold is similar to that of "*the very survival of a state*" employed in the International Court of Justice's advisory opinion on the legality of the threat or use of nuclear weapons (July 8, 1996). See the full advisory opinion, URL: https://www.icj-cij.org/public/files/case-related/95/095-19960708-ADV-01-00-FR.pdf/. The Russian doctrine refers to this type of threshold with the phrase "*the very existence of the state*", yet Russia's actions suggest that this threshold may in fact be lower.

III. TOWARDS A NORMATIVE FRAMEWORK FOR TACTICAL NUCLEAR WEAPONS

Recent developments in the field of TNWs are worrying, as they imply a risk of escalation and recourse to extreme measures, or even an increase in aggressive behavior shielded by nuclear weapons. Therefore, the creation of a normative framework deserves to be discussed, even if the prospect of an agreement on this topic seems remote. Despite there being an overall willingness to progress in this direction, with inquiries, projects and approaches, very few concrete results have been achieved. TNWs remain the least regulated category of nuclear weapon, which some experts have put down to the level of priority given to strategic issues.[1] Yet this state of affairs is also understandable, given the importance that some states still give to these weapons.

This third part aims at recalling existing achievements in the field, as well as the avenues that have previously been explored, so as to form an approach that is more relevant to the present situation.

OUTDATED TOOLS

The end of the Cold War came with changes in nuclear policy. What's more, the United States and Russia accepted new constraints on their arsenals. In the non-strategic realm, the INF Treaty remains emblematic, though its origins stretch back far beyond the 1990s. The less well-known 1991 Presidential Initiatives stand as the only bilateral agreement to have covered the full

1. Olivier Zajec, ""Some other kinds of controlled general war": Quel débat sur l'emploi des armes nucléaires tactiques ?" ["Some other kinds of controlled general war": What is the debate on the use of tactical nuclear weapons?], Research Paper, France's Institute for Strategic and Defense Studies, URL: https://iesd.univ-lyon3.fr/notes_de_recherche/olivier-zajec-some-other-kinds-of-controlled-general-war-deux-ans-apres-la-nuclear-posture-review-americaine-de-2018-quel-debat-sur-lemploi-des-armes-nucleaires-tactique/ [last accessed July 11, 2022].

range of tactical capabilities for theater weapons. However, this agreement is not legally binding. In the following section, we look back on the creation and implementation of these two tools.

The INF Treaty: the verified elimination of a category of weapon

The INF Treaty, which came into force in 1988, has long been regarded as a major security tool in Europe, as it allowed for the verified elimination of an entire category of – reputedly destabilizing – weapons. It provided for the withdrawal and destruction of the following systems: ground-fired ballistic and cruise missiles with a range of 500 to 5,500 km, regardless of the nature of their payload (nuclear or conventional). The treaty was therefore particularly ambitious, especially since the deadlines it set were relatively short: it aimed at eliminating intermediate-range missiles and their launchers within three years of its date of application (Article IV), as well as shorter-range systems after only 18 months (Article V). In addition, these operations were set to be verified through on-site inspections, to be conducted for another ten years after the deadline for the equipment's disposal (Article XI). The process ended on May 28, 1991 (846 missiles destroyed on the American side and 1,846 missiles destroyed on the Soviet side) and the inspection regimen ended on May 31, 2001.

The INF Treaty was signed at the end of the Cold War and represented a major step forward in the field of arms control. The extent of this achievement is all the more striking in view of the Euromissile crisis, which occurred during the opening of negotiations in the late 1970s.[2] Thus, America's withdrawal from the treaty in August 2019 constituted a major turning point and a worrying development. Yet, the situation was already relatively tense, particularly due to Russia's repeated threats to withdraw

2. The Euromissile crisis began in 1977 with the deployment of Soviet SS-20 missiles, which increased the threat towards Europe.

from the treaty in 2005-2006.[3] The termination of the INF Treaty followed a new missile crisis: Moscow developed the Novator 9M729 (NATO: SSC-8) missile, which the United States considered a violation of the treaty. When Washington's attempts at diplomatic resolution failed, withdrawing from the treaty became its last resort.[4]

In the meantime, the strategic landscape has evolved and several states have acquired capabilities that fall within the scope of the INF Treaty. The possibility of the treaty's multi-lateralization emerged, supported by both Russia and the United States in the late 2000s,[5] yet not concrete actions were taken in this direction. During the same period, France launched the idea of a treaty on short to intermediate-range ground-to-ground missiles, featuring a slightly different scope.[6] The project, which was supported by the European Union for several years, was not pursued. The only remaining tools for arms control relating to missiles, excluding treaties, are: the Hague Code of Conduct, which is a political tool that serves as a trust-building and transparency measure;[7] and the Missile Technology Control Regime (MTCR), which aims to limit ballistic proliferation.

3. For example, see Jane Vaynman, "Russia Questions INF, Again", *Arms Control Wonk*, February 14, 2007, URL: https://www.armscontrolwonk.com/archive/601396/russia-questions-inf-again/ [last accessed June 25, 2019].

4. Russia has described the arguments put forward by the United States as propaganda. It has also accused the United States of several violations.

5. On the project to multi-lateralize the treaty, see Tiphaine de Champchesnel, "L'impossible extension du traité FNI" [The impossible extension of the INF Treaty], Research Paper, 81, IRSEM, October 7, 2019.

6. See Council Decision 2010/212/CFSP of March 29, 2010 on the position of the European Union regarding the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, URL: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:090:0008:0014:FR:PDF [last accessed January 26, 2023].

7. Particularly through annual program declarations, as well as test launch pre-notifications for ballistic missiles and space launch vehicles.

The Presidential Nuclear Initiatives: a mutual trust-building measure

The Presidential Nuclear Initiatives (PNIs) consist of two declarations – made within a few weeks of each other – and their implementation process. The first declaration was made on September 17, 1991. Noting the end of the Warsaw Pact, George Bush Sr. considered that a Soviet invasion of Western Europe was no longer a realistic threat and that, for the Soviets, their nuclear arsenal now seemed less of "an instrument of national security than a burden."[8] Bush took a number of disarmament-related decisions concerning "non-strategic or theater weapons" on the one hand, and strategic systems on the other (these measures were complements to the START treaty, which had recently been signed).[9]

Significant announcements were also made on the non-strategic level. These include the elimination of short-range ground-launched missiles, the removal of all TNWs from surface ships and attack submarines, as well as the withdrawal of nuclear warheads from the U.S. carrier-based fleet. Bush stated that some weapons would be destroyed and others stored in secure facilities. He specified that under normal circumstances, no TNWs would be held on board U.S. ships. America's initiative was

8. G. Bush, Address to the Nation on Reducing United States and Soviet Nuclear Weapons, September 27, 1991, URL: https://www.presidency.ucsb.edu/documents/address-the-nation-reducing-united-states-and-soviet-nuclear-weapons [last accessed January 10, 2023]. For explanations on the decision to initiate this reduction (without any guarantee of reciprocity), see Matthew Fuhrmann and Bryan R. Early, "Following START: Risk Acceptance and the 1991–1992 Presidential Nuclear Initiatives", *Foreign Policy Analysis*, 4 (1), 2008, p. 21-43.

9. These measures on strategic nuclear weapons primarily relate to the readying of ICBMs and strategic bombers. The START I Treaty – signed in July 1991 and applied from 1994 onwards – provided ceilings for the number of warheads and launchers (with sub-ceilings for each category). The full treaty is available at: https://www.nti.org/wp-content/uploads/2021/09/start_1_treaty.pdf [last accessed January 26, 2023].

launched without any guarantee that the Soviet Union[10] would reciprocate, but included an invitation to do so. The Soviets were asked to "destroy their entire stockpile of ground-launched theater nuclear weapons"[11] and to take similar steps to those taken by the United States on the naval front.

On October 5, 1991, Mikhail Gorbachev's speech provided a response featuring seven categories of measures, four of which concerned nuclear weapons, including a series pertaining to tactical weapons. These include: the destruction of all nuclear artillery munitions and warheads for tactical missiles and of all nuclear mines; and centralized storage for warheads designed for anti-ship weapons, surface ships, multi-mission submarines and, finally, land-based naval aviation. Part of these weapons was to be destroyed. Mr. Gorbachev added two other proposals, which were viewed as unacceptable by Washington as they affected its extended deterrence mechanisms. Gorbachev requested the removal of TNWs from the U.S. naval component and of nuclear warheads from its forward-deployed tactical air force. He also requested centralized storage. The United States retained the ability to redeploy naval cruise missiles (TLAM-N) as an extended deterrent in Asia. Moreover, in his speech on September 17, 1991, G. Bush stated that the United States would preserve an air capability in Europe, which remained "essential to NATO's security." The tension surrounding NATO's nuclear sharing arrangements runs throughout the history of arms control (see below). The United States seems to view bilateral agreements that include

10. For more information on the reciprocity issue, see Susan J. Koch, "The Presidential Nuclear Initiatives of 1991-1992", Fort Belvoir, Defense Technical Information Center, 2012, p. 8-10. The author explains that neither the White House nor military officials were concerned about the reciprocity issue, in contrast to the Secretary of Defense (SECDEF). Koch provides the transcript of a conversation between G. Bush and Gorbachev regarding the way the U.S. might qualify the prospect of a Soviet response in its speech (which was delivered a few hours later).

11. The speech clearly states that this not only includes nuclear artillery and nuclear warheads for short-range missiles, but also theater systems that the United States no longer possesses, nuclear warheads for air defense missiles and nuclear land mines.

the capabilities covered by this arrangement as a red line,[12] while the USSR (and later Russia) regularly expressed its desire to undermine it, by seeking to include not only American capabilities, but also those of NATO's two other nuclear states (France and the United Kingdom). Moreover, in his speech on October 5, 1991, Gorbachev invited the other "nuclear powers" to join this American-Soviet effort. In the end, the Soviet response was "more rapid, more extensive and more positive than the most optimistic American officials would ever have anticipated".[13]

These two declarations from 1991 constitute the core of the PNIs. In 1992, they were supplemented by two other speeches (sometimes referred to as the "PNI II"): the first consists in elements from the state of the Union address of January 28, 1992 (with measures focusing on strategic arsenals); the second is Boris Yeltsin's speech of January 29, 1992, which confirmed previously announced measures, while adding that Russia planned to eliminate one third of its naval TNWs, half of its warheads for anti-aircraft missiles and half of its stockpiles of airborne tactical nuclear munitions.

In total, the PNIs are thought to have led to the elimination of several thousands of warheads, but these numbers have not been verified. Official information on the subject remains partial. Russia has reiterated that it has reduced its arsenal by 25 % since 1991, as noted in the first part of this study. The U.S. claims that its arsenal of non-strategic nuclear weapons has been reduced by more than 90 % since September 30, 1991. According to U.S. assessments, Russia has not fully met its commitments in the context of the PNIs.[14] Regardless of how accurate this assessment may be, the mere fact that the United States doubts Russia's

12. However, in the final communiqué from the Taormina summit (Italy) on October 17-18, 1991, NATO announced a reduction of its airborne weapons in Europe. The press mentions a reduction from 1,400 to 700 warheads. See Susan Koch, "The Presidential Nuclear Initiatives of 1991-1992", p. 12.

13. Ibid., p. 14.

14. Christopher Ford, "Russian Arms Control Compliance and the Challenge of the Next Agreement", June 23, 2020, URL: https://2017-2021.state.gov/Russian-Arms-Control-Compliance-and-the-Challenge-of-the-Next-Agreement/ [last accessed January 9, 2023].

commitment highlights the weakness of this type of non-legally binding and unverified tool. However, this does not totally refute the value of these initiatives, in terms of both arms control and the reduction of international tension.

AVENUES TO BE EXPLORED

The tools for regulating TNWs were designed during specific historical periods, ones that may be viewed – a posteriori – as windows of opportunity. Yet their creation and the negotiations surrounding these tools were carried out without any certainty of their outcome. On other occasions, similar windows of opportunity were seized, but the initiatives were suspended. Although the current context does not allow for a revival in the field of arms control, its prospect must be examined in order to maintain our ability to understand and accurately identify benefits and risks among the options put forward in the literature.

Suspended initiatives

The current context does not allow for any progress in the normative framework for TNWs, particularly since Russia's invasion of Ukraine. In the early 2010s, after the New START Treaty was signed, some experts considered that the subject had become "unavoidable" for future negotiations.[15] Many states expressed their support for bilateral exchanges on the topic. However, the deterioration of the relationship between Washington and Moscow and the tension surrounding the INF Treaty closed what appeared to be a window of opportunity. Nevertheless, examining future prospects remains interesting and useful, regardless of the relations between the two states or of their usual position on future negotiations. Russia has indicated that negotiations on TNWs should be part of a global agenda (one that includes

15. Emily Cura Saunders, Ariana Rowberry and Bryan L. Fearey, "Obstacles and Opportunities for a Tactical Nuclear Weapons Treaty between Russia and the United States", *Contemporary Security Policy*, 35 (1), January 2, 2014, p. 53-72.

missile defenses and conventional systems). As for the U.S., the idea of including TNWs in negotiations for a follow-up treaty was formalized during the ratification of the New START Treaty by the Senate.[16] More specifically, the resolution of advice and consent to ratification called for negotiations to begin no later than one year after the New START came into force, following consultations with NATO allies. This route proved unsuccessful, as did another avenue that was explored over several months within NATO following the Deterrence and Defense Posture Review (DDPR).

In a declaration regarding the DDPR at the 2012 Chicago Summit, NATO allies stated that they were aiming at "developing detailed proposals on and increasing mutual understanding of NATO's and Russia's non-strategic nuclear force postures in Europe."[17] A few months later, in February 2013, NATO created a new committee. It was tasked with preparing a dialogue with Russia on confidence-building and transparency measures regarding TNWs (Special Advisory and Consultative Arms Control, Disarmament and Non-Proliferation Committee).[18] In parallel, during his speech in Berlin on June 19, 2013, President Obama stated the following: "[…] we'll work with our NATO allies to seek bold reductions in U.S. and Russian tactical weapons in Europe."[19]

16. "New START Treaty: Resolution of Advice and Consent to Ratification", URL: https://2009-2017.state.gov/t/avc/rls/153910.htm [last accessed January 9, 2023].

17. NATO, Defense and Deterrence Posture Review, paragraph 25, May 20, 2012, https://www.nato.int/cps/en/natolive/official_texts_87597.htm [last accessed January 9, 2023].

18. Olivier Meier, "NATO Agrees on New Arms Control Body – Arms Control Association", URL: https://www.armscontrol.org/blog/2013-02-26/nato-agrees-new-arms-control-body [last accessed August 31, 2022].

19. Statement by President Obama at the Brandenburg Gate, Berlin, June 19, 2013, URL: https://obamawhitehouse.archives.gov/the-press-office/2013/06/19/remarks-president-obama-brandenburg-gate-berlin-germany [last accessed January 9, 2023].

NATO does not appear to have taken a stance on these proposals, yet an article published by the Arms Control Association[20] in January 2014 offered an indication that it would, based – a priori – on several interviews. The new committee is thought to have studied a dozen measures,[21] before finally retaining five that pertain to joint NATO/Russia seminars, exchanges of statements on nuclear policies, visits to former non-strategic nuclear weapon deployment sites and cooperation during nuclear incidents. Due to the reluctance of certain allies, only two of these measures[22] were subsequently approved for use during future dialogues between NATO and Russia. However, said dialogues were not to be, as relations between the United States (NATO) and Russia quickly became tense due to the Ukraine crisis.

More recently, the Trump administration's 2018 NPR featured decisions that appeared to open the U.S. up to negotiations with Russia on the topic of non-strategic nuclear weapons. The announced deployment of new nuclear naval cruise missiles in the medium term (see above) bore similarities with the 1979 dual decision to deploy new Pershing II missiles, while seeking negotiations with the Soviets regarding the withdrawal of its SS-20 missiles.[23] The 2018 NPR made it clear that the United States could forgo this new nuclear naval cruise missile capability "[i]f Russia returns to compliance with its arms control obligations,

20. Olivier Meier and Simon Lunn, "Trapped: NATO, Russia, and the Problem of Tactical Nuclear Weapons", *Arms Control Association*, January 2014, URL: https://www.armscontrol.org/act/2014-01/trapped-nato-russia-problem-tactical-nuclear-weapon [last accessed August 31, 2022].

21. In 2011, a proposal issued by four states' foreign ministers (Germany, Norway, Netherlands and Poland) and supported by six other states (Belgium, Czech Republic, Hungary, Iceland, Luxembourg and Slovenia) circulated within NATO. It regarded transparency and confidence-building measures for tactical nuclear weapons in Europe. Document dated April 14, 2011, URL: https://programs.fas.org/ssp/nukes/nuclearweapons/nato-nonpaper041411.pdf [last accessed January 9, 2023].

22. Both measures pertained to joint seminars and exchanges of statements.

23. On the history of these negotiations, see for example Lothar Ruehl, "La querelle des euromissiles" [The Euromissile quarrel], *Politique étrangère*, 48:1, 1983, p. 27-38.

reduces its non-strategic nuclear arsenal, and corrects its other destabilizing behaviors […]."[24] While this attempt seems coherent – since it takes into account bilateral feedback, while referring to America's history with Russia – it definitely came too late and/or was not likely to convince Moscow.

Options put forward by experts in the field

Parallel to the official undertakings mentioned above, numerous documents by arms control experts have broached the subject of reducing the size of non-strategic nuclear arsenals.[25] They either advocate clear-cut initiatives, or simply list solutions that they view as viable. Overall, these proposals can be classed according to their degree of constraint; ranging from confidence-building measures to bilateral or multilateral legally binding tools. Moreover, these documents tend to focus on risk reduction, rather than on the size of strategic nuclear arsenals.

Some experts believe that rekindling the PNIs, in the form of a joint statement or parallel unilateral statements, may constitute an essential first step. Another, more ambitious possibility – based on the PNIs – would be to formalize the PNIs through legally binding commitments, including exchanges of data between signatories. However, this would require renegotiating the scope of the systems in question and implementing a highly needed verification component, thereby edging ever closer to the necessity of drafting new treaty.

Proposals for a new treaty fall into two broad categories: a prohibition treaty, or a limitation/reduction treaty. The first category is similar to the approach adopted by the INF Treaty,

24. 2018 NPR, p. 55.

25. See for example Emily Cura Saunders, Ariana Rowberry and Bryan L. Fearey, "Obstacles and Opportunities for a Tactical Nuclear Weapons Treaty between Russia and the United States"; Jeffrey A Larsen and Kurt Klingenberg, *Controlling Non-Strategic Nuclear Weapons Obstacles and Opportunities*, The USAF Institute for National Security Studies, 2001; William C. Potter, Nikolai Sokov, Harald Müller and Annette Schaper, "Tactical nuclear weapons: options for control", UNIDIR 2000/20.

in that it could be limited to certain categories of systems. This approach is bolstered by the argument according to which mines, artillery munitions and very short-range missiles are more likely to be stolen. Their low yield also brings them closer to conventional weapons and weakens the likelihood of restraint for the use of nuclear weapons, which poses a problem in terms of stability and creates a risk of escalation. This type of system was supposed to have disappeared from arsenals at the end of the Cold War. The second category would involve identical ceilings for all parties, or adjusted ceilings that account for the disparities among different arsenals. These ceilings could also be applied to specific areas (along the lines of the Treaty on Conventional Armed Forces in Europe). Furthermore, several experts propose to include TNWs in broader negotiations for a successor to the New START Treaty,[26] in line with the U.S. Senate's views. Some experts say that the new treaty could extend beyond nuclear issues so as to take Russia's position into account, which calls for a variety of systems to be covered. Several articles also mention the idea of a common global ceiling on nuclear weapons, giving states complete freedom to structure their arsenals.

Another approach to non-strategic nuclear arsenals consists in addressing their deployment. This could include confidence-building measures, such as indicating which deployment sites are no longer in use or exchanging information on the operational status of weapons. The possibility of agreeing on the centralized storage of non-strategic nuclear weapons was also considered, as this may facilitate the verification process. For example, the "Zero Deployed" proposal, presented in a 2017 UNIDIR report,[27] calls for the transfer of warheads to storage sites and for the verified absence of weapons at deployment bases. This initial voluntary confidence-building measure could then be formalized in a legally binding document. In the

26. The recent Russian announcement (February 21, 2023) on the suspension of New START Treaty currently appears as an obstacle to dialogue and to the prospect of future negotiations.

27. See Pavel Podvig and Javier Serrat, "Lock Them Up: Zero-Deployed Non-Strategic Nuclear Weapons in Europe", p. 13-14.

meantime, experts propose that both sides could run test verifications, including visits to sites that previously hosted TNWs.

In the early 2010s, some authors also argued for the withdrawal of weapons from other states' territories, thus targeting NATO's nuclear posture in Europe. The authors argued that "this would remove Russian fears about NATO and could help rekindle the spirit of the 1991 parallel initiatives."[28] Their reasoning was based on the perceived notion that, as soon as the threat in the East disappears, the argument for the presence of U.S. nuclear weapons in Europe fades away. This argument was supported by the reduction of the arsenal deployed in Europe and the decrease of nuclear readiness.[29] Yet, the deterioration of the political context led postures to harden, thereby highlighting the importance of this system for NATO's allies. Most importantly, some authors insist that this type of unilateral disarmament would be a strategic error, as it would deprive NATO of all leverage during possible negotiations with Russia on this category of weapon.[30] The prospect of Belarus hosting Iskander missiles must also be taken into account.[31]

All of these considerations show that tackling the issue of definitions will prove essential for future negotiations. It also reminds us that confidence-building measures constitute a first step, yet require rapid formalization and a verification process, without which trust cannot transcend periods of political tension. Finally, the question surrounding the breadth of the agreement – i.e. its geographical perimeter and/or the involvement of a larger number of actors than in a bilateral framework – seems central.

28. William Potter, Nikolai Sokov et al., "Tactical Nuclear Weapons: Options for Control", p. 14.

29. Bruno Tertrais and Isabelle Facon, "Les armes nucléaires "tactiques" et la sécurité de l'Europe" ["Tactical" nuclear weapons and Europe's security], p. 11.

30. For a more recent article, see Brad Roberts, "Germany and NATO's Nuclear Deterrent", Federal Academy for Security Policy, 2021.

31. This point was made in the introduction to this study.

CONCLUSION

TACTICAL NUCLEAR WEAPONS: AMBIGUITY AND RESPONSIBILITY

The topic of tactical nuclear weapons appeared to have faded away at the end of the Cold War, as if the evolution of the framework surrounding nuclear weapons were destined to favor doctrines of deterrence – ones that only consider the use of such weapons in "an extreme circumstance of self-defense, in which the very survival of a state would be at stake."[1]

The three case studies featured in the present article illustrate the fact that the return of TNWs is indeed taking place from a capability standpoint and, above all, is being addressed through issues surrounding the thresholds for the use of nuclear weapons and their possible trivialization. These case studies also lead toward a distinction between systems intended to prevent escalation from conventional to nuclear weapons on the one hand, and those intended for use on the battlefield on the other. In the latter case, TNWs symbolizes a deviation from deterrence practices.

While parallel inquiries are underway to respond to the risk of cross-domain escalation at the strategic level, the creation of integrated strategies requires caution. Deterring the non-strategic use of nuclear weapons remains a major issue, especially in view of certain states exploiting this ambiguous context for offensive purposes.

In this regard, the question of terminology is rather significant. The lack of a satisfactory definition leads questions to arise regarding the relevance of the term "TNW". The latter proves problematic for the analytic purposes and – above all – for the creation of a normative framework. One option would be to

1. Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons by the International Court of Justice, URL: ICJ: LEGALITY OF THE THREAT OR USE OF NUCLEAR WEAPONS | UN Press [last accessed March 14, 2023].

establish a distinction between "tactical" and "strategic" based on the interests at stake, but this criterion seems difficult to substantiate. Another approach might be to consider the level of damage associated with the weapons in question, given that – through the prism of restraint – less powerful weapons are less dangerous. However, there is a stronger taboo surrounding the use of systems intended to cause "unacceptable damage" (as per the terminology used in France's doctrine). Yet from a practical point of view, this criterion does not seem appropriate for negotiation purposes. What's more, it would prove inconsistent with certain provisions of international humanitarian law.

Ongoing discussions in the NPT review process have put the reduction of strategic risks and nuclear liability back on the agenda. This may allow TNWs to be dealt with in a cross-cutting manner, particularly thanks to transparency measures. However, the willingness of different states to comply with newly established rules remains the heart of the problem. The rampant opacity surrounding TNWs contributes to this topic being viewed as elusive and uncontrollable. Thus, in addition to previous and pending official undertakings, it seems essential to pursue research on, and maintain our knowledge of, these subjects, particularly regarding arms control approaches. The latter may seem to belong to a bygone era, yet may prove useful in the future.

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THE RETURN OF TACTICAL NUCLEAR WEAPONS?

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Over the past decade, strategic experts have noted that nuclear weapons have become more prominent on the international stage, despite them not having been used since 1945. A recent and significant milestone in this regard is the way Russia used nuclear signaling during the invasion of Ukraine, as well as on an ad hoc basis thereafter. Questions regarding the possibility of Moscow using nuclear weapons extended beyond expert circles, as the media began to question whether people should fear the use of a tactical nuclear weapon and an escalation into nuclear war. These concerns echoed the questions raised by several researchers regarding a possible "return" of tactical nuclear weapons, which seemed to have been relegated to the background of the geopolitical arena since the end of the Cold War.

The present study raises the issue of the rehabilitation of tactical nuclear weapons, starting from the hypothesis that the latter increase the risk of escalation from conventional to nuclear warfare, due to them being easier to utilize than strategic nuclear weapons.

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