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THE THREAT OF USING NUCLEAR WEAPONS IN THE 2022-2023 RUSSIA-UKRAINE WAR

Abstract: *The purpose of this paper was to determine the extent to which nuclear weapons can be used in the current Russia-Ukraine war. Also, what processes can lead to such a decision on the part of Russia. Within the framework of the research, first of all, the main risks and dangers arising from nuclear weapons are studied and analyzed. Therefore it is important how will the use of nuclear weapons affect global security. Analysis of the destructive power and factor of nuclear weapons is important because it has a serious impact on the living population and the environment. As for research methods, to get reliable information we used: policy analysis, content analysis, and document analysis methods to analyze and describe the challenges arising from the Russia-Ukraine war. In the research process, the following are used: "Theory of Political Realism", "Theory of Balance of Power", "Theory of Securitization" and "Theory of Nuclear Deterrence". The work also uses the Prisoner's Dilemma and Chicken game theory, which through modeling gives us the means to draw certain conclusions in a conflict situation. A wide range of documents, strategies, and scientific papers were analyzed to obtain reliable and objective information. The mentioned research has shown us that there is quite a big danger of using tactical nuclear weapons by Russia, therefore Ukraine and its population are facing a significant threat and challenge, which requires a more rigid policy on the part of the nuclear states, in particular the West and NATO, which can restrain Russia's more aggressive policy. The policy of the nuclear states, the West and NATO, should be directed through dialogue and pragmatic policy, as well as hard policy, which implies the policy*

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of nuclear intimidation and nuclear deterrence. The radiation released as a result of the explosion of nuclear weapons does not know the ethnicity of people, and borders, and therefore it causes the greatest damage to living organisms and nature, therefore we are dealing with global security, the protection of which should be important for all states.

Keywords: *use of nuclear weapons, tactical nuclear weapons, global security, Ukraine, Russia, NATO, nuclear deterrence.*

Introduction

In modern times, there are many threats and challenges facing humanity, the most important of which is the use of nuclear weapons. The emergence of existing and new conflicts in the world further complicates the security architecture and requires the leading states to take more effective steps to establish security in the world. It is also important to involve regional and international organizations in this process. The global dimension of threats comes from terrorists, non-state-aggressive religious actors, and criminal groups. As a result of their aggressive actions, the dimension of threats is increasing and the global security environment is more threatened by their destructive actions. The problem of maintaining global security became more urgent after the Second World War when the creation of nuclear weapons presented the world with new threats and challenges. Added to all this are the dangers of proliferation of nuclear weapons and components. In the process of establishing a new world order and against the backdrop of the Russia-Ukraine war, the role and factor of security in the process of stability and development of the international system is growing even more.

While the world faces many threats and challenges, the emergence of new wars and hotbeds of conflict further complicate global security. The Russia-Ukraine conflict did not start in 2014 or 2022 but has a deeper foundation. After the end of the "Cold War" and the collapse of the Soviet Union, the Russian Federation tried to maintain its influence on the former Soviet republics by all possible means (diplomatic, economic, and military). An example of this is the creation of Desete and the joining of the members of the former Soviet Republic in this organization by pursuing a rigid policy, a good example of which is Georgia. Russia wants to regain the influence it had under the Soviet Union. However, it forgets that today there is a completely different geopolitical situation in the world, and it is not permissible to violate the national interests of other countries, seize territories, and wage a large-scale war, especially when the laws of war are blatantly violated. An important fact is that the Russia-Ukraine war has a serious impact on international security, and

uncontrolled processes can develop in this war. This implies the use of tactical nuclear weapons, by Russia, or by Russia, to deliberately damage nuclear power plants. All this is accompanied by the spread of radiation and the health of millions of people will be threatened not only on the territory of Ukraine but also in its bordering states. Also, in the worst case, in most of the territory of Europe, as well as in the territory of Asia. Not a single state is ready for the development of such catastrophic processes, an example of which is the COVID-19 pandemic. However, the main task of national security of every state is to protect its population and territorial security. Creating defense mechanisms against nuclear radiation is a very difficult task for everyone when it comes to protecting the safety of millions of people.

The arsenal of nuclear weapons in the world

In the modern period, nine states have nuclear weapons, they are the United States, Russia, the United Kingdom, France, China, India, Pakistan, the Democratic People's Republic of Korea (North Korea), and Israel. The five states that tested nuclear weapons before 1967 are classified as "old" nuclear powers, while the countries that joined the nuclear club later are considered "young" nuclear powers. These nuclear states are modernizing their nuclear arsenal every year. Some have increased their nuclear arsenals and are actively implementing modern technologies for nuclear weapons delivery vehicles. They include missile systems, nuclear aviation, submarines, mine-based intercontinental ballistic missiles, etc. A state that has a nuclear triad has a certain advantage over other nuclear states that do not have it. The nuclear triad refers to a nuclear arsenal that traditionally consists of three components: strategic bombers, intercontinental ballistic missiles, and ballistic missile submarines. The purpose of having all three components of the nuclear arsenal is to significantly reduce the probability that the adversary, in the event of a first strike, will be able to destroy the entire nuclear forces of the country and, as a result, ensure the implementation of a counter-nuclear attack. It should be noted here that only the USA, Russia, and China have these three components land, air, and sea. The advantage of the nuclear triad is that if a state with a nuclear triad were to destroy one or two components of the triad, it would be able to use the third component to launch a nuclear attack on its adversary state.










On July 16, 1945, at the Alamogordo test site in the US state of New Mexico, the world's first nuclear test was conducted by detonating the Trick bomb. This event ushered in the era of nuclear weapons (NW) and became a prerequisite for the subsequent arms race. In 1949, the first Soviet atomic bomb PДC-1 was tested at the Semipalatinsk test site, and in 1952, Great Britain became one of the owners of nuclear weapons. France conducted nuclear tests eight years later, and in 1964 China became the fifth state to test nuclear

weapons. In 1968, the UN Disarmament Committee drafted the Nuclear Non-Proliferation Treaty (NPT), which was opened for signature on July 1. It contained the first list of states possessing nuclear weapons.

The nuclear club not only expanded but also contracted. South Africa conducted nuclear tests in 1979, becoming a new nuclear power. The country collected six charges, for the delivery of which they planned to use aviation, and worked on the creation of an intercontinental ballistic missile. It is believed that the power of the charges did not exceed 20 kilotons. In 1989, the nuclear weapons program was closed, and all manufactured bombs were destroyed, which was confirmed by the International Atomic Energy Agency (IAEA) after an inspection. This made South Africa the first state to voluntarily give up nuclear weapons.

Of the total global inventory of an estimated 12 512 warheads in January 2023, about 9576 were in military stockpiles for potential use—86 more than in January 2022 (see Table 1 below). Of those, an estimated 3844 warheads were deployed with missiles and aircraft, and around 2000—nearly all of which belonged to Russia or the USA—were kept in a state of high operational alert, meaning that they were fitted to missiles or held at airbases hosting nuclear bombers³

Table 1. World nuclear forces, Stockholm International Peace Research Institute, January 2023

Country	Deployed warheads ^a	Stored warheads ^b	Total stockpile ^c		Total inventory ^d	
	2023	2023	2022	2023	2022	2023
 United States	1 770	1 938	3 708	3 708	5 428	5 244
 Russia	1 674	2 815	4 477	4 489	5 977	5 889
 United Kingdom	120	105	225 ^e	225	225	225^f
 France	280	10	290	290	290	290
 China	–	410	350	410	350	410
 India	–	164	160	164	160	164
 Pakistan	–	170	165	170	165	170
 North Korea	–	30	25	30^g	25	30^g
 Israel	–	90	90	90	90	90
Total	3 844	5 732	9 490	9 576	12 710	12 512

³ *States invest in nuclear arsenals as geopolitical relations deteriorate—New SIPRI Yearbook out now,* <<https://www.sipri.org/media/press-release/2023/states-invest-nuclear-arsenals-geopolitical-relations-deteriorate-new-sipri-yearbook-out-now>> (12.10.2023).

Source: *States invest in nuclear arsenals as geopolitical relations deteriorate—New SIPRI Yearbook out now*, <<https://www.sipri.org/media/press-release/2023/states-invest-nuclear-arsenals-geopolitical-relations-deteriorate-new-sipri-yearbook-out-now>> (12.10.2023).

Russia has the most confirmed nuclear weapons, with 5,997 nuclear warheads. The United States follows behind with 5,428 nuclear weapons, hosted in the US and 5 other nations: Turkey, Italy, Belgium, Germany, and the Netherlands. Total nuclear warheads owned by these 2 countries alone account for 90% of nuclear weapons in the world. The total number of warheads for North Korea and Israel is unconfirmed. However, it has been estimated that North Korea has enough fissile material to develop between 40-50 individual weapons, whilst Israel has material for up to 200, with an estimated 90 existing warheads⁴.

A single nuclear warhead could kill hundreds of thousands of people, with lasting and devastating humanitarian and environmental consequences. Detonating just 1 nuclear weapon alone over New York would cause an estimated 583,160 fatalities⁵.

It should be noted that it is quite important to deliver ballistic weapons to the target location. Due to the fact that the enemy state may be 1,000, 5,000, or 10,000 kilometers away, which means that if your nuclear warhead does not reach there, or does not partially or completely neutralize the enemy, then the possession of nuclear weapons is meaningless. Historically, the first method used by the Americans during World War II to drop two atomic bombs on Japan in 1945, Hiroshima and Nagasaki, was by airplane from where the bomb was dropped. At present, a strategically better method is to place nuclear bombs in missiles that use ballistic trajectories to deliver nuclear warheads to their targets. Intercontinental ballistic missiles and submarine-mounted ballistic missiles are especially dangerous. These allow the country that owns it to deliver the weapon anywhere on Earth. From a tactical point of view, nuclear bombs can be used by artillery, land mines, and torpedoes - against submarines. Also, the testing of atomic mines by the United States was in progress.

In order to better understand how destructive and dangerous nuclear weapons are and their consequences, it is important to consider missile systems capable of carrying nuclear warheads. Classification of missile systems: Sub-tactical missile system: Radius: 100-500 km. mobile platform. Russian Iskander missile system and Tochka U. Tactical missile system: radius: 500-2500 km; mobile platform; "Shahabi-2" missile system of Iranian production.

⁴ *Which countries have nuclear weapons?*, <https://www.icanw.org/nuclear_arsenals> (15.10.2023).

⁵ *Ibidem*.

Operational-tactical missile system: radius: 2500-5000 km; mobile platform; American cruise missile "Tomahawk". Strategic missile system: radius: 5000 km and above (about more than 10000 km; stationary (mine-based) and mobile (rail and road); American "Pershing" and Russian "Topoli-M".

Weapons carrying nuclear weapons are divided into three types. The first weapons are of strategic purpose and include ballistic missiles, (e.g. Trident II - submarine-launched missile), strategic aviation (bombers), and Prile-type submarines. Those of the second type are operational-tactical weapons, namely cruise missiles, aviation (fighters), and cruisers. Finally, the third type represents weapons of tactical purpose, that is tactical missiles of the "Iskander" type; self-propelled units, and mortars.

The threat of using nuclear weapons and the existing risks

The risk of using nuclear weapons has reached its highest level since the end of the Cold War. The role of nuclear weapons in military strategies has increased, and most of the countries that possess them, which are part of the so-called nuclear club, are sharpening their nuclear rhetoric. Nuclear arms control and disarmament diplomacy suffered major setbacks following Russia's full-scale invasion of Ukraine in February 2022. In the wake of the invasion, the USA suspended its bilateral strategic stability dialogue with Russia. In February 2023 Russia announced it was suspending its participation in the 2010 Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START)—the last remaining nuclear arms control treaty limiting Russian and US strategic nuclear forces. Talks about a follow-on treaty to New START, which expires in 2026, were also suspended. Nevertheless, by SIPRI's assessment, both countries' deployed strategic nuclear forces remained within the New START limits as of January 2023⁶.

Against the backdrop of the ongoing Russia-Ukraine war, Russia has deployed tactical nuclear weapons in Belarus, a step that was much telegraphed earlier this year and recently confirmed by Poland. This move has caused concern in neighboring countries and has affected security arrangements in Europe⁷. Three days after Russia's invasion of Ukraine, which the Kremlin calls a "special military operation," Russian President Vladimir Putin has put Russia's nuclear deterrent on high alert. It must be said that Belarus is a strategic partner of Russia and supports Russia's military offensive on the territory of Ukraine. Russia is resorting to a policy of nuclear intimidation.

⁶ *States invest in nuclear arsenals...*

⁷ V. Poniscjakova, *Ukraine war: the implications of Moscow moving tactical nuclear weapons to Belarus*, *The conversation*, <<https://theconversation.com/ukraine-war-the-implications-of-moscow-moving-tactical-nuclear-weapons-to-belarus-212296>> (20.10. 2023).

With this, he wants to limit the support of the West, although his political manipulations are quite well understood by the leadership of the USA and NATO.

That said, the rhetoric from the Russian leadership since the invasion of Ukraine has regularly raised the threat of Russia's nuclear stockpile. Both Vladimir Putin and the deputy chair of his national security council (and former president), Dmitry Medvedev, have made threatening comments, including this from Putin in September 2021: "If the territorial integrity of our country is threatened, we will, without doubt, use all available means to protect Russia and our people – this is not a bluff"⁸.

We will also review the types of tactical and strategic nuclear weapons, as they play a major role in combat operations. Tactical nuclear weapons, small nuclear warheads, and delivery systems intended for use on the battlefield or for a limited strike. Less powerful than strategic nuclear weapons, tactical nuclear weapons are intended to devastate enemy targets in a specific area without causing widespread destruction and radioactive fallout⁹. Tactical (nonstrategic) nuclear weapons (TNWs) typically refer to short-range weapons, including land-based missiles with a range of less than 500 km (about 300 miles) and air- and sea-launched weapons with a range of less than 600 km (about 400 miles)¹⁰. This idea of mutually assured destruction is linked to strategic nuclear weapons – which can be used to strike big targets – such as cities – more than 3,500 km away and carry huge payloads¹¹.

A tactical nuclear weapon is any weapon that's not been classified as "strategic" under US-Russian arms control agreements. The Federation of American Scientists currently estimates Russian non-strategic nuclear warheads at 1,912, and approximately 100 U.S. non-strategic warheads deployed in five European countries. While these are often framed as "smaller" or "low yield" nuclear weapons, and it's implied that they would cause less damage, these warheads can have explosive yields up to 300 kilotons, or 20 times that of the bomb that destroyed Hiroshima¹².

There are also operational-tactical nuclear weapons designed for the targeted destruction of important objects. For example, the Iskander operational-tactical missile system can carry a missile with a nuclear warhead with a yield of up to 50 kilotons. In addition, artillery systems remain in service

⁸ *Ibidem*.

⁹ *Tactical nuclear weapons*, <<https://www.britannica.com/technology/tactical-nuclear-weapon>> (21.10.2023).

¹⁰ N. Sokov, *Tactical Nuclear Weapons (TNW)*, <<https://www.nti.org/analysis/articles/tactical-nuclear-weapons/>> (21.10.2023).

¹¹ *Ibidem*.

¹² *Which countries have...*

in Russia, for which the USSR developed a line of nuclear projectiles, such as the 3BV3 152 mm caliber ammunition with a nuclear charge of 2.5 kilotons.

In the United States, one of the most common tactical nuclear weapons is the B61 aerial bomb. The Mod 12 version can carry 0.3, 1.5, 10, and 50 kiloton charges. The United States has also developed the W76-2 low-yield warhead, which is equipped with some Trident II ballistic missiles deployed on Ohio-class nuclear submarines. The warhead's power is more than five kilotons.

Also, it is important to briefly consider what is strategic weapons system, any weapons system designed to strike an enemy at the source of his military, economic, or political power. In practice, this means destroying a nation's cities, factories, military bases, transportation and communications infrastructure, and seat of government. Strategic weapons systems use atomic or thermonuclear devices, because only these weapons have sufficient explosive power to destroy, with relative ease and quickness, the entire war-making capability of a large nation. The term strategic weapons system refers not merely to the explosive devices themselves but rather to the complex delivery systems that enable these warheads to reach their targets. Indeed, the distinguishing feature of a strategic weapons system is its ability to deliver thermonuclear warheads accurately from one continent to another¹³.

Russia has a huge numerical superiority over the United States and the NATO military alliance when it comes to tactical nuclear weapons: the United States believes Russia has around 2,000 such working tactical warheads. Minister of Defence of the Russian Federation Sergei Shoigu said that Iskander-M missiles, which can carry conventional or nuclear warheads, had been handed to the Belarusian armed forces, and some Su-25 aircraft had been converted for the possible use of nuclear weapons¹⁴.

The United States has said the world faces the gravest nuclear danger since the 1962 Cuban Missile Crisis because of remarks by Putin during the Ukraine conflict, but Moscow says its position has been misinterpreted. The Treaty on the Non-Proliferation of Nuclear Weapons, signed by the Soviet Union, says that no nuclear power can transfer nuclear weapons or technology to a non-nuclear power, but it does allow for the weapons to be deployed outside its borders but under its control¹⁵.

In such a difficult time, NATO and the US apply the policy of nuclear deterrence, which derives from the theory of nuclear deterrence. Nuclear deterrence theory – with its related notion of mutually assured destruction –

¹³ *Strategic weapons system*, <<https://www.britannica.com/technology/strategic-weapons-system>> (25.10.2023).

¹⁴ G. Faulconbridge, *Russia moves ahead with deployment of tactical nukes in Belarus*, <<https://www.reuters.com/business/aerospace-defense/russia-belarus-sign-document-tactical-nuclear-weapon-deployment-belarus-2023-05-25/>> (28.10.2023).

¹⁵ *Ibidem*.

should mean no country wants to fire weapons first as it would pretty much guarantee its own destruction (along with much of the rest of the planet)¹⁶. The policy of nuclear deterrence developed as an intellectual construct in the late 1950s and early 1960s. The goal of nuclear deterrence is to deter nuclear and conventional attacks on a state's territory, allied states, and friendly neutrals. Credibility is the addiction of effective deterrence. States are in favor of nuclear weapons for many reasons.

Deterrence is the main role advocated by the proponents of nuclear weapons. During the Cold War, nuclear weapons were the main deterrent that prevented World War III. During the Cuban Missile Crisis, the world was closest to the start of a nuclear war, and it was the realization of the expected consequences of the use of nuclear weapons that led both opposing sides to a pragmatic decision. As a result, the world was spared a nuclear war, which would have resulted in the death of millions of people and the destruction of large areas. Many theorists argue that the deterrence potential and role of nuclear weapons are still relevant and that, for example, the Cold War period followed. Accordingly, they argue that the policy of nuclear deterrence still works and will continue to work. Bernard Brodie, one of the first nuclear strategists, stresses that vulnerability is a key component of deterrence, and it was deemed necessary to “explore all conceivable situations where the aggressor’s fear of retaliation will be at a minimum and to seek to eliminate them”¹⁷. Kenneth Waltz argues that the more states have nuclear weapons, the less likely they are to use them. His reasoning, and that of other science proponents of nuclear deterrence, is that rational policy wins out over deterrence because the use of nuclear weapons by two or more nuclear powers would cause more damage than their victory in war. Also, the fact that as a result of a nuclear war, there is a high probability of complete mutual destruction, so the states turn to a pragmatic policy. John Mearsheimer is another proponent of deterrence theory, which emphasized increasing and modernizing armaments.

Nuclear weapons should not become a conventional means of warfare. The existing, large nuclear powers stand at a crossroads where the international order requires an agreement in principle on the non-proliferation of nuclear weapons. Otherwise, the threat of nuclear war dictates order¹⁸.

In order to better understand the nuclear threat posed by Russia, it is important for Ukraine and global security to consider its nuclear arsenal. Russia has a full-fledged nuclear triad, and therefore its nuclear arsenal is quite large.

¹⁶ V. Poniscjakova, *Ukraine war...*

¹⁷ D. Post., *The Value and Limits of Nuclear Deterrence*, <<https://www.usni.org/magazines/proceedings/2023/january/value-and-limits-nuclear-deterrence>> (5.11.2023).

¹⁸ H. Kissinger, H., *World Order*, Tbilisi 2020. p/ 485.

Nuclear deterrence is provided by the UR-100N UTTH ICBMs, which can carry hypersonic warheads "Avangard", R-36M2 "Voevoda", mobile complexes "Topol", as well as mobile and silo-based "Topol-M" and "Yars" complexes. Voevoda missiles will be replaced by RS-28 Sarmat complexes - by 2030, the Russian Armed Forces will receive 50 complexes. The air component of Russia's nuclear triad includes the Tu-160 and Tu-95MS strategic missile-carrying bombers. These aircraft can carry the Kh-102 and Kh-55 thermonuclear cruise missiles.

Armed with the R-30 Bulava-30 ICBM, Project 955 Borei (955A Borei-A) submarines represent the naval component of Russia's nuclear triad. In November, tests of the nuclear submarine Generalissimo Suvorov were completed, which became the third submarine built according to the modernized project 955A Borei-A. The Federation of American Scientists (FAS) estimates that Russia's nuclear arsenal includes 1,185 ICBMs and 800 submarine-launched ballistic missiles. Also, the Russian Navy received the submarine "Belgorod", which will become the carrier of strategic unmanned underwater vehicles with a nuclear charge "Poseidon".

It is also important to focus on the US nuclear arsenal. In 1945, the United States tested nuclear weapons for the first time in history, becoming the first nuclear power. The United States is also the only state that has used nuclear weapons in combat conditions, dropping bombs on the Japanese cities of Hiroshima and Nagasaki. According to SIPRI, by early 2022 the United States had the largest arsenal of nuclear weapons on alert, with 1,774 warheads on missiles and operational force bases. The United States has a full-fledged nuclear triad with air, land, and sea components.

The basis of the land component is silo-based intercontinental ballistic missiles (ICBMs) Minuteman-III with a maximum range of up to 13 thousand kilometers. In operation since the 1970s, the missile can carry W78 and W87 nuclear warheads. At sea, US nuclear weapons are represented by UGM 133A Trident II (D5) ballistic missiles, which are armed with Ohio-class nuclear submarines. The core air component remains the B-52H and B-2 Spirit bombers, capable of carrying the B61 and B83 thermonuclear bombs. In October, it became known that the United States plans to abandon the B83 bombs due to rising maintenance costs, and they want to replace the B-2 bomber with the promising B-21 Raider, which will be shown in December.

In addition to the states that are members of the nuclear club, there are non-nuclear countries on whose territory it is possible to deploy nuclear weapons. It is believed that there are about 200 American B61 thermonuclear bombs in the five NATO countries. According to the American organization Center for Arms Control and Non-Proliferation, by 2021, about 100 American nuclear weapons were stored at military bases in Belgium, Germany, Italy, the Netherlands, and Turkey.

It is noted that these bases contain B61-3 and B61-4 bombs. Due to the difficult political situation, the United States wanted to accelerate the deployment of new B61-12 nuclear bombs in Europe. B61-12 bombs can be equipped with a charge ranging from 0.3 to 50 kilotons to perform tactical and strategic missions.

Scenarios in which Russia can exercise nuclear deterrence are described in the “Fundamentals of the State Policy of the Russian Federation in the Field of Nuclear Deterrence.” The document emphasizes that the country's policy in this area is defensive, and the decision to use nuclear weapons is made by the president. However, Russia can come up with various false reasons to start a war in order to achieve its aggressive goals. The same can be said about its nuclear forces. What Russia has written in its nuclear strategy is one thing, and how it will use it is another. Russia can come up with false reasons to justify its military aggression.

According to Dan Smith, SIPRI Director - ‘In this period of high geopolitical tension and mistrust, with communication channels between nuclear-armed rivals closed or barely functioning, the risks of miscalculation, misunderstanding or accident are unacceptably high’¹⁹. Indeed, in such a difficult period, when there are disagreements and tensions between the nuclear states on a number of issues. Added to this is the Russia-Ukraine war and the risks and dangers arising from it, which further complicates the political situation surrounding nuclear weapons. In order to prevent the use of nuclear weapons, it is necessary to conduct dialogue and diplomatic negotiations to which attention is drawn by Dan Smith who claims that ‘There is an urgent need to restore nuclear diplomacy and strengthen international controls on nuclear arms’²⁰. Along with the negotiations, it is clear that the issue of nuclear arms control is very important because it is a prerequisite for maintaining stability. When states conscientiously fulfill their obligations and take more effective steps to limit nuclear weapons and use nuclear energy for good purposes, global security will be more secure. Here, of course, we are not talking about the complete destruction of the arsenal of nuclear weapons, because this is an unattainable task, based on the fact that, as we have already mentioned, there are nine nuclear states in the world today. There are also a number of states in the world that want to have nuclear weapons, a clear example of which is the nuclear program of the Islamic Republic of Iran. Because of this, the USA and Israel do not hide their anger, which opposes the creation of nuclear weapons by Iran as much as possible. This is due to the policy pursued by North Korea and does not directly target the US. Even more worrying are its frequent tests of ballistic missiles and intercontinental ballistic

¹⁹ *States invest in nuclear arsenals...*

²⁰ *Ibidem.*

missiles. The possession of nuclear weapons by an aggressive and unstable state would make world security more fragile, making nuclear weapons more likely to be used.

The Russia-Ukraine war clearly showed the nuclear states and other countries that nuclear weapons are actually a guarantor of security. If Ukraine had nuclear weapons, Russia would not have dared a full-scale military intervention, which has cost thousands of innocent lives, and will continue to do so every day until this unjust war ends. The same can be said about the annexation of Crimea by Russia in 2014, when a strict rigid policy was not pursued towards Russia, and this pushed it to further destructive actions and complete annexation of Ukraine, which it did not succeed. At this time, one important question arises, why the US and Great Britain did not provide more effective assistance to Ukraine following the obligations they undertook under the terms of the Budapest Memorandum. The collapse of the Soviet Union affected the number of states in the nuclear club. By 1991, the USSR's arsenal contained more than 10,000 nuclear warheads, a significant part of which remained on the territory of the newly independent Ukraine, Kazakhstan, and Belarus. In addition to Russia, which became the main heir to the nuclear arsenal and nuclear obligations of the USSR, these countries became new members of the nuclear club. In 1992, in Lisbon, Russia, Ukraine, Belarus, Kazakhstan, and the United States signed an additional agreement to the Strategic Arms Reduction Treaty (START-I), known as the Lisbon Protocol. This document stipulated that Belarus, Kazakhstan, Russia, and Ukraine were the assignees of the USSR under the terms of START-I. The agreement also obligated Belarus, Kazakhstan, and Ukraine to get rid of nuclear weapons and join the NPT as states that do not possess nuclear weapons.

Let's briefly consider what the Budapest Memorandum is - On December 5, 1994, leaders of the United States, the United Kingdom, and the Russian Federation met in Budapest, Hungary, to pledge security assurances to Ukraine in connection with its accession to the Treaty on the Nonproliferation of Nuclear Weapons (NPT) as a non-nuclear-weapons state. The signature of the so-called Budapest Memorandum concluded arduous negotiations that resulted in Ukraine's agreement to relinquish the world's third-largest nuclear arsenal, which the country inherited from the collapsed Soviet Union, and transfer all nuclear warheads to Russia for dismantlement. The signatories of the memorandum pledged to respect Ukraine's territorial integrity and inviolability of its borders and to refrain from the use or threat of military force²¹. In 1996,

²¹ M. Budjeryn M. Bunn, *Budapest Memorandum at 25: Between Past and Future*. <<https://www.belfercenter.org/publication/budapest-memorandum-25-between-past-and-future>> (18.11.2023).

Ukraine, Belarus, and Kazakhstan withdrew from the nuclear club, transferring their remaining nuclear weapons to Russia.

It is interesting to use game theories to analyze the mentioned conflict. Game theory is a mathematical framework for possible solutions to problems arising in the process of conflict and collaboration between rational actors. International Relations and Political Science: The game is often used to understand the dynamics of nuclear deterrence and arms races. Each side is incentivized to push as far as possible without causing mutual destruction²². Two models of conflict, the "prisoner's dilemma" and the game of "chicken", are generally assumed to have considerable social relevance²³. Game theories play a very important role and help us better understand the processes in the international security system. All this makes it much easier for us to know it, imagine it, and analyze it. Starting from absolute antagonism, game theorists present several strategies that we consider in the context of the Russia-Ukraine war, for example: the "prisoner's dilemma" and the game of "chicken". Both Prisoner's Dilemma and Chicken are models of games where we describe the choice of strategy as "Cooperate" and "Defect". In Prisoner's Dilemma, we think of "cooperating" as cooperating with the other player, and "defecting" as turning against the other player. So if both players cooperate (with each other, not the police), they will get the higher payoff of only one year in prison. They defect by ratting on each other. In Chicken, players cooperate by swerving and defect by driving straight²⁴.

In the face of the risks, threats, and challenges of the thermonuclear age, the main goal of each player is to avoid reaching the extreme limit, where it is important that each player does not give up his advantage. Here it is important for the players to protect their interests, and it is also important for them to convince the forward party that such defense is due to the security system and it is impossible to act according to other game rules. But the key factor here is that each side is able to convince the other that it is not trying to gain military advantage to defeat the adversary. However, it is important for him to increase his defense ability and to be prepared for the prevention of existing or expected threats.

If we look at the ongoing Russia-Ukraine war and the threat of using nuclear weapons from this context, none of the parties is going to make certain

²² H. Stein, *The Chicken Game: Maybe the most fascinating generic game in Game Theory*, <<https://medium.com/@hardystein/the-chicken-game-maybe-the-most-fascinating-generic-game-in-game-theory-29aecbaeecd5>> (22.11.2023).

²³ H, G Snyder., "Prisoner's Dilemma" and "Chicken" Models in *International Politics*, "International Studies Quarterly" 1971, Vol. 15, No. 1, p. 66.

²⁴ J. Nordstrom, *Battles of Wits and Matters of Trust: Game Theory in Popular Culture*, [in:] *Mathematics and Popular Culture: Essays on Appearances in Film, Fiction, Games, Television and Other Media*, eds. E. Sklar, J. Sklar, McFarland 2023. pp. 86-98.

concessions and make significant gains for them. This approach is understandable in the case of Ukraine because the battle is taking place on its territory and it has to fight to the end to win. As for Russia, it also does not want to make certain concessions, because it will harm its political prestige and image in international relations, and with this step, it will come out of this war as a loser if it has to return its army to its pre-war positions. Accordingly, the priority for the current Russian government is the occupation of certain territories of Ukraine, so that they can justify their military intervention in front of their own population and not lose their image on the world stage.

Russia continues its nuclear terror threat strategy. A clear example of this is the deployment of tactical nuclear weapons in Belarus. Atli focused on the theoretical level of the threat of nuclear terror. In 1946, Bernard Brody published a paper on the atomic bomb entitled "The Absolute Weapon", in which he emphasized the revolutionary aspect of this military weapon. "Until now, the main goal of our knights was to win wars. From now on, their main goal should be to prevent wars. There can be no more necessary purpose than this". In his work, *Nuclear Strategies* (1988), Lucien Poirier points out that nuclear weapons provide the possibility of foreseeing the "impossible" coincidence of Clausewitz's time. In his opinion, nuclear weapons should be distributed not to wage war, but to convince the enemy to refuse war. This is the beginning of a fundamental change in international relations²⁵. The content of the above-mentioned concept and the approach of science is clear, however, Russia wants, by blackmailing nuclear weapons, to deny Ukraine its sovereign territories and thereby expand its borders. Once other conventional escalatory options have been exhausted, Moscow may resort to nuclear weapons, and specifically NSNW use, to prevent a catastrophic defeat²⁶. Also, we should mention that the aggressive intentions and policies of Russia are unknown, which requires a more careful and balanced policy from NATO, the European Union, and the USA.

The threat of using nuclear weapons in the current war between Russia and Ukraine is real. Accordingly, the US and NATO must play an important role in pursuing a policy of nuclear deterrence and achieving military-strategic stability. This means that military-strategic stability – a stable state of international relations at the regional and global level, during which states

²⁵ P. D. Senarklen, I. Arifen, *International Politics: Modern Theories and Tasks*, Tbilisi 2014, p. 59.

²⁶ S. Charap, S. M. Priebe, *Avoiding a Long War, U.S. Policy and the Trajectory of the Russia-Ukraine Conflict*, https://www.rand.org/content/dam/rand/pubs/perspectives/PEA2500/PEA2510-1/RAND_PEA2510-1.pdf (22.11.2023).

(coalitions of states) do not resort to military means to resolve disputed issues²⁷. We should mention here that the implementation of this policy is important not only for NATO and the USA but also for the rest of the civilized world. The consequences of even the use of tactical nuclear weapons would have a severe impact on the entire world.

Conclusion

In the modern period, in the process of establishing a new world order, humanity faces many threats and challenges. All this is added to the military armed conflicts of aggressive states, which cost the lives of thousands of innocent people. An example of this is the unjust war between Russia and Ukraine and Russia's aggressive policy. The current Russia-Ukraine war has shown many states and the world how important the role and importance of modern technologies in combat operations is in the 21st century. Also, unfortunately, there is a possibility of Russia's use of tactical nuclear weapons. The nuclear security crisis in Ukraine, the potential radiological consequences of armed attacks against nuclear facilities, and the potential increase in the number of nuclear facilities in the future all point to the need for a more robust global nuclear security framework to address the impact of armed conflict. This will mean reinforcing existing international instruments to deal with their various shortcomings in light of the current and future nuclear security threats posed by armed conflict. The policy of nuclear deterrence became quite relevant again as a result of the Russia-Ukraine war. The dangers of using tactical nuclear weapons will increase as Russia will have to give up temporarily occupied territories. If Russia does not achieve some success in this war, its leaders may take the rather unjustified step of using nuclear weapons. Also, the main purpose of Russia's deployment of tactical nuclear weapons in Belarus is nuclear intimidation. Thus, he tries to intimidate NATO and the European states that support Ukraine and refuse military, political, economic, and diplomatic support to Ukraine. However, NATO and pro-Ukraine states are very well aware of Russia's aggressive intentions. If it is not contained on the territory of Ukraine, it will not stop there. Russia's aggressive policy is far-reaching and it wants to expand its territory and vectors of influence. To restrain Russia's aggressive intentions, the civilized world should unite, where the greatest role is given to NATO and the USA. By pursuing a pragmatic and tough policy, they must curb Russia's illegal actions, which cost thousands of

²⁷ V. Maisaia, A. Guchua, *NATO and non-state aggressive religious actors ("Islamic Caliphate", "Al-Qaeda" and "Taliban") - the fourth generation war strategy and its geopolitical aspects of regional and national security (2010-2019)*, Tbilisi 2020, p.285.

lives. So that this number does not increase in the future and the processes do not become completely unmanageable.

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