The Threat of the 21st Century: The New Nuclear Arms Race between the United States and Russia

Melis Ege Kunt

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Approval of the Institute of Graduate Studies and Research

Prof. Dr. Ali Hakan Ulusoy
Acting Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Arts in International Relations.

Prof. Dr. Ahmet Sözen
Chair, Department of Political Science
and International Relations

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Arts in International Relations.

Asst. Prof. Dr. Günay Aylin Gürzel Aka
Supervisor

Examining Committee

1. Asst. Prof. Dr. Murat Aslan

2. Asst. Prof. Dr. Günay Aylin Gürzel Aka

3. Asst. Prof. Dr. John Turner

ABSTRACT

Humanity first met with nuclear weapons in 1945 and faced its great destructiveness for the first time after bombing in Hiroshima and Nagasaki. Since then, nuclear weapons, which are among the central issues of international security, have become paranoia for both social scientists and societies, with the beginning of the Cold War and the increasingly greater powers to equip themselves with nuclear weapons.

Nuclear weapons, which last more than 70 years in our lives, are still one of the biggest problems of the world, with the world being able to bring the end. Therefore, in 1968, Treaty on the Non-Proliferation of Nuclear Weapons was signed. Since then, the treaty has been the cornerstone of international efforts to prevent and ultimately eliminate the proliferation of these weapons to facilitate the enjoyment of nuclear energy for peaceful purposes.

In addition, the United States and Russia, the two largest nuclear powers in the world, signed bilateral agreements that limited their nuclear ammunition. But there are attempts to terminate those in force. The termination of the agreements of the nuclear regime may indicate the beginning of a new nuclear arms race between the US and Russia. As a result of all these developments, the world is facing a new nuclear arms race and in the light of the current technological developments, it may have more dangerous consequences than the nuclear race experienced during the Cold War period.

Keywords: nuclear arm race, technological developments, arms control regimes

ÖZ

ABD ve Rusya arasındaki mevcut nükleer rejimin sonlandırılması ofansif realist motivasyonlar sonucu nükleer belirsizliğe ve nihayetinde nükleer silahlanma yarışını artıracaktır. Ayrıca savunma teknolojilerindeki gelişme söz konusu olduğunda nükleer silahlanma yarışı geri dönülemez bir boyuta taşınabilir.

Anahtar kelimeler: nükleer silahlanma yarışı, nükleer rejim, teknolojik gelişmeler

DEDICATION

To my mother who's always there for me..

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LIST OF SYMBOLS AND ABBREVIATIONS

ABM	Anti-Ballistic Missile
AI	Artificial Intellegence
AIIB	Asian Infrastructure Investment Bank
ASAT	Anti-Satellite Weapons
ASBM	Anti-Ship Ballistic Missile
BIC	Bilateral Implementation Commission
CBO	Congressional Budget Office
DARPA	Defense Advanced Research Projects Agency
EU	European Union
GBSD	Ground Based Strategic Deterrent
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
INF	Intermediate-Range Nuclear Forces
IS	Istrebitel Sputnikov
JCPOA	Joint Comprehensive Plan of Action
KE-ASAT	Kinetic Energy Anti-Satellite Weapons
MAD	Mutually Assured Destruction
MIRV	Multiple Independently Targetable Reentry Vehicle
MRBM	Medium-Range Ballistic Missile
NATO	North Atlantic Treaty Organization
NPR	Nuclear Posture Review
NPT	Non- Proliferation Treaty
PKO	Protivo Kosmicheskoi Oborony

PRO	Protivo Raketniya Oborony
PVO	The Soviet Troops of Defense Units
SALT	Strategic Arms Limitation Talks
SIPRI	Stockholm International Peace Research Institute
SLBM	Submarine- Launched Ballistic Missile
SORT	Strategic Offensive Reductions Treaty
SSBN	Fleet Ballistic Missile Submarines
START	Strategic Arms Reduction Treaty
TNT	Trinitrotoluen
UNAEC	United Nationa Atomic Energy Commission
US	The United States
USSR	The Soviet Union

Chapter 1

INTRODUCTION

In the 20th century, nuclear weapons, which were used in the cities of Hiroshima and Nagasaki, met with the destructive power of the world and survived in the 21st century are still at the top when it comes to security risks. These arms, which reached incredible numbers as a result of the arms race between the US and the Soviet Union during the Cold War, were significantly reduced by bilateral nuclear disarmament agreements after the Cold War. This argument can be easily proved when we compare the past and present nuclear arsenals in the world. In the 1980s, the number of nuclear weapons available to the US and the Soviets reached 70,000, but today it is almost 7 times less.[1]

The disarmament agreements, which reduced the number of nuclear weapons, were the cornerstone for the world to prevent the proliferation of nuclear weapons and to ensure the peaceful use of nuclear energy. The leaders of this regime were the US and Russia, the largest nuclear arsenal in the world. Their disarmament agreements with each other gave trust to each other and to the world. But nowadays, we are in a

[1] Status of Nuclear Weapons. (2019,May). Retrieved from https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/

process where trust between the two countries has ceased to exist and the two countries accuse each other of violating agreements on nuclear disarmament.[2]

This process started with the withdrawal of the US from the Anti-Ballistic Missile (ABM) agreement in 2002 and continues this year with the decision of the US to withdraw from the Intermediate-Range Nuclear Forces (INF) agreement. In addition, the New START agreement, the last bilateral agreement between the US and Russia, expires in two years. Although it is not yet clear whether the agreement will be renewed, if there is no agreement, it will be the first time since 1972 that no nuclear weapons restrictions between the two countries. In such a case, the future of Non-Proliferation Treaty (NPT), which was signed in 1968 for nuclear disarmament and is now a member of almost all the countries of the world, may be in danger. The fact that the two countries abolish their arms restrictions may lead to questioning the future of nuclear weapons by other countries. It may even lead to the withdrawal of arms restriction agreements in their countries with similar motivations and consequently a nuclear arms race to become global. For this reason, the current situation is very important given that the US and Russia have concluded their agreements and created risks in the nuclear order and their negative effects on international security. The attitudes of the US and Russia that almost end the current nuclear arms control regime can lead to an arms race between the two countries. And such a race can lead us back to the cold war years. But this time we need to include

[2] The Intermediate-Range Nuclear Forces (INF) Treaty at a Glance. (2019, August). Retrieved from https://www.armscontrol.org/factsheets/INFtreaty

the advancing defense and weapon technologies. Because both the US and Russia have continued to develop both conventional and nuclear weapons since the Cold War. To this regard, Washington and Moscow, which developed new missile technologies, also modernized and renewed their existing obsolete nuclear weapons. In addition, these two countries, which possess the latest technologies in the fields of communication and information technologies such as cyber and artificial intelligence, leave a new arms race in vague. Because these technologies can threaten the concept of nuclear deterrence and help make nuclear weapons an option that can be used easily when necessary. With all this in mind, the potential for a new arms race to change all the balances in the world is quite strong.

In many of the studies I have read, almost all experts agree that the termination of the existing arms treaties will re-emerge the world's nuclear race and create a serious security problem. In particular, the idea is that Europe will see the negative consequences of these agreements. In addition, another widespread opinion is that this new race will not only take place between the USA and Russia. Many scholar envisage a picture in which China takes part as the 3rd party in the race.

But many academics claiming that a new arms race will emerge when the barriers to arms control are removed with the end of the agreements, focusing on which countries this race will affect or which countries will affect and they ignored how this race would take place. How the new technologies developed on both conventional and nuclear weapons will affect the future arms race has not been adequately answered by the academy.

Therefore, in this study, I will focus on how the nuclear regime which has reached the end of its life and emerging technologies can affect the possible nuclear arms race. In this direction, I will talk about how the nuclear weapons technologies and the agreements that have been developed by the US and Russia will put the whole world into obscurity. Because the consequences of the proliferation of nuclear weapons and the fact that the arms race reaches a more dangerous dimension than before can be serious.

In light of these concerns, I named my thesis as "The 21st Century: The New Nuclear Arms Race Between The United States And Russia." This thesis is divided into three parts. The first section is primarily historical issues are discussed. Then the eras of nuclear weapons are mentioned and the discussions it has created in the world are given. It then examines nuclear weapons restriction agreements between the US and the USSR (later Russia).

In the second part, contemporary security issues are given. In this section, technological developments that can affect the future of nuclear weapons in every field are mentioned. While talking about these, country policies and plans such as military expenditures of both the US and Russia, nuclear modernization studies, newly developed missile technologies, strategies developed on cyber and artificial intelligence were also examined.

In the last part, first of all, two sub-theories of neo realism theory are mentioned in order to be informed about defensive and aggressive realism. Then, based on the dynamics presented in the first and second chapters of the manuscript, two scenarios were created from both offensive and defensive realism perspectives. After the last

two scenarios, which are closest to neo-realist theory in accordance with the current table in the near future, and the reasons for this are given.

In this study, scenario planning method was used to explain the consequences of the termination of arms control agreements between the US and Russia and the risks posed by the technologies they developed on nuclear weapons.

This method, which has been used frequently by the CIA for quite a long time, is now becoming a widespread method in the social sciences. When using this method, my aim is to present the projections on how the situation might be in the future by processing dynamics such as the developments in defense technology and crises in the US-Russia relations.

In this study, neo-realism theory was used in creating the future projection. The reason why this perspective is chosen is that I believe that the countries deal with each other in a more realistic way compared to other theories. In particular, the arguments such as self-help and survival put the theory on a more solid basis than other theories. In addition, the fact that both historical and current events can be proved by this theory makes it easier to adapt the theory to the scenario method.

Chapter 2

HISTORY OF NUCLEAR ARMS CONTROL

2.1 Nuclear Era Arrives

The world was first introduced the most destructive weapon ever seen in August 1945 after the the United States used in Hiroshima, Japan during the Second World War. [3] US President Harry S. Truman announced the bomb to the world in 16 hours after the bomb was thrown to Hiroshima. He stated "It is an atomic bomb. It is a basic power of the universe. The force from which the sun draws its power has been loosed against those who brought war to the Far East.". [4]

A few days after Hiroshima, Truman mentioned that they were ready to completely eliminate Japan's fighting power and used it for the second time in Nagasaki, Japan. Japan surrendered after the second nuclear bomb that brought Japan and its people to complete destruction. [5] World War II ended. As a result of the war ended, an era called the atomic age began in the world. This era brought a new order to the world in which new technological developments and arms competition emerged.

[3] Sagan, S. D., & Valentino, B. A. (2017). Revisiting Hiroshima in Iran: What Americans really think about using nuclear weapons and killing noncombatants. *International Security*, *42*(1), 41-79.

[4] The Manhattan Engineer District. (2013). The Atomic Bombings of Hiroshima and Nagasaki.

[5] Sodei, R. (1995). Hiroshima/Nagasaki as history and politics. *The Journal of American History*, *82*(3), 1118-1123.

The beginning of the nuclear age brought about discussions. As the debate that took place between those who thought that this weapon, which was witnessed for the first time in the world, should be destroyed, countries started to have this weapon one by one. By the 50s, nuclear weapons had entered the golden age. Many powerful states of that period began to stock tens of thousands of nuclear warheads. This continued until the world came to the brink of nuclear war in the 60s. After the Cuban crisis, which reached the summit of the Cold War, arms control agreements were signed. The US and USSR, especially the two countries that have the largest stock of nuclear weapons, signed bilateral arms control agreements to prevent both the reduction of existing nuclear weapons and the further proliferation of this weapon. But when it comes to the present day, a period in which nuclear weapons are preparing to re-enter the stage has begun. In particular, the ending of the existing disarmament agreements between the US and Russia could accelerate the arms and lead to a new arms race in the world.

2.2 Internationalize or Eliminate Nuclear Weapons

After the world entered the atomic age, discussions began on the potential and future of this weapon. Because a country with such a weapon has the power to change the balances in all foreign policies in the world. And after the war, the US was the only country with this power. But the tension between the US and the Soviet Union was increasing day by day. In this case, the authorities in the US administration created a difference of opinion. For example, some of the ministers, such as Henry L. Stimson who is Secretary of War and Trade Minister Henry Wallace, had the idea that the secrets of nuclear weapons should be shared with the USSR.[6] Because they thought

[6] Shimamoto, M. (2016). Henry A. Wallace's Criticism of America's Atomic Monopoly, 1945-1948. Cambridge Scholars Publishing.

that if the US continued as the only country with nuclear weapons, the tension with the Soviets would increase and this would start the arms race.[7] The other side, including State Department official George F. Kennan, thought that the Soviets were unreliable and that it would be stupid for the US to give up such a power.[8] As a matter of fact, US President Truman thought like the second group. According to Bernand Baruch, Truman, who wanted to rule the world, the moon and even Jupiter[9] saw this power as indispensable for the goal of being the world leader and the goal of overthrowing the USSR.[10]

After President Truman's stance and the start of the cold weather between the Soviet Union and the United States, some names such as Bernard Baruch and Bertrand Russell foresee the existing risks that this weapon could pose, and have initiated efforts to eliminate them.

2.2.1 The Baruch Plan, 1946

On June 14, 1946, US representative Bernard Baruch at the first meeting of the United Nations Atomic Energy Commission (UNAEC) called on the participating countries to establish an international mechanism for controlling the proliferation of nuclear weapons and technology. [11] Barunch presented his plan to the commission by saying striking sentences such as "We are here to make a choice between the quick

[7] Ibid.

[8] Kennan, G. F. (1982). Nuclear delusion: Soviet-American relations in the atomic age.

[9] Leffler, M. P. (1992). A preponderance of power: National security, the Truman administration, and the Cold War. Stanford University Press.

[10] Bernstein, B. J. (1975). Roosevelt, Truman, and the atomic bomb, 1941-1945: a reinterpretation. Political Science Quarterly, 90(1), 23-69.

[11] Baratta, J. P. (1985). Was the Baruch Plan a Proposal of World Government?. *The International History Review*, *7*(4), 592-621.

and the dead." and "Let us not deceive ourselves: we must elect: World Peace or World Destruction.". [12]

The Baruch plan included the establishment of an important control mechanism that had an impact on all uranium processing, conversion and enrichment plants using atomic energy, and then the destruction of all nuclear stocks. In addition, according to the plan, the International Atomic Development Agency would be established and it would be the only organization with all atomic energy. In the case of the implementation of the Plan, the US would give all its nuclear weapons and all the information to these organizations. In addition, 5 permanent members of the UN Security Council for the work of this organization would be prohibited from exercising their veto rights. [13]

In December 1946, Baruch's plan was approved by the commission. But when the plan went to the UN Security Council, the plan could not be implemented because Soviet Russia rejected the proposal. Soviet Russia disagreed the non-exercise of the veto authority mentioned in the plan and suggested that the entire nuclear weapon stock should be destroyed and the monitoring mechanism should follow. After the alternative plan proposed by the Soviet representative Andrei Gromyko, long discussions between the parties could not reach any conclusions and the Baruch plan failed.[14]

[12] Baruch, B. M. (1946). The American Proposal for International Control. Bulletin of the Atomic Scientists, 2(1-2), 3-10.

[13] Gerber, L. G. (1982). The Baruch Plan and the Origins of the Cold War. *Diplomatic History*, *6*(1), 69-96.

[14] Rydell, R. (2006). Looking Back: Going for Baruch: The Nuclear Plan That Refused to Go Away. *Arms Control Today*, *36*(5), 45.

One of the main reasons for the failure of the agreement is that Stalin was very close to creating his own nuclear bomb and could not trust the United States. Although Stalin felt that the nuclear bomb had to be controlled, he thought the plan would help the US remain monopolized and maintain its superiority. [15] That's why he didn't want to be the compromising party to Truman and Baruch. As a result, the Baruch plan, which has a revolutionary vision, could not achieve the aim of preventing the proliferation, proliferation and proliferation of nuclear weapons.

2.2.2 Russell- Einstein Manifesto, 1955

By 1995, two other countries, the Soviet Russia and the UK had reached a nuclear power position outside the United States and other countries such as France were about to reach that power. Bertrand Russell issued a statement on 9 July 1955 to find an international solution to this situation, anticipating the dangers of proliferation.[16]

The Russell-Einstein Manifesto, also known as the Franck Declaration, was read in London and signed by the 21 leading intellectuals. Apart from Bertrand Russell, the signatory was Albert Einstein, Niels Bohr, Herman Ender J. Muller, Hideki Yukawa, Frederic-Joliot Curie, Linus Pauling and Ernest Rutherford. [17]

In the manifesto, Russell mentioned that it was possible to use the existence of these weapons to warn US and Soviet Russia about the magnitude of the danger of nuclear weapons, and if they were used, these weapons could not contribute to the achievement of the goals of any of the world governments and that all countries

[15] Bolton, K. R. (2010). Origins of the Cold War: How Stalin Foiled a" New World Order": Relevance for the Present. Renaissance Press.

[16] Einstein, A. (1955). The Russell-Einstein Manifesto. In *Scientists in the Quest for Peace. A History of the Pugwash Conferences (Cambridge, MA: The MIT Press, 1972) pp* (pp. 137-140).

[17] Ibid.

should come to a peaceful path. [18] However this warning failed to create the desired effect in either the US or the Soviets.

2.3 The Golden Era of Nuclear Weapons, 1955-1965

When we came to the 1950s, a new era began in which large countries tried to equip themselves with nuclear weapons in order to obtain a deterrent power, as predicted by those who said nuclear weapons should be eliminated. Countries have equipped themselves with nuclear weapons to create a more secure environment for them.

The Soviet Union, which made its first nuclear weapon in 1949, was followed by the UK in 1952, and in 1960 and 1964 France and China became nuclear powers respectively. Countries like Pakistan and India were struggling to keep up with this race.[19] Because having such a technology had the advantage of the deterrentism of the changing world conjuncture to that country.

In the same period, the nuclear arms race among the superpowers was reaching alarming dimensions. Both the US and the Soviets were rapidly expanding their nuclear stocks. According to the data, the number of nuclear weapons in the world was 2,632 in 1955 and in 1965 it reached 37,591.[20] In particular, the fact that the Soviet Union had reached the first atomic bomb far ahead of the expectations caused the US to accelerate the development of thermonuclear weapons and hydrogen

[18] Einstein, A. (1955). The Russell-Einstein Manifesto. In Scientists in the Quest for Peace. A History of the Pugwash Conferences (Cambridge, MA: The MIT Press, 1972) pp (pp. 137-140).

[19] Waltz, K. N. (1981). The spread of nuclear weapons: More may be better: Introduction.

[20] How Presidents Arm and Disarm. (2014, October 14). Retrieved from https://fas.org/blogs/security/2014/10/stockpilereductions/

bombs. The Truman-led US tried the first hydrogen bomb in 1954, while Soviet Russia tried its own fusion bomb in 1961, again capturing the process.[21]

Nevertheless, while the US continued its technological leadership, it also began to establish long-range missile systems that allowed the delivery of its nuclear warheads with missiles. These systems include, for example, ICBMs of Atlas and Titan (Intercontinental Ballistic Missiles), MRBMs of Jupiter and Thor (Medium Range Ballistic Missiles) and SLBM (Submarine Launched Ballistic Missile) missiles called Polaris. [22] Especially when John F. Kennedy was elected president in 1961, these missile systems further expanded and expanded.[23]

Likewise, Soviet leader Nikita Khrushchev provided the opportunity to develop missiles in order to keep her country's technological capabilities behind the US. Moreover, in 1957, the USSR launched Sputnik 1, the world's first artificial satellite, into space, creating a new competition for two superpowers during the Cold War. [24] They then developed missile technologies capable of delivering both the US and USSR rockets into space and worked on new ways to deliver their existing nuclear weapons in this way.

[21] International Campaign to Abolish Nuclear Weapons. Retrieved from https://www.icanw.org/the-facts/the-nuclear-age/

[22] Chowdhuri, S. R. (2004). Nuclear politics: towards a safer world. Sterling Publishers Pvt. Ltd.

[23] Preble, C. A. (2003). "Who Ever Believed in the 'Missile Gap'?": John F. Kennedy and the Politics of National Security. Presidential Studies Quarterly, 33(4), 801-826.

[24] McDougall, W. A. (1985). Sputnik, the space race, and the Cold War. Bulletin of the Atomic Scientists, 41(5), 20-25.

2.4 The Rise of Arms Control

The fact that countries began to equip themselves with nuclear weapons and missiles led to a nuclear arms race, which became dangerous among the two countries with the most nuclear stock, the US and the USSR. In particular, the Cuban Missile Crisis that took place after the discovery of medium-range ballistic missiles placed by the Soviet Union in Cuba between the US and the Soviet Union in October 1962 by the US, but frightened the whole world, and the crisis lasted for 13 days. had brought across.[25] During the crisis, if President Kennedy had chosen to launch an air strike to destroy the missiles in Cuba, perhaps the world would have survived, and the world felt the threat of nuclear war for the first time.

Understanding the threat posed by the countries' nuclear arms race both for the superpowers and for world security after the Cuban missile crisis has pushed the world to establish a disarmament regime on this issue, and this time pioneered the formation of US and Soviet Union restrictive rules and control. To this end, the IAEA was established in 1957 to ensure the peaceful use of nuclear science and technology in the world.[26] For the same purpose, in 1968, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), of which 189 countries are parties, was signed.[27]

Multilateral agreements such as the NPT alone were not sufficient to implement the nuclear arms system. The Stockholm International Peace Research Institute (SIPRI)

[25] Hayek, R. (1974). The Cuban missile crisis.

[26] Fisher, D. History of the IAEA. The First Forty Years.

[27] Saran, S. (2005). Nuclear non-proliferation and international security. Strategic Analysis, 29(3), 361-369.

report, published in the 1970s, states that nuclear weapons ammunition is stored enough to destroy people all over the world 690 times. [28] Therefore, they had to sign bilateral arms control agreements in order to prevent the military threats posed by nuclear stocks in the US and USSR, two superpowers with more than 90 percent of this nuclear arsenal in the world.[29] So these two super powers began negotiations to limit and reduce nuclear weapons and missiles.

The agreements signed between the US and the USSR in the process of arms control or disarmament from the 1960s to the present are SALT 1, ABM Treaty, SALT 2, INF Agreement, START 1, START 2, START 3, Moscow Treaty and NEW START.

2.5 Structuring the Nuclear Environment: Strategic Arms Control between the US and USSR, 1972-2019

2.5.1 Stratagic Arms Limitation Talks (SALT) I, 1972

By the 1970s, a series of agreements were made to stop the increase of weapons due to the fear of nuclear weapons. One of the most comprehensive disarmament treaties is the Stratagic Arms Limitation Talks **(**SALT I) agreement, signed by Leonid Brezhnev, the secretary general of the Soviet Communist Party and US President Richard Nixon.[30] The negotiations started in November 1969 in Helsinki and lasted until 1972. The reason for the negotiations lasting 2 and a half years is that the US and the USSR cannot agree on the types of strategic weapons to be included in the

[28] Kaushik, B. M. (1972). The arms race: World Armaments and Disarmament—SIPRI Year book 1972, Stockholm International Peace Research Institute, Stockholm: Almquist and Wiksell, 1972, Pp. XXIV+ 611. Price SW. Kr. 75.00. China Report, 8(5), 61-64.

[29] World Nuclear Weapon Stockpile .(2019, April 29). Retrieved from https://www.ploughshares.org/world-nuclear-stockpile-report

[30] Garthoff, R. L. (1978). Salt I: An Evaluation. World Politics, 31(1), 1-25.

agreement. In particular, the differences between the two countries in the definition of the word strategic made the formation of the agreement difficult.[31]

On May 26, 1972, the USSR and the US approved and signed Anti-Ballistic Missile Treaty and SALT I agreement in Moscow. SALT I, which entered into force on 3 October 1972, became a provisional agreement for a period of 5 years and the parties then agreed to negotiate a more comprehensive agreement.[32]

This provisional SALT I agreement included a 5-year limitation of intercontinental ballistic missiles and submarine-launced ballistic missiles to which the US and the USSR could have. Accordingly, the two sides of the agreement Intercontinental missiles (ICBM and SLBM) agreed to not make new intercontinental missiles during the agreement process. On July 1, 1972, they started to practice.[33]

In another article of the agreement, the Contracting Parties signed a decision to limit the ballistic missiles fired from submarines. According to this decision, the US could have 710 ballistic missiles in the submarine with a capacity of 44 missiles, and 950 ballistic missiles in the submarine that could carry 62 missiles.[34] This treaty, apparently against the US, can in fact be seen as an indication of how much confidence America has in its own submarines and technology in its missiles.

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[31] U.S.-Russia Nuclear Arms Control 1945-2019. (2019). Retrieved from https://www.cfr.org/timeline/us-russia-nuclear-arms-control

[32] Strategic Arms Limitatiton Talks (SALT 1). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/isn/5191.htm

[33] Strategic Arms Limitatiton Talks (SALT I). (2011, October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/strategic-arms-limitation-talks-salt-i-salt-ii/

[34] Strategic Arms Limitatiton Talks (SALT 1). Retrieved from https://www.armscontrol.org/treaties/strategic-arms-limitation-talks

When we evaluate the SALT I agreement, we can see that the current nuclear arms race reduces the danger of war on countries. In fact, the two countries agreed to agree that such an agreement would provide their own security.

The SALT I agreement ended on 3 October 1977 after the expiration of the agreed period 5 years later.[35]

2.5.2 Anti-Ballistic Missile (ABM) Treaty, 1972

The Anti-Ballistic Missile treaty is the second agreement signed by the USSR President Leonid Brezhnev and US President Richard Nixon in Moscow, as well as the SALT 1 agreement.[36] However, contrary to the SALT 1 agreement, the ABM agreement, which was concluded indefinitely, decided to revise the agreement for a period of 5 years.[37]

In this agreement, which contains 16 articles, they have promised not to use any kind of missile system in the USA and USSR countries. Under the agreement, countries agreed that they could have only two anti-ballistic missile firing areas. One of these ABM missile fields should be in a position to protect their capitals. According to the agreement, another had to be positioned to protect an intercontinental ballistic missile (ICBM) field. And the distance between these two protected areas and the two firing areas or fields should be a minimum of 1300 kilometers. There was also a maximum limit of 100 missile missile possession in each of these two firing ranges, and no more could be found.[38]

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[35] Ibid.

[36] Strategic Arms Limitatiton Talks (SALT 1). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/101888.htm

[37] Ibid.

[38] Ibid.

In another of the articles of the agreement, "The Parties undertook not to deploy the ABM system to defend the territory of the country and not to form the basis for this kind of defense system".[39] This means that the US and the USSR are prohibited from developing, testing and maintaining anti-ballistic missile systems on land, at sea, in the air or even in space, or making changes to bring the existing systems to the said capacity. The parties also agreed to ban multiple guided warheads of preventive missiles. Furthermore, the agreement does not allow these systems to establish such defense systems, not only on the territory of these two countries, but also outside them.

Another topic in the agreement is early warning systems. Accordingly, the US and the USSR were only able to have radar on their national borders that provided early warning of strategic ballistic missiles.[40]

According to the ABM Treaty, the parties to the agreement can make recommendations if they wish to make changes to the content of the agreement and are also entitled to withdraw from the agreement if they decide that their interests are in danger.[41]

The Agreement was first reviewed in 1977 by the Permanent Advisory Commission. After the dissolution of the USSR, which was revised every 5 years, the continuity of

[39] Ibid.

[40] Ibid.

[41] Ibid.

the agreement was ensured by the approval of the agreement by Russia, Ukraine, Belarus and Kazakhstan and the agreement remained in force.[42]

In 2001, the US, led by George W. Bush, decided to withdraw from the ABM Treaty. He thought that the US needed a national missile defense system against the threat of missile attacks from countries such as North Korea, Iran and Iraq, which he called a rogue state. Therefore, the ABM proposed an amendment to the agreement that would enable such systems to be owned. After Russia opposed the proposal, the US decided to withdraw from the agreement in accordance with the withdrawal clause of the agreement.[43]

2.5.3 SALT II, 1979

After the signing of the SALT-I agreement had positive results in the two countries, they started the SALT-II negotiations to make a long-term agreement without losing time. The meeting between the USSR and the US, the two superpowers of the era in Geneva in 1972, was signed in 1979 by Jimmy Carter and Leonid Brejnev in Vienna due to the difficult conditions of the Cold War era.[44]

The SALT 2 agreement is a very important one, as long-range nuclear weapons are limited. The parties first identified all their strategic missiles and the number of their long-range aircraft. They then made restrictions on the number of intercontinental missiles (ICBMs), submarines (SLBMs), Multiple independently targetable reentry

[42] Strategic Arms Limitatiton Talks (SALT II). (2011, October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/strategic-arms-limitation-talks-salt-ii/

[43] U.S . Withdraws From ABM Treaty; Global Response Muted. (2002, July/August). Retrieved from https://www.armscontrol.org/act/2002_07-08/abmjul_aug02

[44] A Defense of the SALT II Treaty.(1979, April 2). Retrieved from https://www.belfercenter.org/publication/defense-salt-ii-treaty

vehicles (MIRV), each of which could be sent to independent targets according to Article VII .[45]

Under the agreement, the parties were allowed to hold 2400 strategic nuclear delivery vehicles. They then decided to reduce the number of these weapons, and since 1981 they limited the total number of these delivery vehicles to 2,250.[46]

In addition, according to the agreement, the number of missile launchers with Multiple independently targetable reentry vehicles (MIRV) had to be 1,200, and 820 of these ramps had to consist only of intercontinental ballistic missiles.[47]

The US and USSR banned the creation of new missile programs with this agreement, which is more comprehensive than the previous agreements. According to the agreement, the US has decided to protect only the missile programs required by the government such as Trident and Cruise, while the USSR has decided to protect 308 SS-18 missiles.[48]

For existing missiles, the parties have decided to ban the acquisition, development and testing of ballistic and guided missiles over 600 km. In addition, it is prohibited to place fixed ballistic or guided missiles on any ocean and sea floor other than the

[45] Strategic Arms Limitation Talks (SALT II). Retrieved from https://fas.org/nuke/control/salt2/index.htmlA

[46] Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms (SALT II). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/isn/5195.htm

[47] Ibid.

[48] SALT II and The Strategy of Inferiority. (2005, December 1). Retrieved from https://www.cia.gov/library/readingroom/docs/CIA-RDP88-01315R000400370053-3.pdf

submarine and on any waterway vehicles. In addition, the agreement also prevented Anti-ship ballistic missiles (ASBM) from performing flight tests and research-development studies.[49]

After the signing of the SALT II agreement between the USSR and the US representatives, he went to the US Senate and rejected the senate. Reagan, the president of the United States, announced that the agreement was unacceptable in this state, and Congress and himself were subject to critical criticism. Meanwhile, at the end of 1979, Moscow decided to invade Afghanistan, which was a strategic move that could shift the balance in the Middle East to the United States. Therefore, the US evaluated the USSR in this public opinion that the Soviets were unreliable, and gave up the full ratification of the agreement, saying that the Soviets had violated SALT II.[50]

2.5.4 Intermediate-Range Nuclear Forces (INF) Agreement, 1987

Table 1: INF Agreement Timeline

Date	**Timeline**
November 1981	Official negotiations on the INF between the US and the USSR began in Geneva.
November 1983	Following the approval of the Pershing II deployments by the West German Parliament, the USSR withdrew from the talks with the arrival of the first INF missile in Europe, and the INF talks between

[49] Strategic Arms Limitatiton Talks (SALT II). (2011, October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/strategic-arms-limitation-talks-salt-ii/

[50] Mills, C. (2019, August 6). Prospects for US-Russian Nuclear Arms Control.

	the two countries were suspended until 1985.
January 1985	The US Secretary of State George Shultz and the Soviet Foreign Minister Andrei Gromyko have agreed to renew the INF talks.
December 1987	The US and the USSR signed the "Agreement on the Elimination of Medium Range and Shorter Range Missiles".
January 1988	The U.S. The On-Site Inspection Agency (OSIA) was established to conduct the on-site inspection and monitoring provisions of the INF Agreement.
June 1988	The INF agreement entered into force.
May 1991	The USA has eliminated 234Pershing II and 443 BGM-109 INF missiles and 169 PershingIA SRINF missiles.
May 1991	The Soviet Union eliminated 659 SS-20, 149 SS-4, 6 SS-5 and 80 SSC-X-4 INF missiles and SS-23 and 718 SS-12 SRINF missiles.
March 2007	Russia responded to the US plan to set up a missile defense shield in Poland with the threat of withdrawal from the INF Treaty.
July 2014	The US has issued the 2014 Compliance Report, which indicates that Russia has violated the INF Treaty.

June 2015	The US has published the 2015 Arms Control Compliance Report, which indicates that Russia's infringement of the INF Treaty has continued.
April 2016	The US has issued the 2016 Arms Audit Compliance Report, which shows Russia's ongoing violation of the INF Treaty.
April 2017	The US has issued the 2017 Arms Audit Compliance Report, which indicates that Russia's infringement of the INF Treaty has continued.
April 2018	The US issued a 2018 Weapon Audit Compliance Report, showing that Russia's infringement of the INF Treaty has continued.
October 2018	The United States said Russia was planning to leave the INF agreement, citing the failure to comply with the INF Agreement.
December 2018	The US gave 60 days to Russia to fulfill the obligations of the INF Agreement
February 2019	The US will no longer fulfill its obligations under the INF Agreement and will leave the agreement completely at the end of the six-month period.
February 2019	Russia has announced that they will withdraw from the INF agreement.

August 2019	INF agreemenf officially ended.

Source: Intermediatiate-Range Nuclear Forces (INF) Chronology. Retreived from: https://fas.org/nuke/control/inf/inf-chron.htm.

In the 1970s, while the rivalry between the USSR and the US continued, the USSR deployed some of the medium-range ballistic missiles into the Warsaw Pact countries. When the United States decided to respond to this situation in a similar way, the two countries decided to start negotiations in 1981 on these weapons. The talks were suspended in 1983 after the US deployed its medium-range missile in Europe. Two years later in 1985, the Parties approved the resumption of negotiations. The agreement signed in December 1987 and entered into force in June 1988. According to the agreement signed indefinitely, the parties would destroy all their ballistic and navigation missiles with a medium range of 500 km - 5,500 km. The agreement also prevents flight tests and production of these missiles under Article VI. [51]

Pursuant to the agreement, the elimination of these missile systems must be made within 3 years after the agreement enters into force. Based on this article, in 1991, the US abolished 234 Pershing II and 443 BGM-109 INF missiles and 169 PershingIA SRINF missiles. The Soviet Union eliminated 659 SS-20, 149 SS-4, 6 SS-5 and 80 SSC-X-4 INF missiles and SS-23 and 718 SS-12 SRINF missiles. In total, the two countries destroyed 2,692 missiles that year. [52]

[51] Ibid.

[52] The Intermediate-Range Nuclear Forces (INF) Treaty at a Glance. (2019 August). Retrieved from https://www.armscontrol.org/factsheets/INFtreaty

The agreement continued as a multilateral agreement after the dissolution of the USSR in December 1991. Russia, Belarus, Kazakhstan and Ukraine were added to the agreement. In addition, Germany, Hungary, Poland, Czech Republic, Slovakia and Bulgaria are also parties to the agreement.[53]

According to the rationale of the agreement, the US and the USSR would be able to carry out on-site inspections at the bases where the missiles were managed, missile production centers and destruction centers, on the territory of the party that was a party to the agreement, as well as in other countries where they had deployed these missiles.[54]

In 2014, the United States issued the 2014 Compliance Report, which indicated that the Russian Federation was acting in violation of the INF Treaty. Following this report, the US issued another 2015 Arms Control Compliance Report, which shows that Russia's infringement of the INF Treaty continues. The United States' Compliance Reports published in 2017 and 2018 revealed the same violations.[55]

At the NATO Foreign Ministers Meeting in December 2018, Secretary of State Mike Pompeo made important statements about the INF agreement. Pompeo claimed that the Russian Federation did not fulfil with the obligations of the INF agreement. As proof, it showed the Novator 9M729 / SSC-8 missile developed by Russia. He

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[53] Treaty Between the United States of America and the Union of Soviet Socialis Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty). (2009 January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/102360.htm

[54] Ibid.

[55] The Intermediate-Range Nuclear Forces (INF) Treaty at a Glance. (2019 August). Retrieved from https://www.armscontrol.org/factsheets/INFtreaty

claimed that the missile was medium-range and therefore it was not produced according to the rules of the agreement. Pompeo later stated "Russia is cheating on the obligation to inspect weapons. Then, “The range of new missiles is a direct threat to Europe" he added.[56]

Russia, on the other hand, refused to accept Washington's allegations of compliance and claimed Washington was trying to make an excuse to exit the agreement. Novator 9M729'la claims that the range of this developed missile is 490 km, so it is not contrary to the contents of the INF agreement replied. In fact, the Moscow government stated that the United States was the party that failed to comply the agreement. Russian Foreign Minister Sergey Lavrov said in a statement that the United States began to use ballistic missiles to test their missile defense systems, and even since 2014 they also has installed missiles for their air defense systems in Europe.[57]

In the negotiations for the INF agreement held in Geneva in January 2019, a consensus could not be reached between the US and the Russian Federation. At the beginning of February, the Washington Government announced that it has initiated a

[56] Novator 9M729 : The Russian Missile the Broke INF Treaty’s Back?. (2017, December 7). Retrieved from https://nationalinterest.org/blog/the-buzz/novator-9m729-the-russian-missile-broke-inf-treatys-back-23547

[57] Treaty Between the United States of America and the Union of Soviet Socialist Republics on Strategic Offensive Reductions (START I). (2011, October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/treaties-between-united-states-america-and-union-soviet-socialist-republics-strategic-offensive-reductions-start-i-start-ii/

6-month withdrawal from the agreement. The Moscow Government suspended the INF agreement after this decision. [58]

The long-standing INF agreement between Russia and the US officially ended in August 2019. [59]

2.5.5 Strategic Arms Reduction Treaty (START I), 1991

In June 1982, US President Ronald Reagan began negotiations with the USSR to re-negotiate strategic arms restrictions as a result of the insistence of its NATO allies. However, the talks were interrupted many times due to Reagan's Strategic Defense Initiative (SDI) program and attitudes. In 1985, US Secretary of State George Schultz and Soviet Secretary of State Andrey Gromyko created a strategy for the negotiations, and the parties stepped up the negotiations for negotiations involving medium-range forces, strategic defense and missile defense. As a result, an agreement called START (Strategic Arms Reduction Talks) was signed by Moscow and Washington and signed in July 1991 between the parties. But the agreement came into force only in December 1994. The reason for this is that with the disintegration of the Soviet Union in 1991, four new countries such as Russia, Belarus, Kazakhstan and Ukraine, which had nuclear weapons, had to be reorganized. The Lisbon Protocol and the START I agreement, which was ratified in 1992 by the Russian Federation, Belarus and Kazakhstan, were not ratified by Ukraine, so there were delays in its entry into force. Under pressure from Western states and Russia,

[58] Strategic Arms Reduction Treaty (START I) Chronology. Retrieved from https://fas.org/nuke/control/start1/chron.htm

[59] What Does the Demise of the INF Treaty Mean for Nuclear Arms Control?(2019, August 2). Retrieved from https://foreignpolicy.com/2019/08/02/what-does-the-demise-of-the-i-n-f-treaty-mean-for-nuclear-arms-control-intermediate-nuclear-forces-new-start-strategic-arms-limitation-nonproliferation-trump-russia-arms-control-explained/

Ukraine conditionally ratified the START-I and the Lisbon Protocol and, together with the other two countries, transferred all of its nuclear weapons to the Russian Federation. As a result, George H.W. The START 1 agreement, signed by Bush and Soviet Secretary Mikhail Gorbachev, entered into force in 1994.[60]

According to the START 1 agreement to reduce 700-page strategic war weapons, the US and the Russian Federation would reduce the number of their strategic nuclear weapons by up to thirty percent. Other articles of the agreement included restrictions on the number of nuclear missiles and bombs. Accordingly, until 1999, the US nuclear missiles and bombs from around 12 thousand to 9 thousand USSR from around 11 thousand to 7 thousand was decided to reduce.[61]

In the agreement, the maximum number of vehicles for missiles and submarines capable of carrying nuclear warheads is 1600 and the number of hoods is 6000. Within the scope of these restrictions, other sub-restrictions have been introduced in the agreement. 4900 warheads for ICBM, 1540 warheads and 154 missiles for heavy ICBMs, 1100 warheads for mobile missiles. The parties would also be able to use the remaining warheads on the Cruise planes placed on the aircraft. In addition, Russia would give up half of the MIRV-based SS-18 stock.[62]

[60] Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms(START). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/146007.htm

[61] Strategic Arms Reduction Treaty (START I) Chronology. Retrieved from https://fas.org/nuke/control/start1/chron.htm

[62] Article by Article Legal Analysis of the START II Treaty and its Associated Documents. (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/104150.htm

Except for ICBMs, according to the START 1 agreement, in which the decisions regarding the intercontinental ballistic missiles (SLBM) launced from the submarine were taken, the maximum number of SLBMs the parties could have was determined as 880. In addition to these decisions, the US and Russian Federation agreed that they would not build and develop new land-based intercontinental ballistic missiles (ICBM) and submarine-launched ballistic missiles (SLBM). Another similar rule with respect to missiles is that missiles with more than 10 warheads are prohibited from testing.[63]

After the expiry of the START 1 agreement, which specifies a period of use of 15 years, a five-year extension was decided. Furthermore, the contracting parties agreed on the introduction of an audit mechanism, and one of the contracting parties had the right to inform the other party beforehand.[64]

The START 1 agreement expired on December 5, 2009, but it was decided to continue its validity until a new agreement was reached at the request of the parties.[65]

[63] Treaty Between the United States of America and the Union of Soviets Socialist Republics on Strategic Offensive Reduction (START II). (2011 October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/treaty-between-united-states-america-and-union-soviet-socialist-republics-strategic-offensive-reductions-start-ii/

[64] Strategic Arms Reduction Talks. Retrieved from https://www.britannica.com/event/Strategic-Arms-Reduction-Talks

[65] Brief Chronology of START II. (2019 March). Retrieved from https://www.armscontrol.org/factsheets/start2chron

2.5.6 START II, 1993

In January 1993, Presidents George H. W Bush and Boris Yeltsin expanded the START I Agreement and signed START II, a follow-up agreement. Restrictions on 5 issues have been imposed on the content of the agreement, which provides for more consensus on strategic nuclear weapons. These were identified by US and Russian Federation officials as nuclear warheads, nuclear weapons bombers, conventional weapons and spacecraft.

In the START II Agreement, the parties reduced arms in two stages. In the first level, the US and the Russian Federation would limit the number of strategic warheads to 3800-4250. Later, they decided that this number would be between 3000-3500.[66]

The agreement included amendments to the missiles. For example, the agreement first set the limit of the number of warheads in submarine-launced ballistic missiles (SLBM) to 2160, while the number of ground-launced intercontinental ballistic missiles (ICBM) was 650. They also set the number of land-based ICBMs to be no more than 1700-1750. The agreement involved the subsequent demobilization of all heavy ICBMs and (MIRV) ICBMs. Thus, both the US and Russia had to reduce the number of ICBMs from MIRV and transform them into single warhead missiles.[67]

According to another article of the Agreement, it also permits the parties to establish and carry out inspections similar to those in START I. Furthermore, the date of

[66] Article by Article Legal Analysis of the START II Treaty and its Associated Documents. (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/104150.htm

[67] Treaty Between the United States of America and the Union of Soviets Socialist Republics on Strategic Offensive Reductions (START II). (2011 , October 26). Retrieved from https://www.nti.org/learn/treaties-and-regimes/treaty-between-united-states-america-and-union-soviet-socialist-republics-strategic-offensive-reductions-start-ii/

implementation of the agreement was determined as 2003, ten years after the date of signature. But the agreement was changed to 2007 due to delay in parliamentary approvals.[68]

The START II Agreement failed to enter into force, despite the ratification and signature of all of these articles between Washington D.C and Moscow. In the Russian Duma, which passed the US Senate in 1997, the agreement deliberately prolonged the ratification of the treaty, keeping both US foreign policies in some countries, such as Kosovo, and the policies of adding new countries to NATO's unity. Then, in 2000, the agreement was conditionally approved. Accordingly, the US Senate had to ratify both the 1997 protocol and the ABM treaty. However, in 2002, the US decided to withdraw from the ABM Treaty, and Russia withdrew from START II agreement to respond to the US move. Then the agreement, signed by two superpowers of its time, was shelved before it could enter into force.[69]

2.5.7 START III

In March 1997, negotiations began between the US and the Russian Federation for the START III agreement in Helsinki. During these negotiations, US President Bill Clinton and Russian President Boris Yeltsin tried to make reductions in the stocks of the nuclear weapons, as the two countries had previously participated in the START negotiations. As a result of these efforts, the leaders would limit the warheads on ballistic missiles and bombers. Accordingly, the two countries would keep the

[68] Article by Article Legal Analysis of the START II Treaty and its Associated Documents. (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/104150.htm

[69] The START III Framework at a Glance. (2003,January). Retrieved from https://www.armscontrol.org/factsheets/start3

number of deployed strategic warheads between 2,000-2,500 and destroy their surplus.[70]

The START III negotiations, which are planned to drastically reduce nuclear arsenals in Russia and the United States, have not been concluded. The reasons for this may be the rejection of the START II agreement by the Russian parliament, and some of the activities of NATO are disturbing Russia. The non-ratification of the START II agreement delayed the start of formal negotiations on the START III agreement. The other reason was that NATO's air strikes in areas such as Afghanistan and Sudan, which threatened Russia's interests, adversely affected the process, and attempts to negotiate START III were completely terminated. Subsequently, the US and the Russian Federation signed the Strategic Offensive Reduction Treaty (SORT) as an alternative to the agreement.[71]

2.5.8 Strategic Offensive Reductions Treaty (SORT), (Moscow Treaty) , 2002

In May 2002, another arms limitation agreement was signed, the Strategic Offensive Reduction Treaty, the US President George W. Bush and the Russian Federation President Vladimir Putin signed the SORT agreement.[72]

Before the signing of the agreement, during the negotiation process, the Russian Federation and the United States disagreed on the issue of restricting warheads. The START I agreement was then valid. The two countries, thinking differently about

[70] The Future of Russian-US Strategic Arms Reductions: START III and Beyond. (1998, June). Retrieved from http://www.armscontrol.ru/transforming/summary.htm

[71] Mills, C. (2019, August 6). Prospects for US-Russian Nuclear Arms Control.

[72] The Strategic Offensive Reductions Treaty (SORT) At a Glance. (2006 September). Retrieved from https://www.armscontrol.org/factsheets/sort-glance

whether the new agreement will replace this agreement or both will be considered valid, have decided that the START I agreement will remain in effect and that the SORT agreement will be reviewed every two years by the parties in the Bilateral Implementation Commission (BIC).[73] There were also problems in the ratification process of the countries' assemblies.[74] Dmitry Rogozin, the Head of the Russian Foreign Affairs Committee of the Duma, and Mikhail Margelov, the Head of the Foreign Affairs Committee of the Federation Council, had different views on the adoption of the agreement. Dmitry Rogozin, taking into account the US invasion of Iraq in 2003, argued that the agreement should not be accepted. But despite opposition, the agreement passed parliamentary approval. [75]The agreement, which was signed in 2002, could only be put into force by obtaining the parliamentary approvals in June 2003.[76]

The agreement was different from the START I agreement that was signed earlier. While START I was an agreement on the restriction of war vehicles to warheads in delivery vehicles (ICBMs, SLBMs and Heavy Bombers), the Moscow Agreement limited warheads in active service. [77] That is, they do not include the number of decommissioned persons in repair and maintenance. This has been criticized for the possibility that the parties can store and use these warheads if they wish to use them

[73] Ibid.

[74] Mills, C. (2019, August 6). Prospects for US-Russian Nuclear Arms Control.

[75] Treaty Between the United States of America and th Russian Federation on strategic Offensice Reductions(the Moscow Treaty). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/127129.htm

[76] Mills, C. (2019, August 6). Prospects for US-Russian Nuclear Arms Control.

[77] Treaty Between the United States of America and th Russian Federation on strategic Offensice Reductions(the Moscow Treaty). (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/trty/127129.htm

later. It also contained no substances such as the destruction of delivery vehicles, as in START I.

The limit of strategic nuclear warheads envisaged by the Moscow Treaty was between 1,700-2,200. As of 2012, the parties to the agreement have agreed to withdraw the number of titles to the specified number.[78]

After the START I agreement ended in 2009, the Russian Federation and the United States began negotiations on a new arms control agreement. During this period, the parties decided to see the terms of the START I agreement still binding for them. In February 2011, instead of the Moscow agreement and the START I agreement, the New START agreement came into force.[79]

2.5.9 New Strategic Arms Reduction Treaty (New START), 2010

The New START Agreement, also known as the Prague Treaty, was signed in April 2010 by US President Barack Obama and Russian Prime Minister Dmitry Medvedev in Prague. The expiry date of this agreement, which entered into force in February 2011, was determined as 2021 by the parties. However, if the two sides agree on the continuity of the agreement, it is possible to renew it with 5-year periods.[80]

[78] Ibid.

[79] START Follow-On: What SORT of Agreement?. (2009, July 8). Retrieved from https://fas.org/blogs/security/2009/07/start/

[80] New START. (2009, January 20). Retrieved from https://2009-2017.state.gov/t/avc/newstart/index.htm

Table 2:New START Agreement's Limits

Type	Limit
Deployed warheads	**1550**
Deployed missiles and bombers	**700**
Deployed and non-deployed launchers (missile tubes and bombers)	**800**

According to the New Start Agreement, the total number of strategic warheads that the US and Russia could have was limited to 1550.[81] These headings, which were determined to be less than all previous agreements, were to be deducted from the total number of land-based intercontinental ballistic missiles and those mounted on sea-fired ballistic missiles. warheads placed on heavy bombers would be counted as a single title.

The agreement also limited the strategic distribution systems. It limits the number of ICBMs, SLBMs and heavy bombers equipped for nuclear weapons to 700. [82] Therefore, the US and the Russian Federation cannot deploy more than this number.

In another article of the agreement, the number of missile launchers owned by the USA and Russia was increased to 800. These ramps include deployed and non-

[81] Ibid.

[82] Mills, C. (2019, August 6). Prospects for US-Russian Nuclear Arms Control.

deployed intercontinental ballistic missile (ICBM) ramps, submarine launching ballistic missile (SLBM) and heavy bombers.[83]

According to the agreement, the above-mentioned agreement obligations should be implemented by the parties within 7 years after the agreement enters into force. In addition, the United States and Russia agreed to conduct 18 inspections within a year. And these inspections were divided into facilities with deployed and non-deployed strategic headings ”and only facilities with no deployed warheads”. According to the agreement, the parties are entitled to perform first type inspections 10 times a year and second type inspections 8 times.

2.6 Is Nuclear Regime Being Undermined?

From 1972 to the present day, the United States and Russia had created a nuclear regime that made many bilateral agreements that limited the strategic nuclear forces and thus helped to ensure international security. But after the end of the bipolar system and the changes in the political relations between Russia and the United States in the 2000s, the environment of this nuclear disarmament regime has made it more and more difficult.

[83] New START at a Glance. (2018 March). Retrieved from https://www.armscontrol.org/factsheets/NewSTART

Table 3: Strategic Nuclear Arms Control Agreements

	SALT I	SALT II	INF Treaty	START I	START II	START III	SORT	NEW START
Status	Expired	Never Entered Into Force	Suspend-ed	Expi-red	Never Entered Into Force	Never Negotiated	Repla-ced by New START	In Force
Date Entered Into Force	Oct. 3, 1972	---	June 1, 1988	Dec. 5, 1994	---	---	June 1, 2003	Feb. 5, 2011
Expiration Date	Oct. 3, 1977	N/A	Unlimi-ted duration	Dec. 5, 2009	N/A	N/A	Feb. 5, 2011	Feb. 5, 2021

After the peak of the Cold War, the US and Soviet leaders signed the security cooperation agreements in the table above to prevent mutual nuclear use and to provide arms control. We can say that these dual nuclear arms control agreements do not work in today's condo. When we look at the table, we see that the SALT II, START II and START III agreements have not been concluded and entered into force by the parties. After the withdrawal of the United States Anti-Ballistic Missile Treaty in 2002 and the expiry of the START I agreement in 2009, only two of the arms control agreements signed by the US and Russia were in force. But this situtation could not be sustained for long. Changes in US-Russian relations were reflected in the fate of arms agreements. The situation became serious when the US decided to withdraw from the INF agreement in 2019 on charges of violating Russia's INF Treaty. It is not yet known what will happen after the New START agreement expires in 2021, after which the US and Russia will remain the only arms restriction agreement in force.

The prospect of non-renewal of the agreement and the lack of new agreement initiatives between the parties fear that, according to most experts, it could trigger a new nuclear arms race between former Cold War rivals Washington and Moscow and jeopardize another critical nuclear arms control agreement.[84]

Recent statements by leaders have shown that this fear is an appropriate fear. For example, US President Donald Trump previously said the New START Treaty was a

[84] The INF Treaty Is Dead. Is New START Next?. (2019 February 1). Retrieved from https://foreignpolicy.com/2019/02/01/the-inf-treaty-is-dead-is-new-start-next-russia-arms/

bad Obama administration deal. [85] fAs an additional example of this situation in June 2019. At the international economic forum in St. Petersburg, we can show Russian leader Putin's statements. At the forum, Putin said that they had communicated hundreds of times to the United States that they were ready to renew the agreement, but Washington was indifferent to extending the agreement, so the agreement would not be renewed. [86]

The conclusion that can be drawn from all these developments shows that both the US and Russia's nuclear weapons capacity is still large enough to sustain the nuclear threat in the world despite the regime, and that the arms race will start with the disintegration of the existing nuclear arms control regime by the parties. In sum, if the INF agreement collapses and the New START agreement is terminated in 2021, there will be no obstacles between the US and Russia that limit the strategic nuclear forces that have existed since 1972. This will raise the fear of a new arms race in the new century.

The possible arms race that could result from the end of its control over nuclear weapons is also more dangerous than in the Cold War period, with new technological weapons and increasing military spending. I will discuss this in detail in the next chapter.

[85] The problem with Presiden Trump's hasty denunciation of New START. (2017, February 10). Retrieved from https://www.brookings.edu/blog/order-from-chaos/2017/02/10/the-problem-with-president-trumps-hasty-denunciation-of-new-start/

[86] Vladimir Putin threatens to drop New START nuclear treaty. (2019, June 6). Retrieved from https://www.dw.com/en/vladimir-putin-threatens-to-drop-new-start-nuclear-treaty/a-49084297

Chapter 3

CONTEMPORARY NUCLEAR SECURITY LANDSCAPE

3.1 The Second Nuclear Age Arrives

The possibility of a new arms race between the great powers, as the Russian and American leadership's nuclear posture changed. In particular, the technological advancement and the desire of the ever-growing forces to constantly create and acquire new, faster, more powerful weapon types points to the approach of the new armament race. This upcoming race makes us think that we will watch the second part of a movie we have seen before.

The decision to terminate the INF agreement, which is seen as an agreement that ended the Cold War, and the uncertainty of the future of the New START agreement, worries the world about the future of the nuclear regime. Particularly, if the New START agreement expires, the restrictions on US-Russian nuclear arsenals since the 1960s will be abolished for the first time. This can create conditions that bring the nuclear arms race to the present day. In particular, weapons equipped with modern technology may change the style of the race and create a more dangerous conjunctor.

In addition, the termination of existing nuclear agreements between the US and Russia one by one may have an impact on other countries. For example, according to former German Foreign Minister Sigmar Gabriel, the future of the Non-Proliferation (NPT) agreement will be affected if the New START agreement is not renewed. In

sum, changes in the nuclear regime can lead to the termination of non-proliferation agreements.[87] In this case, it could take the arms race to a global dimension.

3.2 Status of World Nuclear Arsenal

Nuclear weapons, which reached the peak with the speed of the arms race in the 1960s, began to slowly decrease in numbers after the nuclear arms restrictions agreements. Towards the end of the Cold War, the number of nuclear warheads in the 70 thousand declined by half in the 1990s with the disintegration of Soviet Russia. By the year 2000, 33 thousand, 22 thousand at the time of the start of the New START agreement in 2010, gradually decreased in the process after the agreement, and according to SIPRI reports that the number of nuclear in the world decreased to 14,465 in 2018. 13,300 nuclear weapons belonged only to these two superpowers, of which 6500 belonged to the US and 6850 belonged to Russia.[88]

[87] Welcome to the new nuclear arms race.(2019, April 2). Retrieved from https://thehill.com/opinion/national-security/428327-welcome-to-the-new-nuclear-arms-race

[88] Status of World Nuclear Arsenal. (2019 May). Retrieved from https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/

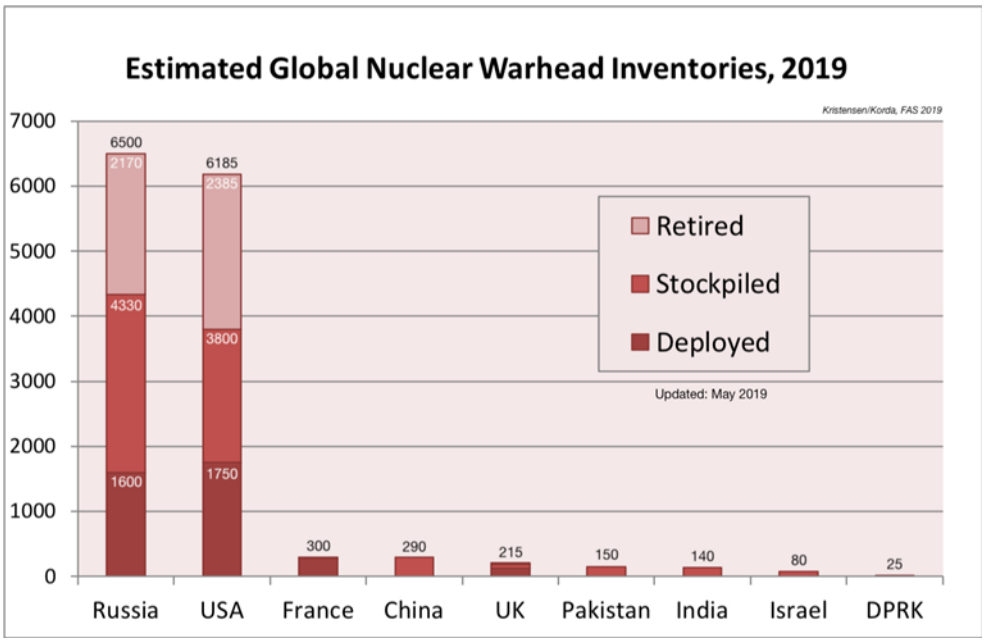

Illustration 1: Estimated Global Nuclear Warhead Inventories, 2019

At the beginning of 2019, the US, Russia, France, China, Britain, Pakistan, India, Israel and the North Korea had a total of 13,865 nuclear weapons stocks.[89]

If we examine the table above and compare with the information in the previous SIPRI reports, it can be said that Russia and the United States have significantly reduced the number of nuclear warheads. But on the other hand, it cannot be claimed that the threat posed by the US and Russia's nuclear arsenals for the world has disappeared. Ambassador Jan Eliasson, Chairman of the SIPRI Executive Board, stated that the former Deputy Secretary-General of the SIPRI carried out work on the

[89] Ibid.

modernization of these weapons in almost all countries with nuclear weapons, despite a general decrease in the number of nuclear warheads last year.[90]

After the New START agreement in the US nuclear arsenal, the strategic nuclear distribution system was limited to 800 units and Russia to 517 units. In addition, the United States has 1,350 strategic warheads deployed, while Russia has 1,420 strategic warheads.[91]

Although the US is known to be the most dominant military force in the world, it can be said to be the world's largest ballistic and navigational missile in Russia. Below is a list of missiles with significant new capabilities and power from both countries. Moreover, both countries develop and modernize these missiles and systems and even produce new variations.[92]

[90] The modernization of nuclear forces continues.(2019 June 17). Retrieved from https://www.sipri.org/media/press-release/2019/modernization-world-nuclear-forces-continues-despite-overall-decrease-number-warheads-new-sipri

[91] Zala, B. (2019). How the next nuclear arms race will be different from the last one. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.

[92] Missiles of the United States. Retrieved from https://missilethreat.csis.org/country/united-states/

Tablo 4: Missile Types of the United States[93]

Missile	Class	Range	News
ALCM	ALCM	950-2,500 km	Operational
ATACMS	SRBM	165-300 km	Operational
Atlas	ICBM	14,000	Obsolete
Harpoon	ASCM	90-240 km	Operational
JASSM /JASSMER	ALCM	370-1,000 km	Operational
Jupiter	MRBM	2,400 km	Obsolete
Lance	SRBM	130 km	Obsolete
Minuteman I	ICBM	10,000	Obsolete
Minuteman II	ICBM	12,500 km	Obsolete
Minuteman III	ICBM	13,000 km	Operational
Peacekeeper	ICBM	9,600	Obsolete
Pershing 1	SRBM	740	Obsolete
Pershing 2	MRBM	1,700	Obsolete
Snark	ICBM	10,186 km	Operational
Titan I	ICBM	10,000 km	Obsolete
Titan II	ICBM	15,000 km	Obsolete
Tomahawk	Cruise Missile	1,250-2,500 km	Obsolete
Trident D-5	SLBM	12,000 km	Operational

[93] Ibid.

Tablo 5: Missile Types of Russian Federation[94]

Missile	Class	Range	News
Avangard	HGV	6,000+ km	In development
SSC-8 (Novator 9M729)	GLCM	2,500 km	Operational
Kinzhal	ALBM	1,500-2,000 km	Operational
Kh-101 / Kh-102	ALCM	2,500-2,800 km	Operational
SS-X-31 (RS-26 Rubezh)	ICBM/IRBM	2,000-5,800 km	In development
SS-20 "Saber"	IRBM	5,000 km	Obsolete
SS-X-30 “Satan II” (RS-28 Sarmat)	ICBM	10,000+ km	In development
SS-N-6 (R-27) "Serb"	SLBM	2,400-3,200 km	Obsolete
SS-N-27 "Sizzler"	ASCM	220-300 km	Operational
SS-N-26 “Strobile”	ASCM	300 km	Operational
SS-26 “Iskander”	SRBM	500 km	Operational
SS-21 “Tochka”	SRBM	70-120 km	Operational
SS-1 “Scud”	SRBM	190-550 km	Obsolete
SS-N-30A “Kalibr”	LACM	1,500-2,500 km	Operational
SS-18 “Satan”	ICBM	10,200-16,000 km	Operational
SS-N-21 “Sampson” (RK-55)	Cruise Missile	2,400-3,000 km	Operational
Kh-55	ALCM	2,500 km	Operational
SS-N-23 “Skiff”	SLBM	11,000 km	Operational
SS-27 “Topol-M”	ICBM	11,000 km	Operational

[94] Missile of the Russia. Retrieved from https://missilethreat.csis.org/country/russia/

SS-N-18 “Stingray”	**SLBM**	**6,500 km**	**Operational**
SS-25 “Topol”	**ICBM**	**10,500-11,000 km**	**Operational**
SS-19 “Stiletto"	**ICBM**	**10,000 km**	**Operational**
RS-24 Yars	**ICBM**	**10,500 km**	**Operational**
SS-N-32 “Bulava”	**SLBM**	**8,300 km**	**Operational**

3.3 Modernization

In Russia and the United States, while reducing the amount of nuclear power and ammunition they have, at the same time the tension created by the uncertainty of the agreements between them, both countries have begun to modernize their nuclear warheads, missile and airplane distribution systems and work to improve their facilities. [95]According to Kristensen and Norris, “Russia and the United States are now the two countries that make up more than 90% of all nuclear weapons that have undergone a modernization process that will shape the future of nuclear disarmament for decades.” [96]Both countries are justifying their policy by claiming that they are trying to strengthen their strategic deterrence by developing new technologies and renewing as well as improving their weapons.

3.3.1 US Modernization Program

After the New START agreement, the two countries had both reduced the number of missiles and shelling and agreed that they would not add new weapons to their existing stockpiles. It can be said that the agreement on both sides complying with

[95] The modernization of nuclear forces continues.(2019 June 17). Retrieved from https://www.sipri.org/media/press-release/2019/modernization-world-nuclear-forces-continues-despite-overall-decrease-number-warheads-new-sipri

[96] Status of World Nuclear Arsenal. (2019 May). Retrieved from https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/

these articles of the agreement does not restrict the modernization of the agreement and that it has begun to evolve the race to modernize the arms race between the two countries. The modernization program approved by the Trump administration at the Nuclear Posture Review (NPR) meeting, especially for the US in 2018, was different from the one approved by the Obama administration in 2010. According to the NPR, the decision to expand the nuclear arsenal in the US during the Obama administration. And, the decision to expand and develop the ammunition in the NPR during the Trump period was approved.

The 2018 NPR maintains that it is necessary to provide reliable deterrence against regional aggression instead of reducing the role of nuclear weapons in military strategy. In order to achieve deterrence, it is stated that the military forces should be renewed and if this is not done, the old and unreliable ammunition and its competitors will no longer be taken seriously by the competitors.

Because of the claims they made as the reason for this revision, the US military began to take measures in this direction. In particular, the United States is trying to have nuclear weapons and infrastructure that can resist Russia and China. In the NPR, the United States has added new types of nuclear capabilities to its rivals over the past few decades due to US nuclear weapons infrastructure, age, and inadequate funding, and has developed the strategies of nuclear forces, so it is lagging behind.

Since this situation undermines US plans for world leadership, the Trump administration is trying to take precautions. An example is Trump's decision to withdraw from the INF agreement. According to the new US strategy, any situation that might prevent the US from obtaining weapons should be eliminated, including

arms control agreements. Since the New START agreement prevents this objective, it may create a search for withdrawal and may not be renewed accordingly.

With the termination of the existing arms agreements, the US has started to realize its plans to develop its existing ammunition as well as its targets to expand its nuclear weapons. Accordingly, in the coming years, the US administration plans to upgrade and modernize land-based ICBMs, submarine-based SLBMs and long-range bombers.

Especially in the 2018 NPR, the development of submarines carrying missiles and navigation missiles launched at sea is considered to be very important. Therefore, the modernization of SLBMs such as Trident II D5 SLBM LEP, which is a deterrent in terms of confidentiality, is aimed at extending the life span. In addition, submarines such as Columbia Class SSBN (SSBN (X)), which are planned to start in the 2030s, are being developed.

In the land of modernization programs, Minuteman III plans to modernize the intercontinental ballistic missile (ICBM) and to acquire new and upgraded nuclear-armed Intercontinental Ballistic Missiles called New ICBM (GBSD) in 2029.[97]

The modernization process within the scope of the bombers will be realized in the US ammunition B-2 and B-52 H bombers and will be used until 2040. In addition, the B-21 Raider, which is planned to take place in the ammunition in the mid-2020s

[97] Osborn K. (2019, June 20). By 2029, America Will Have a New ICBM That Can Launch a Nuclear War.

as a new bomber, is expected to replace the planes above and be equipped with a new long-range cruise missile Stanfford.[98]

3.3.2 Russia Modernization

After signing the New START agreement with Washington, Moscow began to limit its strategic ammunition. However, after this nuclear reduction agreement, the Russian government created the 2011-20 program and then a second state armament program, 2018-27. Because during the years Putin could not obtain new weapons, he planned to maintain his current power and status in the world by increasing the capacity of his nuclear forces in order to stay behind his rivals.

In line with Russia's 2011-20 plan, Russia has modernized its land-based ICBMs and even replaced all of its missiles, such as SS-18, SS-19 and SS-25, with the improved version of the SS-27. In addition, all these renewed missiles were designed by taking precautions against US missile defense systems.

Looking at the navy, Russia developed and renewed its submarines and SSBNs according to this program. Russia, which produces Borei class SSBN, started to use it since 2014 and worked on the development of Borei II class SSBN.[99] These SSBNs were equipped with 16 RSM-56 Bulava SLBMs and were planned to increase to 20 in future models. Russia, which renewed its submarine fleet, was also

[98] U.S. Nuclear Modernization Programs. (2018 August). Retrieved from https://www.armscontrol.org/factsheets/USNuclearModernization

[99] Zala, B. (2019). How the Next Nuclear Arms Race Will Be Different From the Last One. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.

equipped with RSM-54 Sineva / Lainer (SS-N-23) ballistic missiles on existing submarines such as Delta IV or Typhoon.[100]

Finally, TU-160 and TU-95MS modernized bombers in Russia's air force and deployed my new Kh-102 nuclear air-launched cruise missiles.[101] In addition, TU-160M2 strategic bomber is being developed in the country and it is planned to be used before 2025. [102]In addition, the construction of new bombers designed by the Tupolev Design Bureau has begun and is planned to be created in 2022.[103]

While all of this existing ammunition was renewed and expanded, a new armament plan was approved by the Russian Government in 2018 and planned to be realized by 2027 in 2018. Russia's 2018-27 program includes the Poseidon long-range nuclear-powered underwater drone and the Burevestnik long-range nuclear cruise missile project. Also Russia is developing a hypersonic support slip tool called hypersonic missiles and Avant-garde. [104] In addition, Russia, working on a missile called R-28 Sarmat, says it will be powerful enough to destroy all major US cities.[105] In this weapon program, which was planned to be realized until 2027, it was decided to

[100] How much does Russia spend on nuclear weapons?. (2018 , October 1). Retrieved from https://www.sipri.org/commentary/topical-backgrounder/2018/how-much-does-russia-spend-nuclear-weapons

[101] Husseini**,** T. (2019,March 27). Future nuclear weapons technology: which states are developing nukes?.

[102] How much does Russia spend on nuclear weapons?. (2018 , October 1). Retrieved from https://www.sipri.org/commentary/topical-backgrounder/2018/how-much-does-russia-spend-nuclear-weapons

[103] Zala, B. (2019). How the Next Nuclear Arms Race Will Be Different From the Last One. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.
[104] Ibid.

[105] Russia says it must develop new nuclear warhead-carrying missiles by 2021. (2019 , February 15). Retrieved from https://www.cnbc.com/2019/02/05/russia-says-it-must-develop-new-nuclear-missiles-after-inf-end.html

continue the renewal and development of strategic bombers. Russia will continue its efforts to build long-range and subsonic aircraft.

3.4 Military Expenditure

When we look at the modernization projects of both Russia and the United States, we can see that both countries are trying to maintain their deterrence. Therefore, the race to have the largest and most powerful arsenal in the world is critically important in terms of not losing their second strike capability. The desire to preserve its place in world politics causes both countries to increase their spending on nuclear weapons.

3.4.1 US' Military Spending on Nuclear Weapons

The United States is trying to maintain deterrence and protect its nuclear power in order to protect the security environment it creates for its allies. This is evident from the US plans to change and modernize almost all nuclear ammunition throughout the entire "trio of land, air and naval forces" in the coming years. Because many of these weapons went into service years ago and are nearing the end of the time they were designed to be deployed. Therefore, there is an increase in US spending on nuclear arsenal. According to the January 2019 budget report of the Congress Budget Office (CBO), between 2019 and 2028, the Trump administration plans to spend around $ 494 billion in ten years to expand and renew its nuclear arsenal.[106] This figure was around $400 billion in the 2017 report. In the 2015 report, the budget was about 340 billion dollars.[107]

[106] Projected Costs of U.S. Nuclear Forces, 2019 to 2028. (2019, January). Retrieved from https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf

[107] Here's how many billions the US will spend on nuclear weapons over the next decade.(2019 , January 24). Retrieved from https://www.defensenews.com/space/2019/01/24/heres-how-many-billions-the-us-will spend-on-nuclear-weapons-over-the-next-decade/

According to the SIPRI report, the US, which ranks 1st among the world's top military spending countries, will spend around $50 billion annually for its nuclear arsenal.[108]

According to the Pentagon and the Ministry of Energy, expenditures are estimated in the 10-year budget plan. Accordingly, the US government, 234 billion for strategic nuclear distribution systems and weapons, 15 billion dollars for tactical nuclear distribution systems and weapons, 106 billion dollars for nuclear weapons laboratories and production facilities for the maintenance and development and 77 billion dollars for nuclear command, control, commutations and early warning systems will be spend. [109]

3.4.2 Russia's Military Spending on Nuclear Weapons

Unlike the US, there are problems with transparency in Russian defense and military spending. But it is a well-known fact that Russia does not want to lose its position as a deterrent and the largest nuclear arsenal. Therefore, Russia, which increased its military spending, spent about 6.9 billion dollars in nuclear weapons in 2010 and spent 10.8 billion dollars in 2016.[110] In detail, the Russian government will spend about $ 2 billion on nuclear ammunition production and development in 2016. He spent about $ 4.5 billion for the acquisition of new weapons, modernization, repair

[108] Zala, B. (2019). How the next nuclear arms race will be different from the last one. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.

[109] Projected Costs of U.S. Nuclear Forces, 2019 to 2028. (2019, January). Retrieved from https://www.cbo.gov/system/files/2019-01/54914-NuclearForces.pdf

[110] Zala, B. (2019). How the Next Nuclear Arms Race Will Be Different From the Last One. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.

and R & D, about $ 2.5 billion for personnel, maintenance and operations, and about $ 1.5 billion for other non-military spending.[111]

3.5 Delivery Assets

The threat of nuclear war is a concern for everyone. This danger is exacerbated by the increasingly ambiguous line between nuclear and conventional weapons. There has never been a clear distinction between nuclear and non-nuclear weapons. The new delivery systems show how the war style is changing.

3.5.1 Anti-Satellite Weapons (ASAT)

In 1958 for the first time in the United States in 1964, tested by the USSR space weapons with Anti-Satellite Weapons **(**ASAT) technology, considering the changes and developments in the concept of military security can be seen as a development that can change the nature of war. This is because such systems and weapons can interfere with other countries' satellites and other communications systems, sabotage and prevent countries from communicating with their troops while in a state of war or conflict. In addition, such systems also provide access to the critical information of each other countries. They not only allow critical information, but also attack targets from space to earth or disable missiles traveling through space. Although no country has so far attacked another country's satellite, the possibility of such a threat poses a serious concern to the country to carry out anti-satellite attacks and to drag

[111] How much does Russia spend on nuclear weapons?. (2018, October 1). Retrieved from https://www.sipri.org/commentary/topical-backgrounder/2018/how-much-does-russia-spend-nuclear-weapons

the world into nuclear war in the event of any problems or crisis between the countries with nuclear weapons.[112]

The Outer Space Treaty, signed in 1967 by the USSR, USA and the UK.[113] It has linked the activities of states in external space to international law. The treaty, the basic text of space law, prohibited the use and storage of nuclear and mass weapons in space, on the moon, and even on other planets.[114] Furthermore, under the agreement, all parties are equally entitled to peaceful research and the common use of space. In short, countries have been accepted as the common area of space humanity, the common property of states.[115]

The two superpowers of the time, the US and the USSR, used this treaty to legitimize their interests. For example, especially in recent years, Russia and the United States are testing advanced anti-anti-weapon weapons.

3.5.1.1 The United States and ASAT

After USSR's Sputnik move in 1957, the US research on possible anti-satellite weapons, the ASAT project accelerated. In 1959 the US conducted its first ASAT

[112] Gopalaswamy, B., Chunsi W., Gallager N. (2015,July 30). Space weapons and the risk of nuclear exchanges. *Bulletin of the Atomic Scientists*.

[113] Markoff, M. G. (1976). Disarmament and peaceful purposes provisions in the 1967 Outer Space Treaty. *J. Space L.*, *4*, 3.

[114] Zedalis, R. J., & Wade, C. L. (1978). Anti-Satelite Weapons and the Outer Space Treaty of 1967. *Cal. W. Int'l LJ*, *8*, 454.

[115] Markoff, M. G. (1976). Disarmament and peaceful purposes provisions in the 1967 Outer Space Treaty. *J. Space L.*, *4*, 3.

test. The missile tested under a missile program called Bold Orion was able to stop the Explorer 6 satellite.[116]

In 1962, Robert McNamara, the defense secretary of his time, launched the Project 505, "Mudflap", in which the missile Nike Zeus was developed and transformed into a satellite. In 1963, the first test of the Nike-Zeus missile was successfully completed.[117]

It was in favor of the USSR that the US completed the ASAT program in the 1970s and continued its work in contrast to its Soviets, and even developed reconnaissance satellites to direct its attacks.[118]

In 1982, during the Ronald Reagan period, the report titled The KeyElement in the National Strategy of the Deterrence of the US Anti-Satellite (Asat) Program that the Soviets wanted to take the war into space and therefore it was a constantly developing and expanding space program.[119] In response to this threat posed by the Soviet Union, the United States chose to increase deterrence and protect national security. In this way, the military superiority of the United States is a terrestrial dimension, which makes it advantageous in space to protect its satellites against US

[116] Bulkeley, Rip; Graham Spinardi (1986). Uzay Silahları: Caydırıcılık mı yoksa Sanrı mı? . Totowa, NJ: Barnes ve Noble Kitaplar. ISBN 978-0-389-20640-8.

[117] Nike Zeus. Retrieved from https://www.nuclearabms.info/NikeZeus.html

[118] The U.S. Antı-Satellıte (Asat) Program A Key Element In The National Strategy Of Deterrence. (1987). Retrieved from https://fas.org/spp/military/program/asat/reag87.html

[119] Ibid.

adversaries, and to destroy its enemies, especially the rival of the era, the USSR has developed their ability to destroy or disable offensive satellites. [120]

In 1989, the US Government approved the kinetic energy ASAT (KE-ASAT) program. In this program, which was terminated by the Department of Defense in 1993, the US aimed to orbit the killing vehicles in order to destroy the space platforms of the enemy or rival countries.[121] In simple language, KE-ASAT can destroy it with kinetic energy if it goes to the target it wants to destroy in space and hits it.[122] The program re-enacted by Congress in 1996 and the never-tested program continued to be funded by the government until 2001.[123]

When we arrived in 2018, the US used the SM-3 missile to destroy US-193, the reconnaissance satellite US-193, which it launched into space in 2006.[124]

3.5.1.2 Russia and ASAT

In 1957, the USSR created the world's first artificial satellite and in 1963, it started to work on the creation of anti-satellite systems.[125] Some time later, at the request of the Soviet Defense Units (PVO), he established units for anti-satellite defense systems that were expected to lead the anti missile defense (PRO) and the missile and space

[120] Stares, P. B. (1985). Reagan and the ASAT Issue.

[121] Grego, L. (2012). *A history of anti-satellite programs*. Union of Concerned Scientists.

[122] Kinetic Energy Anti-Satellite (KE-ASAT). Retrieved from https://www.defensedaily.com/kinetic-energy-anti-satellite-ke-asatmanufacturerboei/

[123] Ibid.

[124] History of anti-satellite weapons: US tested 1st ASAT missile 60 years ago. (2019, March 27). Retrieved from https://www.theweek.in/news/sci-tech/2019/03/27/history-anti-satellite-weapon-us-asat-missile.html

[125] The Age of Satellites. (2015, October 4). Retrieved from https://www.theatlantic.com/notes/2015/10/the-age-of-satellites/408871/

defense (PKO) in anti-space defense. [126]A development in the early 1960s was the ratification of the plan to Istrebitel Sputnikov (IS) to hunt enemy satellites. In order to send IS-planned missiles planned for this project with the UR-200 missiles, the Soviet Union began developing these missiles. But even when the prototypes of IS were almost finished in 1963, there were still problems in the construction of the UR-200 ballistic missiles, so it was canceled after a while. It was replaced by a new launch vehicle, the R-36 missile, and Tsyklon-2A.[127]

After the problem was solved, in November 1963, the first spacecraft designed to destroy the Polet -1 (Flight-1) enemy satellite was placed in orbit around the world. A little later, in April 1964, the second designed Polet 2 was installed. After the successful deployment of IS vehicles, the construction of IS spacecraft and the rocket prototype carrying it continued until the end of the 1960s.[128]

From the 1970s to the year 82, the DS-P1-M satellite or Kosmos, 16 target satellites, were sent into space. 14 of them managed to reach orbit. [129] In 1983, Andropov, the Soviet leader of his time, announced that he had terminated satellite testing and projects, but continued his work. For example, in 1987, a new generation of anti-satellites, known as the Naryad "(Sentry) or 14F11, was created. [130]During the troubled period of the Soviet Union, Rockot, Naryad-V spacecraft were tested. In the

[126] For a more in-depth discussion of this topic and the history of Soviet space defense capabilities see N.L. Johnson, Soviet Military Strategy in Space, Jane's Publishing Company, London, 1987

[127] R-36. Retrieved from http://www.astronautix.com/r/r-36.html

[128] Istrebitel Sputnikov' (IS). (2015 , November 16). Retrieved from https://weaponsandwarfare.com/2015/11/16/istrebitel-sputnikov-is/

[129] DS-P1-M (Tyulpan Lira, 11F631). Retrieved from https://space.skyrocket.de/doc_sdat/ds-p1-m.htm

[130] Russian anti-satellite systems. (2008, February 24). Retrieved from http://www.russianspaceweb.com/naryad.html

year of collapse, the developed antisatellite system IS-MU was launched. After the collapse of the Soviet Union in 1993, Russian leader Boris Yeltsin terminated the IS project, which had been carried out for more than 30 years, for financial reasons.[131]

The Russian antisatellite program, which was decommissioned, started again in Russia after a decade later in 2002 with the decision of Russian President Vladimir Putin after the other countries started and continued their space projects. In 2009, it was written in the newspapers that Russia continued Naryad-VN and Naryad-VR (or Sentry) systems and this news was approved by the Ministry of Defense.

Systems developed for Russia to respond to threats from space have been expanded over time. In 2017, the Russian parliament announced the Russian state Armaments program, which they planned to carry out in 2018-2027. The program included the creation of a mobile anti-satellite complex called Rudolph. [132] Another complex funded for development was a mobile electronic communication system called Tirada-2S.[133] Together with these new projects, Russia has continued the tests of anti-satellite and anti-ballistic missile system A-235 PL-19 Nudol, which it has developed since 2014.[134]

[131] Hendrickx, B. Naryad-V and the Soviet Anti-Satellite Fleet.

[132] Russia and Anti- Satellite Programs.Retrieved from https://www.globalsecurity.org/space/world/russia/asat.htm

[133] Star Wars Continue, As Russia Develops "Rudolph" . (2017, December 9). Retrieved from https://caspiannews.com/news-detail/star-wars-continue-as-russia-develops-rudolph-2017-12-7-7/

[134] Russia Conducts New Test of 'Nudol' Anti-Satellite System. (2019, January 21). Retrieved from https://thediplomat.com/2018/04/russia-conducts-new-test-of-nudol-anti-satellite-system/

3.5.2 Hypersonic Missiles

Hypersonic missiles are another technological development that could affect the future of nuclear weapons in the present century.[135] These missiles, which can move almost 5 times faster than the speed of sound, have a number of obstacles to them. For example, the weapon inside the missile must be capable of withstanding hypersonic speed and extreme temperature until it hits the target. These obstacles as well as hypersonic missiles also give countries considerable advantages. With this missile technology, countries can reach the defense systems of the countries they see as enemies or rivals faster than all other missiles. If a missile is deployed in such a missile, it changes the status of that country and increases its deterrent power.

Hypersonic missiles are less likely to be detected and countered, making them attractive to the great powers of the world. The fact that countries, especially those with nuclear ammunition, are competing with each other to develop their own hypersonic technologies can disrupt the balance between countries and cause instability.

One of these competing global nuclear forces made its first aircraft in 1959, reaching US hypersonic speed. The North American X-15, which was produced in 3 units, was used as a hypersonic vehicle of NASA and USAF until 1978. The Boeing X-37, which can then reach hypersonic speeds, has hypersonic vehicles such as the Boeing X-43, X-51A, and is also working to establish a hypersonic weapon and defense system against them. The recent budget report clearly shows how much the US wants

[135] What the Next Arms Race Will Look Like. (2016, March 21). Retrieved from https://worldview.stratfor.com/article/what-next-arms-race-will-look

these weapons by allocating $3 billion in the budget for these needs.[136] In addition to this, the US military wants to develop and expand its hypersonic missiles.[137]In April 2019, the US Air Force signed a $2.5 billion contract with the advanced technology and aviation company Locked Martin to develop hypersonic missiles.[138]

One of the main reasons for the US efforts to increase the rate of hypersonic ammunition is Russia. In a speech in 2018, Putin spoke only about hypersonic technologies, which he said were theirs. In the same speech, he talked about his talents and the new Kinzhal hypersonic missile and Avant-garde hypersonic shifting device.[139]

In 2017, the Kh-47M2 Kinzhal hypersonic missile, capable of carrying nuclear warheads as well as traditional warheads, was included in Russia's inventory[140]. These missiles and MiG-31K attack aircraft used by the army performed more than 300 flights in 2 years.[141]

[136] America's Hypersonic Danger—Missiles that Go 10 Times the Speed of Sound. (2019, April 23). Retrieved from https://nationalinterest.org/blog/buzz/americas-hypersonic-danger%E2%80%94missiles-go-10-times-speed-sound-53852

[137] US, Russia, China race to develop hypersonic weapons. (2019, May 1). Retrieved from http://theconversation.com/us-russia-china-race-to-develop-hypersonic-weapons-114694

[138] Lockheed Martin Working $2.5B in Hypersonic Weapon Contracts. (2019 , April 23). Retrieved from https://news.usni.org/2019/04/23/lockheed-martin-working-2-5b-in-hypersonic-weapon-contracts

[139] Nothing matches our new hypersonic weapons and they will safeguard Russia for decades, President Vladimir Putin boasts. (2018 , December 19). Retrieved from https://www.scmp.com/news/world/russia-central-asia/article/2178620/nothing-matches-our-new-hypersonic-weapons-and-they

[140] Kinzhal complex substantially boosts Russia's Aerospace Force capabilities – commander. (2018, March 1). Retrieved from https://tass.com/defense/992375

[141] Russia picks MiG-31 fighter as a carrier for cutting-edge hypersonic weapon. (2018, April 6). Retrieved from https://tass.com/defense/998221

Before the Kinzhal missile, an anti-ship hypersonic passenger missile called 3M22 Zircon entered the inventory of the Russian Army. The missile was tested in 2012 and many flights were tested until 2018.[142] In addition, the Russian frigate "Admiral Flotan Sovetskogo Soyuza Gorshkov" of the Zirkon missile will continue to be tested, according to a news report published in the Russian news website TASS in 2019.[143]

In March 2018, the Russian president Putin, who announced that the tests of Avant-garde, the hypersonic glide vehicle, had finished and started production, said that the army would begin to use in 2019.[144]

In December 2018, Avangard's latest test, which could carry conventional and nuclear missiles, such as Kinzhal, was seen to increase the missile speed to 27 times faster, making it impossible to interfere with missile defense systems. [145]Furthermore, the fact that a nuclear warhead carried by the Avant-garde has more than 2 megatons of TNT shows the size of its capabilities.[146]

3.5.3 Precision-Strike Missile Technology

It is known that the next generation of Precision-Strike missiles, which are claimed to play the role of deterrence of nuclear weapons in the future, are mainly used by the

[142] Russia again successfully tests ship-based hypersonic missile — which will likely be ready for combat by 2022. (2018, December 20). Retrieved from https://www.cnbc.com/2018/12/20/russia-tests-hypersonic-missile-that-could-be-ready-for-war-by-2022.html

[143] Zircon missile to be test-launched from Admiral Gorshkov frigate at end of 2019. (2019, March 12). Retrieved from https://tass.com/defense/1048231

[144] Russia's Avangard hypersonic missile system to assume combat duty in 2019, says sourc. (2018,October 29). Retrieved from https://tass.com/defense/1028303

[145] Official reveals Avanguard's Hypersonic missile speed. (2018, December 28). Retrieved from https://sputniknews.com/military/201812281071049854-russian-avangard-missile-27-times-faster-speed/

[146] Источник: первыми носителями гиперзвуковых блоков "Авангард" станут ракеты УР-100Н УТТХ. (2018, March 20). Retrieved from https://tass.ru/armiya-i-opk/5047200

US and Russia to use mainly on ships, submarines and warplanes.[147]Taking into account the capabilities of these tactical missiles, which broaden their deterrence characteristics and directions for countries, they have a direct impact on the competitiveness of countries. Fixed targets, ship targets, buried targets, and radar sites in 5 groups separated by the missiles recently developed the seeker/ sensor with dome technology, with the flight control technology and power supply microelectromechanical systems from space technology to reach more improved version.[148] It also has many interchangeable warheads such as high energy density warheads, hard target penetrator warheads and multi-mode warheads. In addition, new hull technologies are being developed to improve the flight performance of missiles.[149]

The US is a country that has had Precision Strike missile technologies for a long time. Examples of such missiles are ATACMS or HIMARS, AGM-88 HARM, BGM-109 Tomahawk, which have been used by the US military for a long time.

The US Army, which has had this technology for a long time, has decided to equip and develop this existing missile system with newer technologies. In fact, the US is trying to create a new missile to replace the existing US Army Tactical Missile System (ATACMS) contracted with the defense industry companies Raytheon and Lockheed Martin for these missiles. It is seen as a suitable missile for attacks. Produced in a range of 499 km in a way that does not violate the INF agreement, this

[147] US Army's Precision Strike Missile moves ahead, as US-Russia INF Treaty falters. (2018, October 23). Retrieved from https://www.janes.com/article/83990/us-army-s-precision-strike-missile-moves-ahead-as-us-russia-inf-treaty-falters

[148] Fleeman, E. L. (2001). Technologies for future precision strike missile systems.

[149] Ibid.

missile is strong in maneuverability and designed to destroy targets quickly and easily.[150]

Although Russia has lagged behind the US, it has high-precision strike missiles such as Kh-58, Kh-27, SS-N-22 / 3M80. In fact, Russia's 2021 targets include the development of capabilities of these missiles. Especially in recent years, Russia has been developing and expanding its existing military forces in order to increase its deterrence. This is seen in Russia's 2014 Military Doctrine.[151] For example, Russia, which wanted to increase its deterrence with its non-nuclear weapons, met with 50 different weapon systems developers to increase their high-precision strike capabilities.[152] In addition, it is stated by the authorities that they continue their efforts to produce many small, medium and long range high precision weapons.[153]

3.6 Cyber Security and Nuclear Weapons

In contrast to the Cold War era, not only MAD weapons that provided deterrence in the 21st century, but also anti-satellite weapons, hypersonic and precision missile missiles have become deterrent strategic elements in technologies. The most important reason for this can be shown by the fact that states that have nuclear weapons want to increase their own security and deterrence against nuclear attacks. Especially when these technologies are combined with nuclear weapons, changes in

[150] PrSM Precision Strike Missile Long-Range Precision Fires. Retrieved from https://www.globalsecurity.org/military/systems/munitions/deepstrike.htm

[151] Sinovets, P. A., & Renz, B. (2015). Russia's 2014 Military Doctrine and beyond: threat perceptions, capabilities and ambitions.

[152] McDermott R. N. (2018,October 3). Russia’s High-Precision Strike Capabilities and 'Pre-Nuclear' Deterrence

[153] Moscow Pursues Enhanced Precision-Strike Capability. (2017, February 6). Retrieved from https://icds.ee/moscow-pursues-enhanced-precision-strike-capability/

the nature of deterrence are present. But the inclusion of different new technologies, such as cyber or artificial intelligence, has completely changed the deterrence and its nature in this century.

In the cyber era, countries with nuclear weapons, such as the USA, India, Russia, and China, work for their deterrence.[154] But cyber technology brings cyber security risks. Because of the possibility of cyber attack, nuclear weapons and many other systems and technologies remain vulnerable. Even though countries have developed their own cyber security systems, any wrong moves that a weak link can show or do during cyber attacks can have terrible consequences even for countries with strong systems.

As Obama pointed out, one of the most important national security issues of the 21st century is cyber security risks.[155] Especially when we consider the many cyber attacks that the states have been experiencing recently, it is very likely that cyber attacks against nuclear weapon systems will be realized. We can talk about different situations or scenarios for the methods of these attacks.

According to the first possibility, a terrorist organization may try to start a nuclear war. In line with this plan, he can hack the country's early warning systems and convince the government that they are about to be exposed to a nuclear attack. This may result in that country acting with this information and being the first party to initiate a nuclear war. As a result of the misunderstanding caused by the breakdown

[154] Zala, B. (2019). How the next nuclear arms race will be different from the last one. *Bulletin of the Atomic Scientists*, *75*(1), 36-43.

[155] Text: Obama's Remarks on Cyber-Security. (2009, May 29). Retrieved from https://www.nytimes.com/2009/05/29/us/politics/29obama.text.html

of the NORAD computer chip between the US and the Soviets in 1980, the United States almost believed that the Soviets were carrying out a nuclear attack and prepared for a nuclear attack to go against the red alert and against the Soviet Union. Later it was learned that it was caused by computer chip and there was a false alarm. [156] But there was almost a nuclear war. It happened by chance and unintentionally. The possibility that the same situation will be realized by a terrorist organization is really desirable and it is a possible scenario in the future.

According to a second scenario, a state is carrying out a cyber attack in order to interrupt another state's access to nuclear systems. The closest example of this is the cyber attack in Ukraine in 2015. Ukraine's cyber attack on energy distribution companies in the Ivano-Frankivsk region resulted in power cuts for hours.[157] Ukraine is not a country which have nuclear weapons. However, a cyber attack on the power grid of a country with nuclear weapons can have serious consequences.

Another possibility of attack is caused by malware. A country can be placed in or installed pirated software on nuclear parts produced at the nuclear weapons committee centers of another country, or it can access all critical information on the nuclear platform, and as a result, can seriously harm the nuclear deterrence of that country. The STUXNET attack can be given as an example of malware, which can be used as a method that can be used during a crisis between the two countries. Stuxnet is a malware created by the US and Israel to influence Iran's uranium enrichment efforts. The software first collects all the data from the uranium

[156] A Nuclear False Alarm that Looked Exactly Like the Real Thing. (2015,November 9). Retrieved from https://blog.ucsusa.org/david-wright/nuclear-false-alarm-950

[157] Case, D. U. (2016). Analysis of the cyber attack on the Ukrainian power grid. *Electricity Information Sharing and Analysis Center (E-ISAC)*.

enrichment process and then takes action. Later, when he starts the attack, he transfers the collected data to the computer screen and makes everything look normal. Thus, until its release in 2010, the United States attacked and exploded Iran's nuclear power plants in Bushehr and Natanz for years. **158**

According to The Royal Institute of International Affairs in the UK, a similar attack was carried out by the US in North Korea. US missiles that infiltrated North Korean missile systems with malware have failed their tests.[159]

In addition, there is the possibility that nuclear armed states can destabilize whether they can provide control and security under such attacks.

When we look at all these scenarios and events that have not taken place so far, we can see how difficult it is to protect against the risks posed by cyber attacks. In particular, according to many experts, the expansion of the field of information and digital technology continues to continue with the threat of cyber security is believed to be completely avoided.[160]

Nevertheless, states are competing with each other to improve their cyber security capabilities even if they cannot completely eliminate the risk. In this arms race, the security threats for other states increase as countries develop their technologies and gain advantages.

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[158] Farwell, J. P., & Rohozinski, R. (2011). Stuxnet and the future of cyber war. *Survival*, *53*(1), 23-40.

[159] Krieger, D. (2018). Hackıng Nuclear Weapons Is A Global Threat.

[160] Nye Jr, J. S. (2011). *Nuclear lessons for cyber security*. AIR UNIV PRESS MAXWELL AFB AL.

These capabilities link nuclear and non-nuclear technology in complex ways, and already pave the way for a gun race dynamics. As one state gains a perceived advantage, others try to equalize the score. Therefore, countries such as the US and Russia have started to develop national strategies for the cyber security threat, which is called the single biggest threat in Foreign Policy.[161]

3.6.1 National Cyber Strategy of the US

The National Cyber Strategy adopted by US President Donald Trump in 2018 consists of four parts. The report describes what the first pillar will do to protect its networks and systems to protect the US homeland. The second part includes strategies to increase American welfare by creating safe markets for digital technologies and promoting local innovation. In the third part, cyber norms are mentioned. There are efforts to ensure security by increasing deterrence, especially if cyber developments are used for bad intentions. In the last part, there are national strategies planned to provide open, secure and reliable internet, to develop cyber capacity of America and to expand its international effects.[162]

The strategy document also states that the United States will jointly strengthen its cyber capabilities with countries it considers allies, and that they will engage in cyber agreements and international cybercrime and terrorist activities by sharing their cyber threat information or by developing security co-ordination with their partners and calling on all states to enter into cyber agreements.[163]

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[161] In Cyberwar, There Are No Rules.(2018, September 12). Retrieved from https://foreignpolicy.com/2018/09/12/in-cyberwar-there-are-no-rules-cybersecurity-war-defense/

[162] National cyber strategy of the United States of America. (2018). Retrieved from https://www.whitehouse.gov/wp-content/uploads/2018/09/National-Cyber-Strategy.pdf

[163] Ibid.

3.6.2 Doctrine of Information Security of the Russian Federation

The Russian Federation Information Security Doctrine, adopted by Russian President Vladimir Putin in 2016, was adopted and the doctrine came into force. The document included information security strategies for Russia's national interests. It includes the protection of information confidentiality, the protection of information infrastructure and the sustainability of a critical attack.[164]

The doctrine of Russia is different from the US strategy. While the US cyber policies are about to get more trust in the country's internet infrastructure, Russia's infrastructure security and information security are at the forefront. Particularly in the doctrine, Russia reflects the need for a significant degree of state control to ensure information security. Information security also includes information that Russia is working to prevent the spread of false information and that it shares the right information with its partners.[165]

3.7 Artificial Intellegence and Nuclear Weapons

The American computer scientist John McCarthy, who invented the term artificial intelligence (AI), described the definition of artificial intelligence as "science and engineering of making intelligent machines."[166] Developing world developing AI technology provides countries with this technology a great advantage in economic and military field. In particular, the use of artificial intelligence in the military field is gaining importance to change the balance of power between developed countries.

[164] Federation, R. (2016). Doctrine of information security of the Russian federation. *The Ministry of Foreign Affairs of the Russian Federation*.

[165] Ibid.

[166] McCarthy, J. (1989). Artificial intelligence, logic and formalizing common sense. In *Philosophical logic and artificial intelligence*(pp. 161-190). Springer, Dordrecht.

Among the leading countries in AI technology are the US, the Russian Federation and China.[167]

Developments in the AI technologies of these nuclear weapons countries can positively or negatively affect the command or security of their nuclear weapons. Previously, when we look at the importance of cyber in nuclear issues, it was mentioned that nuclear weapons can be vulnerable. AI technology can change this instability. For example, if an artificial intelligence acts as a decision-making mechanism, it can act as a consultant in a nuclear crisis or a false red alert and make a more accurate and faster decision than a human being. Because nuclear weapons have ethical and moral consequences, they create a lot of fear. In such cases, people may be inadequate for stress management. AI is involved in solving such problems. The US's early warning system, which has existed since the Cold War period, not only monitors and analyzes the launching enemy system, but also informs the authorities at the same time. This system helps the authorities in the chaos environment that may occur.

On the other hand, AI technology and early warning systems cannot eliminate them even if they reduce the possibility of false warnings. The US NORAD computer was developed to alert the danger in advance. But even it was a time when decision-makers were misled. In addition to the disadvantages of AI, some experts think that a robot should not decide in a situation where people's lives are at stake.[168]Any wrong order in the algorithm can affect the system and the order. For example, for 10 years,

[167] Sharikov, P. (2018). Artificial intelligence, cyberattack, and nuclear weapons—A dangerous combination. *Bulletin of the Atomic Scientists*, *74*(6), 368-373.

[168] Etzioni, A., & Etzioni, O. (2017). Should Artificial Intelligence Be Regulated?. *Issues in Science and Technology (issues. org), Summer*.

the artificial intelligence system at Amazon has acted sexist by selecting only male candidates and eliminating female candidates for job applications. [169] Since the algorithms are man-made, they may be able to behave humanoid while creating distrust.

AI technology, which is developing day by day, is trying to ensure that nuclear weapons countries can minimize the current security risks and misinformation caused by this technology. To this end, detection capabilities of early warning systems are reworked and information gathering and observation capabilities are improved. In addition, combining IA technology with other products created with military technologies provides deterrence for the country. Examples include the production of autonomous systems with AI and the increase in the diversity of unmanned vehicles. But this development is seen as a competition area for other countries and attempts to increase AI capabilities and capabilities affect stability. And such a race could increase the likelihood of a nuclear conflict.

Especially when we examine the progress and policies of US and Russia in AI technologies, the dimension that the race can reach can be observed.

3.7.1 The US AI Policy

In 2019, the US introduced the American AI Initiative, which was prepared for AI strategies. The document includes objectives such as investing in artificial intelligence research, reducing barriers in AI technology, and providing AI training. However, it is underlined that this initiative is especially important for improving the welfare, economy and quality of life of US citizens. They also emphasized that they

[169] Amazon scrapped 'sexist AI' tool. (2018, October 10). Retrieved from https://www.bbc.com/news/technology-45809919

are leaders in the field of AI and that the US government is ready to remove all kinds of disabilities to maintain their leadership. In the realization of this, it was also stated that the cooperation with the countries they considered as partners should be improved.[170]

The first objective in the initiative plan is the development of AI's R & D activities. It is aimed to ensure the continuous encouragement of the investment to be made in this field. The second objective was to increase public confidence by opening up access to federal data and computing resources to agencies. The third article covers the elimination of the obstacles to this developed technology and efforts to minimize the security gap. The target plan mentioned in the fourth section includes labor. The US aims to create and educate and support AI technologies. In the last article, AI technology aims to serve the national interests of the US. Accordingly, this technology should maintain its advantageous position over other countries that the US considers globally competitive.[171]

For this initiative plan published in 2019, the funds allocated from the US defense budget in 2018 for 5 years is 2 billion dollars. A large part of this budget goes to AI R & D and Defense Advanced Research Projects Agency (DARPA). Particularly within the scope of DARPA, the US now has more than 20 active programs and projects to be launched.[172]

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[170] AI Policy-United States. Retrieved from https://futureoflife.org/ai-policy-united-states/?cn-reloaded=1

[171] Accelerating America's Leadership in Artificial Intelligence. (2019 February 11). Retrieved from https://www.whitehouse.gov/articles/accelerating-americas-leadership-in-artificial-intelligence/

[172] Ibid.

3.7.2 The Russia Fedaration's AI Policy

In 2017, Putin, in a speech he made to the students at the school he visited in Moscow, said that artificial intelligence technology is the future of all humanity and that the leader in this field will be the world leader. [173] After this speech, which emphasized the importance of artificial intelligence, the Russian Federation entered the process of forming a national strategy on this issue. In 2018, a conference was held in which the development and current state of artificial intelligence technology was discussed and Russia's Ministry of Defense, Ministry of Education and Science and Academy of Sciences participated. At the end of the conference, they developed a 10-item AI plan.[174]

In the first article of the plan, Russia is proposed to establish a consortium of big data and AI, which includes education and industry ministries or organizations. The second article includes autonomous systems. It is mentioned that funds and programs should be established in order to gain expertise in that field. In the third, it is suggested that the Russian Federation will increase its support in the teaching of artificial intelligence education, and in the next article it is recommended to establish an AI laboratory. Another proposal in the next section of the plan is the establishment of an AI R & D center. The Academy and the Foundation for Advanced Studies should work to develop the existing infrastructure for artificial intelligence and to establish an intelligence center on the subject. It should also produce innovative and creative projects.[175]

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[173] Who Vladimir Putin thinks will rule the World. (2017, September 2). Retrieved from https://edition.cnn.com/2017/09/01/world/putin-artificial-intelligence-will-rule-world/index.html

[174] Конференция «Искусственный интеллект: проблемы и пути их решения. (2018). Retrieved from http://mil.ru/conferences/is-intellekt.htm

[175] Ibid.

As for Article 6, the plan tells Russia that Global AI development needs to be monitored. R & D studies and researches in other countries should be followed continuously. In the following article, it is recommended to organize AI war game in the country. The scenarios created were presented as a method by which artificial intelligence can be seen during military operations. In Article 8, it is necessary to check the compatibility and compatibility of AI technologies. Lastly, the first two issues discussed in the last two articles are the proposal to discuss the issue of AI in military forums, and the second is to propose a conference where AI technology is discussed regularly every year.[176]

In response to the question of what might happen if Russia becomes a leader in AI with this 10-point plan and strategy it plans to develop, Putin said in a speech that he did not want the monopolization of AI technology and would share his knowledge and experience with the world.

[176] Here's How the Russian Military Is Organizing to Develop AI. (2018, July 20). Retrieved from https://www.defenseone.com/ideas/2018/07/russian-militarys-ai-development-roadmap/149900/

Chapter 4

HOW WILL CURRENT DYNAMICS EVOLVE IN FUTURE?

4.1 Introduction

In the first part, the agreements signed between the US and the Russian Federation, which can be considered as the cornerstone of the nuclear arms control regime, were mentioned. In the second part, the new missile technologies produced by both the US and Russia's modernization programs, their budgets for defense technologies and their very important capabilities such as cyber and AI were examined.

In this part of the study, information about the reflections of the aforementioned issues and developments will be given and then the possible effects of these reflections in the near future will be given. In doing this, defensive and offensive theory, which is divided into two sub-types of neo-realism, is utilized. While discussing these theories, the principles and concepts of the theories, their important advocates and the arguments that caused the separation of the two theories are mentioned.

In the rest of this section, an analysis is made for the future based on the main arguments and dynamics of these theories. In this analysis, which is made using the scenario method, it is tried to create a picture of what awaits us in the near future by considering the abolition of nuclear disarmament agreements and their effects on

nuclear weapons with the advances in US-Russian technologies. In the final part of the chapter, the scenarios created from the perspectives used are explained with the reasons why it is more appropriate to take place today.

4.2 Neorealism

Realism, founded by German-American academician Hans Morgentau, who claimed that the cause of the great and destructive wars of the 20th century was the liberal policies and trust in human nature. [177] Until the 1970s, priorities such as anarchy, balance of power and security dilemmas continued to hold the realism of which he represented as Edward Hallett Carr, Henry Kissinger and Arnold Wolfers in the forefront of international relations. [178] In the 1970s, the fact that the Vietnam War had progressed differently than planned and that the third world countries started to gain their independence caused realism to be criticized. [179] He was criticized by Marxist and liberal thinkers for realism, while Kenneth Waltz published the 1979 Theory of International Politics. [180] This book, which constitutes this new theory which means a break from classical realism, has enabled the realist tradition to be updated and revived in international politics. This theory, called neo-realism, is also known as Structural Realism because it links states' behavior to the structure.[181]

Neo-realism, which originates from the roots of realist theory, looks from different windows when evaluating state behaviors unlike realism. While the most important

[177] Morgenthau, H. J. (1978). *Politics Among Nations: The Struggle For Power and Peace fifth edition, revised*. New York: Alfred A. Knopf Inc.

[178] Jacobs, A. (2014). Realism. In *Theories of International Relations* (pp. 34-48). Routledge

[179] Rafshoon, E. G. (2001). A Realist's Moral Opposition to War: Han J. Morgenthau and Vietnam. *Peace & Change*, *26*(1), 55-77.

[180] Waltz, K. N. (1979). Theory of international politics. Long Grove.

[181] Waltz, K. N. (2000). Structural realism after the Cold War. *International security*, *25*(1), 5-41.

factor determining state behavior in classical realism is human factor, the structure of the international system in neo-realism is the factor affecting state behavior.[182]

According to neo-realism, international relations see states as the most important actor. In this perspective, international organizations such as the United Nations or the European Union lag behind in importance, contrary to what liberals believe.[183]

Another argument put forward by neo-realism is that states struggle for power with each other. [184] Neo realists say that because the structure of the international system is anarchic, the great states will always be in the race to become superpowers because there are no mechanisms that can prevent this. [185] But the point is not that this competition will always happen. This competition takes place only if one of them is able to win the race. For example, in the first and second world wars, Germany is a rising state and the other superpowers are challenged. In addition, the Soviet Union and the US power struggle during the Cold War period are another historical example of this situation.

Another argument produced by neo realists is self-help.[186] Since we live in an anarchic system, every state should take care of itself because there is no higher

[182] Joseph, J. (2014). Realism and Neorealism in International Relations Theory. *The Encyclopedia of Political Thought*, 3142-3151.

[183] Özçelik, S. (2018). The cold war re-visited: explaining and understanding of the end of the cold war in light of neo-realism. *The Turkish Yearbook of International Relations*, *49*, 1-20.

[184] Snyder, G. H. (2002). Mearsheimer's World—Offensive Realism and the Struggle for Security: A Review Essay. *International Security*, *27*(1), 149-173.

[185] Kenneth N. Waltz, "Anarchic Orders and Balances of Power", Robert O. Keohane (der.), Neorealism and its Critics, p. 108

[186] Mearsheimer, J. J. (2007). Structural realism. *International relations theories: Discipline and diversity*, *83*.

authority in any attack. States can only trust themselves when it comes to their own security. When we look at history, it is known to encounter examples that sometimes big states protect small states for their own interests. But this does not work when it comes to the two superpowers. NATO can be cited here as an example. According to Article 5 of the agreement signed by NATO's alliance countries, all other member states would consider the attack itself to be an attack on one of the member states. [187] However, since there is no living example of this situation, it is not known how much this substance will benefit in real life. In summary, for the security of small countries, we cannot say for sure whether large countries would risk their own security. Therefore, the concept of self-help is very important in terms of guaranteeing the future of states.

Looking at all the arguments of the theory of neo-realism, the concept of power emerges as the most important one. The theory says that countries want power to ensure their survival and security. However, disagreements have occurred between the proponents of the theory as to how much of this power will be sufficient, and from these disagreements, they have sub-headed two neo-realisms, both offensive and defensive realism. [188] Offensive realists believe that power should be at the maximum level, while defensive realists believe that an appropriate amount of power is sufficient.[189]

[187] Collective defence - Article 5. (2018 June, 12). Retrieved from https://www.nato.int/cps/en/natohq/topics_110496.htm

[188] The Past, Present and Future of Realism. (2018, January 15). Retrieved from https://www.e-ir.info/2018/01/15/the-past-present-and-future-of-realism/

[189] Mearsheimer, J. (2014). Anarchy and the Struggle for Power. *The Realism Reader*, *179*.

4.2.1 Offensive Realism

American scholar John Mearsheimer became the father and the most important representative of the offensive realism theory after his book The Tragedy of Great Power Politics.[190] In the theory of offensive realism, he states that states always look at foreign policy from this perspective. All states are trying to grow their own power regardless of their power and reduce the power of the countries they see as rivals. [191] In particular, the most important aims of the great powers are to reach the hegemony country position in the world. In short, according to offensive perspective, countries try to strengthen as much as they can.

The first of the arguments of the theory is that the international system, which is one of its general arguments in neorealism, has an anarchic structure. [192] States also play a key role in offensive realism. In addition, states are rational actors. [193] This means that states make strategic plans and implement them to survive. The driving force of states to act rationally is their desire to survive. Each state tries to guarantee its own future and sovereignty and acts in line with this idea in the process of forming an external policy.

Other arguments advocated by offensive realism are related to the capabilities and intentions of countries. As is known, all countries have military abilities and powers. Since these capacities are often visible forces from outside, they can easily be measured. This provides predictions on whether countries will be a potential risk or

[190] Mearsheimer, J. J. (2001). *The tragedy of great power politics*. WW Norton & Company.

[191] Ibid.

[192] Mearsheimer, J. (2014). Anarchy and the Struggle for Power. *The Realism Reader*, *179*.

[193] The Rational Actor Assumption in Structural Realism. (2016, October 28). Retrieved from https://www.e-ir.info/2016/10/28/the-rational-actor-assumption-in-structural-realism/

danger for other countries. Because from an offensive point of view, countries can never be sure of the intentions of other countries. In addition, countries' intentions may change over time in line with their interests, and countries may not be seen as a risk before, but may be seen as a threat when their attitudes change.

The situation created by uncertainty and uncertainty can push countries to increase their power. Because the more power your rival countries have, the less likely you are to survive. The fact that the United States is a regional hegemony in its geography can be given as an example of the difficult maximization that no country dares to attack.

According to Mearsheimer, regional leadership is more likely than world leadership. He even claims that even a regional hegemon like the US cannot have a global hegemonism.[194] The difficulty of maintaining power over long distances and the impact of nationalism on the detriment in almost every country makes the creation of a global hegemony almost impossible.[195]

For the ideal of regional hegemony, which seems more likely to happen, there are ways for countries to follow. First of all, they should increase their economic power. In addition, they should increase their military power until they become the country with the largest military capacity in the region. Finally, the country should have a nuclear advantage. Such superiority creates deterrence over other countries.

[194] Toft, P. (2005). John J. Mearsheimer: an offensive realist between geopolitics and power. *Journal of International Relations and Development*, *8*(4), 381-408.

[195] Ibid.

Once a country has succeeded in pursuing the above paths and transformed into a regional hegemony, another goal is to limit the domination of the major powers in the region. Because, according to Mearshiemer, regional hegemonies do not want other regional hegemonies to emerge.[196] Therefore, in order to maintain its position, it must constantly be sure of the powers and potentials of other states. For example, the fact that US troops can travel to remote areas such as the Middle East does not pose any trust issues for the US. Because there is not a strong enough state to rival it.[197]

In the case of the emergence of a competing country, regional hegemony will endeavor to end its hegemony in order to maintain and protect its interests and power. [198] For regionally leading countries, such as the United States, the best way to survive is to maintain its current position. An example of this is the fact that the US has not allowed a regional power to form and intervene in Europe and Asia for many years.

According to offensive realism, countries can easily spend competing countries in the race to become hegemony. Because in this approach, every country pursues power maximization. The lack of any limitation on this issue may constitute the basis of armament and thus the arms race between countries.

According to Mearsheimer, there has also been no change in the dynamics and trends of international relations since 1648. Despite all the advances in weapon technology

[196] Ibid.

[197] Mearsheimer, J. J. (2010). The gathering storm: China's challenge to US power in Asia. *The Chinese Journal of International Politics*, *3*(4), 381-396.

[198] Ibid.

and all the wars and changes in power between countries, the rules and behavior of international relations have not changed since. In order to prove this argument, the USA and the Soviet Union are shown as examples in his book. The author claims that the size of the air, land and naval forces of states is directly proportional to their own forces, and states that states with a strong army may be great powers. So even if countries have nuclear ammunition, they keep the race of power between them at the traditional level. When we look at the Cold War period, the US and the Soviet Union not only spent money on nuclear weapons production, but also on conventional weapons. Because nuclear weapons may not provide absolute security and deterrence.

Colin S. Gray may be among the scholars who agreed in this idea. In his book which called The Second Nuclear Age, the author says that the use of nuclear weapons cannot be guaranteed to be destroyed on both sides. [199]In short, he argues that nuclear war is winable contrary to what is believed.

4.2.2 Defensive Realism

Kenneth Waltz, seen as the father of neo-realism, also has a defensive realist perspective. According to defensive realism, a form of neo-realism, including scholar like Stephen Walt, countries want to increase their security in order to avoid attacks.[200] From this point of view, there is also an anarchic system in the world and it is important for states to provide selp-help as states compete with each other. In order to do so, countries need to secure their own security. Because if the attack is more disadvantageous than defense, countries do not choose to attack because they do not find it profitable.

[199] Gray, C. S. (1999). *The second nuclear age*. Lynne Rienner Publishers.

[200] Walt, S. M. (1998). International relations: one world, many theories. *Foreign policy*, 29-46.

According to defensive realists, enough power is sufficient to maintain balance. If you have more than that, it can create a security dilemma and cause other states to perceive you as a threat.According to Waltz, the more power a country increases in the world, the more vulnerable it is to other countries.[201]

According to Waltz, it is easier to achieve a balance of power without being vulnerable in bipolar arrangement. [202] In his essay which called "The Spread of Nuclear Weapons: More May Be Better", Waltz cites the relationship between theUS and the Soviets in the Cold War as an example of this thesis and underlines that the bipolar world is more peaceful and reliable. [203] It links this system to the fact that the US and the Soviets have avoided warm contacts with each other outside of proxy wars. In addition, according to Waltz, a bipolar world increases the security that comes with deterrence between rival countries, and a multi-polar or unipolar order can lead to conflicts and wars.[204] For example, before the First and Second World wars, the world was very polar. And in such an order, it is shown that there are uncertainties about which countries will be threatened and that these uncertainties cause instability.

But how can states ensure their own security in a single, bipolar or multipolar world? According to Waltz, the most important way to ensure security for states is to

[201] Schweller, R. L. (1996). Neorealism's status ‐ quo bias: What security dilemma?. *Security Studies*, *5*(3), 90-121.

[202] Waltz, K. N. (1981). The spread of nuclear weapons: More may be better: Introduction.

[203] Ibid.

[204] Ibid

strengthen their defense so that they cannot be attacked.[205] This situation, which calls it the ideal of defense, argues that the defense of the countries should be built on strong foundations. [206] If the defense and deterrence power of a country increases, the likelihood of an attack or conflict and war against that country decreases in the same direction.

In neo-realism theory, wars are inevitable. Defensive realism puts forward this claim that countries with nuclear weapons are actually viewed as nuclear arsenals only as tools for deterrence and balance policy. As Waltz pointed out in his article, the whole world had seen the consequences after the use of nuclear weapons, and therefore the possibility of re-use prevents wars from starting. [207]

If nuclear weapons are enough to eliminate the risk of war, the proliferation of countries with nuclear weapons can bring peace in the longer term. This is why Waltz states that countries with nuclear weapons are more cautious in their relations with each other. [208] And he cites the Cuban crisis as an example. [209]This is attributed to the fact that the United States and Russia do not engage in a war with little interests and more losses. Waltz wrote his thoughts on the subject more clearly in their work entitled The Spread of Nuclear Weapons: A debate with Sagan.[210] Waltz advocates the gradual spread of nuclear weapons to the World ans stated the

[205] Ibid.

[206] Ibid.

[207] Ibid.

[208] Ibid.

[209] Ibid.

[210] Sagan, S. D., & Waltz, K. N. (1995). The spread of nuclear weapons: A debate.

proliferation of weapons cannot be stopped because countries will continue to search for their own security. Waltz says that it is not possible to criticize the possibility of irresponsible use of this weapon by non-powerful countries. He even claims that even Hitler wouldn't use it if he had come across nuclear weapons. Thus, he adds that the theory of materialism is invalid and that the proliferation of nuclear weapons will ensure stability. [211]

4.4 Offensive Realism and Defensive Realism in the Future of Arms Control

If the future of strategic armament control is examined, it can be seen that it depends on the state of the existing restriction agreements between countries, the nuclear modernization studies of the countries and the new weapons technologies they have developed and also the nuclear doctrines or strategies they have created.

First of all, if we look at the effects of the expired agreements on the nuclear regime, we should first examine the main reasons for arming agreements. In order to conclude an armament agreement, countries need to look for three basic principles such as transparency, stability and predictability. These motivations make the countries more open to agree with each other. Likewise, the loss of one of the reasons for the above agreement negatively affects the future of the agreements. The US's withdrawal from the INF agreement could be given as an example of the discourse that Russia violated the rules of the agreement. Both countries are not sure of each other's transparency. This makes it difficult for them to estimate each other's potential and stick to agreements. Given the current situation, Russia is concerned about American missile defenses. The US also worried about Russia's new weapons systems. In addition, efforts to modernize both the strategic nuclear triads and other

[211] Ibid.

conventional weapons in both countries can be considered as a factor that reduces the trust in each other. Apart from this, the fact that America is working on limited nuclear strikes capacity while Russia develops hypersonic systems shows that they both shaped their decisions with strategies that increase their aggression. The lack of trust between the two countries and the unknownness of what will happen tomorrow are the source of the current problem of the arms control regime.

According to the offensive realist Mearshimer, both countries must win an equal agreement on both sides in order to be able to enter into an agreement or to continue

the existing agreement. As the neoliberalists believe, it is not enough to win on both sides of the agreement, and if one of the sides wins more, that agreement does not last for a long time. If we look at the US decision of the INF agreement, the reason for the end of the agreement was shown that the US thought that Russia had a medium-range cruise missile exceeding 500 km.[212]

Another reason for the termination of the INF agreement is the desire to maintain the hegemonic power position. According to Mearshimer, regional hegemons do not want the formation of new regional hegemons in other regions because they will threaten them. And rising China is threatening US hegemony.

China is one of the most developing and developing countries of the 21st century in economic, technological and military fields. In fact, China's ’Made in China 2025”

[212] INF - NATO: ABD'nin Orta Menzilli Nükleer Kuvvetler Anlaşması'ndan çekilmesinden Rusya sorumlu. (2019, August 2). Retrieved from https://www.bbc.com/turkce/haberler-dunya-49201329

strategy, which is claimed to be the biggest economic power of the world in 2027, also aims to be the leader in technology in the top 10 in 2035.[213]China has not only increased its economic power but also its military power, and according to the SIPRI report, there is a steady increase in military spending. [214] The vast majority of these expenditures go to modernization programs, capacities such as AI and cyber, and new technologies such as space and quantum.[215] In addition, China is not only strengthening its capacities but also striving to increase political influence in the region. The Asian Infrastructure Investment Bank (AIIB) was established by China in 2016 and serves China's plans to increase its political power in the region by providing loans to Asian countries in need of infrastructure. [216]

All of China's policies to become a regional hegemon threaten US hegemonicity and its own interests. The INF agreement also put the US in a disadvantageous position against China, which had developed its own middle-range missiles. Therefore, another offensive motivation for the termination of the INF agreement is that China has its own intermediate range missiles and the agreement prohibits the US from producing these missiles. Even then, the idea of a new INF agreement, including China, suggests that this concern is indeed a factor.[217] But it was in China's newspapers that China would not accept such an agreement. In his newspaper article,

[213] Li, L. (2018). China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0". *Technological Forecasting and Social Change*, *135*, 66-74.

[214] Tian, N., Fleurant, A., Kuimova, A., Wezeman, P. D., & Wezeman, S. T. (2018). *Trends in world military expenditure, 2017*. Stockholm International Peace Research Institute.

[215] Demchak, C. C. (2019). China: Determined to dominate cyberspace and AI. *Bulletin of the Atomic Scientists*, *75*(3), 99-104.

[216] TheAIIB. (2018, August 6). Retrieved from https://www.bloomberg.com/quicktake/chinas-world-bank

[217] INF Nuclear Treaty: Trump says new pact should inclue China. (2019, August 3). Retrieved from https://www.bbc.com/news/world-us-canada-49213892

China acknowledged that he was militarily stronger than before, but said that he was still not able to compete with the US and Russia in terms of nuclear power and comprehensive military power.[218] As a matter of fact, it is not possible from the offensive realist point of view that the agreement between China and the USA, which has almost three times the number of nuclear weapons of China, is not possible due to equality.

In this case, it can be said that no new INF agreement will be concluded in the near future. In addition, the fact that the US has tested the ground-launced version of the launched Tomahawk almost two weeks after the end of the INF agreement can be shown as evidence.[219] The missile test, which was not manufactured in accordance with the INF agreement, provides information about the US's strategy for the future. Again, in the event that Russia retaliates in a similar manner to the United States and begins to test their own weapons, the arms race is inevitable.

The INF agreement was the first indication of future political and military events when the limit on strategic nuclear weapons was removed. The fact that the end of the agreement could symbolically be regarded as the beginning of a new cold war also adversely affects military stability and is seen as a move that politically reduces the likelihood of extending the New START agreement.

[218] Why China opposes a global INF treaty. (2019, February 24). Retrieved from https://www.asiatimes.com/2019/02/article/why-china-opposes-a-global-inf-treaty/

[219] Watch the Pentagon test its first land-based cruise missile in a post INF Treaty World. (2019, August 20). Retrieved from https://www.defensenews.com/pentagon/2019/08/19/pentagon-tests-first-land-based-cruise-missile-in-a-post-inf-treaty-world/

If the New START agreement, which the Trump government calls another bad deal, is not extended for 5 years in 2021, it will be the first time that the two countries will have no nuclear weapons restrictions since the cold war, which raises serious concerns about the future of weapons. Statement by US National Security Adviser John Bolton that the New START agreement will not be extended is proof of how relevant these concerns are.[220]

Another issue we need to examine while making predictions about the future of arms control is the changes in the national nuclear strategies of the USA and Russia. In addition, new weapons technologies and modernization programs developed by countries justify concerns about the arms race.

If we look at the US nuclear strategy during the Cold War era, the limited use of nuclear weapons was seen as an option. In fact, its use in the Korean and Vietnamese war was widely discussed at that time. But the political and military consequences were not preferred because of their heavy consequences. Russia did not see using nuclear weapons as an opsion at that time. After the end of the Cold War, in the early 2000s, the US NPR was on the basis of the renewal of its Triads. In Russia's military doctrine of 2000, nuclear weapons could only be used to ensure national security in critical situations. The conflicts in this doctrine were divided into 4 as armed, local,

[220] Bolton Declares New START Extension 'Unlikely'. (2019, July/August). Retrieved from https://www.armscontrol.org/act/2019-07/news/bolton-declares-new-start-extension-unlikely

regional and global conflicts. And they could only be used in any regional or global conflict.[221]

In 2010, Obama's team prepared by the NPR nuclear weapons were only symbols. According to this review, the United States would not use these weapons and would not make threats to other countries about using them. The main mission is deter nuclear attack on the US and its allies. In 2010 Russia's Military Doctrine, the nuclear strategy remained almost the same as in 2000, and the use of nuclear weapons was still made possible in the event of major events.

In 2018, in the NPR adopted by the Trump administration, the US returned to its policies during the Cold War period and the limited nuclear use strategy came back. [222] This strategy, which makes it possible to use nuclear weapons for instrumental purposes, can cause serious problems. In Russia's military doctrine in 2014, the role of nuclear weapons remained the same as in 2010. But rather than their nuclear capacity, non-nuclear or conventional deterrence was included. The fact that the United States has started to work to develop its own limited nuclear strike capacity or that Russia has developed hypersonic missiles also shows that they are moving in line with their strategies. In addition, many other new missile technologies are proof that they are in a race prepared with increasing military expenditures and modernized nuclear weapons.

[221] Sokov, N. (2007). The origins of and prospects for Russian nuclear doctrine. *Nonproliferation Review, 14*(2), 207-226.

[222] US Department of Defense. (2018). Nuclear posture review. *Office of the Secretary of Defense*.

When we examine all this, the future of strategic armament control in a world in which the cold war mentality has returned is quite troublesome. In the near future, in the light of both agreements and strategies, the arms race between the US and Russia will adversely affect the arms control regime. In fact, it is quite possible that the arms race is not only between the two countries. For example, the fact that the agreements constituting the nuclear regime ends one by one among the countries with the most nuclear weapons may lead to questioning the restriction agreements in other countries. In this case, the future of the NPT agreement can also be considered risky. Because in a world where nuclear weapons are not restricted in the USA and Russia, other countries may want to have their own nuclear weapons. Such a situation may also lead to the termination of the NPT agreement. According to Article 10 of the NPT agreement, which consists of 3 pillars as non-proliferation, Disarmament and peaceful uses, countries have the right to leave the agreement when they feel that they do not comply with the national interests of the agreement. And in a situation where there is no arms control between the US and Russia and the arms race has begun, no country wants to stay in the NPT agreement and they even prefer to have their own weapons for their own safety.

According to Scott D. Sagan's article explaining why states want to own nuclear weapons, they want to have nuclear weapons for three reasons. According to the first model, states want to provide their own security. The second model requires nuclear weapons for their domestic politics and the last model for norms. Therefore, in any nuclear weapon race that could start among the major nuclear powers, many countries may want to have nuclear for these reasons. Especially since the end of the agreements will create a security gap, many countries may say that they want to have it for security reasons. For example, after the INF agreement has been ratified, they

are reviewing EU detergent plans for countries in Europe as a result of a security problem when it comes to its proximity to Russia. There are doubts as to how reliable the US is in ensuring the security of the EU, especially when it comes to unexpected decisions and attitudes by Trump.

In fact, the article "Will Europe Get Its Own Bomb" included scenarios, including which country or countries could be built if the EU decided to build its own bomb independent of Washington.[223] Even if the author does not give the possibility of these scenarios to happen for the time being, it is very important that such discussions have started in the literature.

According to K. Waltz, the proliferation of nuclear weapons creates a more stable environment. Because the deterrence of nuclear weapons is so strong that it brings stability and peace to the world, so it needs to spread rather than proliferation. He believed the MAD principle was effective in preventing the US and the Soviets from entering a nuclear war even during the Cold War.[224] However, in contrast to this idea, Scott D. Sagan claims that this thesis is not always true, and that nuclear forces may cause more instability in the hands of poorly governed countries.[225] When it comes to today's conjunctor, proliferation of nuclear weapons creates an insecure environment, contrary to what Waltz said. Countries that do not have the economic military and technological capacity to possess nuclear weapons may have difficulty in protecting them. Moreover, it is a risk for these weapons to fall into the hands of non-state actors and countries with radical governments. In addition, in the case of

[223] Bruno Tertrais (2019) Will Europe Get Its Own Bomb?, The Washington Quarterly, 42:2, 47-66

[224] Waltz, K. N. (1981). The spread of nuclear weapons: More may be better: Introduction.

[225] Sagan, S. D. (2003). More will be worse. *Sagan and Waltz, The Spread of Nuclear Weapons*, 47-91.

deterrence, technological advances such as newly developed missile defense systems or hypersonic missiles can reduce the destruction that the country will face if the country uses nuclear weapons. This may ensure that countries are not afraid of attacks and costs. This increases the likelihood of a direct nuclear attack.

So how likely is a nuclear attack? In 2007, American scholar Nina Tannenwald claimed that nuclear weapons had not been used since the Second World War because it was a traditional taboo on "deterrence ve, which hampered the use of nuclear weapons again.[226]

In late 2018, she wrote an article in the magazine Foreign Affairs entitled "The Vanishing Nuclear Taboo?". [227] In this article, the author states that the geopolitical tensions in the world have increased after the changes in the US administration in recent years, that the arms race has begun, that nuclear weapons have regained value for the countries and as a result the nuclear taboo has weakened today. [228] From this point of view, the emergence of a major nuclear conflict and the possibility of using these weapons seem to be possible in the near future.

In such a future and in the international system, according to defensive realists, states carry out balancing policies. Because security maximization is more important than power maximization for them. Perceptions of threats come to the fore. If the US sees Russia as the biggest threat, it can act against it. For example, it could expand its nuclear weapons stockpile to increase its deterrence against Russia, or it could place its weapons in neighboring countries close to Russia. According to the perceived

[226] Tannenwald, N. (1999). The nuclear taboo: The United States and the normative basis of nuclear non-use. *International organization*, *53*(3), 433-468.

[227] Tannenwald, N. (2018). The Vanishing Nuclear Taboo. *Foreign Aff.*, *97*, 16.

[228] Ibid.

threat ratio, they enter the nuclear weapons race and the risk of conflict is at this level. On the other hand, if the US perceives China, not Russia, as the biggest threat, defensive realists say that the United States will not enter an arms race against Russia because there is security maximization, not security maximization. In the event that the US does not see Russia as a serious threat, it is expected that the US nuclear weapons will be shifted to the Asia-Pacific region and lead an arms race against China.

When we look at aggressive realism, states choose to maximize power to ensure their security. In other words, states like defensive realists do not pursue a balancing policy. But offensive realism opposes the balancing policy and argues that over-empowerment and armament are the best way to survive in the international system. For example, even if Russia is not in an aggressive attitude toward the US or Europe, the US still wants to arm the geography around Russia. In the same way, even if worried about the rise of China, the US will still want to increase its power against Russia and turn to policies to increase the number of nuclear weapons.

Therefore, the fact that the US and Russia, which have no connection with the treaties, will aim at the highest possible arm and strengthening efforts, can be seen as the most appropriate scenario for the near future. In addition, when national nuclear weapons strategies are taken into consideration, a period of offensive realist motivations should be expected.

Chapter 5

CONCLUSION

Nuclear, the world's most dangerous weapon, built in the 20th century and used for the first and last time, has still not lost its definition of the most dangerous and destructive weapon in the 21st century. Therefore, in order to prevent the spread of these weapons in the world, a number of agreements were signed, a nuclear regime was established and the countries that did not have these weapons felt more secure after the decreasing number of weapons after these agreements until the future of these agreements entered into risk.

In 2009, former US President Barack Obama spoke in Prague and he had mentioned that the purpose of a world without nuclear weapons in his speech. Fort his purpose US Administration signed the New START agreement with Russia, which restricts the number of nuclear warheads to 1550, and then signed a nuclear agreement with Iran, known as the JCPOA. In addition The Obama team published the NPR in 2010 and decided to use nuclear weapons only in extreme cases. The start of the Trump era after Obama in 2016 also led to changes in US nuclear weapons policies. Trump, who considers all of Obama's agreements so far as unsuccessful Obama administration's decisions, had decided to withdraw from such agreements as JCPOA and did not follow the path of a nuclear unarmed world policy. In fact, he was in the opposite direction and influenced the future of the existing nuclear regime agreements with his decisions. Trump, who signed the decision to end the INF

agreement, which is very important among the nuclear regime agreements, is now questioning the future of the last remaining agreement between Russia. While it is not yet known whether the New START agreement, which expired in 2021, will be extended, Trump and his team's statements suggest that it is highly unlikely. If the agreement is not renewed after its expiration, the risks and threats posed by the world between the two countries in the absence of any restrictive and binding agreement between nuclear weapons and its distribution vehicles or the range of missiles of the countries are quite unpredictable.

The most important of these risks is the process that invites a new arms race. The most important of these risks is the process that invites a new arms race. A new arms race could put us in a new era of cold war. In addition, the new race of this century may not only be between the two states. Strategies that invite the arms race can be seen as an opportunity for countries that do not own but want to own nuclear weapons. This could result in the collapse of the entire nuclear regime established by disarmament agreements. Because in such an environment of insecurity, the NPT agreement to which many countries in the world are a party cannot be expected to last long. In a world where there are no nuclear weapons restrictions and an arms race starts, many new countries are expected to want to own nuclear weapons either for security or prestige or because of the domestic policies of their country. "Proliferation begets proliferation" [229] The spread and proliferation of nuclear weapons completely destabilizes the world and maximizes security risks.

[229] Scott, D. S. (1996). Why Do States Build Nuclear Weapon. *Three Models in Search of a Bomb: Internasional Security*, *21*(3), 1996-1997.

A new cold war and arms race between the US and Russia It is foreseen that the US and Russia will engage in an over-empowerment and overarmament effort against this rising power, as new actors such as China may become involved in the great picture.

Especially when we examine the defense and arms technology expenditures of both countries in their budgets and modernization programs of nuclear weapons, it can clearly show that preparations for the possible race between the two countries have already started. In addition, if we examine the changes in nuclear strategies over time in both countries, we can better understand the current situation. Under the Obama administration, the nuclear weapons that were thrown into the background and were not intended to be used emerged as limited nuclear use during the Trump period and returned to US nuclear strategies during the cold war period. In addition, the study of missile systems such as hypersonic missiles and precision-strike missiles in the two countries and the efforts to develop advanced technologies such as ASAT are proof that they have already prepared for any armament race.

These preparations and the possibility of using these high-level technologies not only with conventional weapons but also with nuclear weapons constitute a very dangerous and risky situation in case of any conflict between the two countries. This dangerous situation does not only end with the emergence of new products of these defense technologies, but also risks with information technologies. It is not impossible in today's conjunctor to start a nuclear war due to the possibility of a nuclear war coming out as a result of bad software created by cyber technology or a small error that may occur in the early warning system created by using artificial intelligence. In addition, if there is an increase in the number of countries that have

nuclear weapons, and the possibility of having such an economic, military and technologically strong country that cannot yet maintain this power, it creates a security gap. These countries can be seen as easy targets that terrorists can use to carry out cyber attacks.

The existence of such risks forces both countries to develop strategies to increase their aggression instead of developing defensive strategies. Because as a result of the technological developments brought by the 21st century, the concept of nuclear deterrence is changing. Due to the high level of defense systems developed by countries, the destructiveness of the attacks may not be the same between the two sides. This makes a nuclear conflict more likely than before. Because countries only attack if their earnings are more than their costs, and having such defense systems can make it easier for the country to calculate the gain-loss relationship and make an attack decision.

As a result of this study, the agreements reached between the US and Russia have helped to reduce the number of nuclear weapons and to ensure stability during and after the Cold War. Today, however, the future of arms control agreements is uncertain, and the US and Russia have policies built on distrust after changes in nuclear strategies. This situation leads to arms race and instability. When the collapse of the arms control regime is examined from an offensive and defensive realist point of view, it is predicted that countries will make decisions with such offensive motivations in such a scenario. The destabilization and nuclear uncertainty that comes with the destruction of the current nuclear disarmament order will cause countries to try to strengthen as much as they can and this will lead to a global arms race. And unlike the cold war era, this race will take place with 21st century

technologies, and in the case of these emerging weapons technologies, the consequences of a nuclear arms race of this dimension will be irreversible for the world and the World will cause a great power war.

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