

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY STATE UNIVERSITY

Educational and Scientific Institute for Business Technologies “UAB”

Department of International Economic Relations

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**MASTER’S LEVEL QUALIFICATION PAPER**

on the topic “GLOBAL NUCLEAR DISARMAMENT: CONSEQUENCES AND  
CHALLENGES FOR UKRAINE”

Specialty 292 “International Economic Relations”

Student 5 Course

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It is submitted for the Master`s level degree requirements fulfillment.

Master`s level degree qualification paper contains the results of own research. The use of the ideas, results and texts of other authors has a link to the corresponding source \_\_\_\_\_ N.V. Kapatus

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## ABSTRACT

on master's's degree qualification paper on the topic  
“GLOBAL NUCLEAR DISARMAMENT: CONSEQUENCES AND  
CHALLENGES FOR UKRAINE”

student Kapatus Nykyta Vitaliyovych

The main content of the master's degree qualification paper is presented in 44 pages, including references consisted of 70 used sources, which are placed on 6 pages. The paper contains 5 tables and 2 figures.

Keywords: NUCLEAR WEAPONS, PROLIFERATION, DISARMAMENT, NUCLEAR STATES, INTERNATIONAL TREATIES, UKRAINE.

The purpose of study is to investigate the causes and consequences of Ukraine's nuclear disarmament and to assess the prospects for the return of nuclear status.

The object of study is nuclear weapons.

The subject of study is the reasons and consequences of Ukraine's nuclear disarmament and prospects for returning nuclear status.

Research methods. To achieve the goals set in the work, the following methods were used: abstract-logical, method of grouping and generalization, system and complex approach, factor analysis, causal analysis, and method of comparative analysis.

Information base. During writing qualification work, legislative and normative acts in the field of nuclear weapons disarmament, official statistics, publications of Ukrainian and foreign scientists were used.

The main scientific results of the work include:

- generalization of the causes and consequences of Ukraine's nuclear disarmament;
- systematization of strengths and weaknesses, opportunities and threats of Ukraine to return the status of a nuclear state.

The impossibility of creating nuclear weapons in Ukraine in the current conditions is substantiated. The obtained results can be used by the Ukrainian authorities to analyze the prospects and threats of a possible return of nuclear status. The analytical data presented in this work can be used in developing an action plan in case of the need of creation projects for revival of the nuclear arsenal of Ukraine. In this case, the content of this scientific work will help to assess the world order of forces in the capacity of the nuclear arsenals of countries, to get acquainted with the trend of reducing nuclear stockpiles, to analyze past mistakes and barriers to the creation of own nuclear weapons, to assess the prospects and threats of the return of nuclear status.

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TASKS FOR MASTER’S LEVEL DEGREE QUALIFICATION PAPER

(specialty 292 “International Economic Relations”)  
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Kapatus Nykyta Vitaliyovych

1. The theme of the paper is “Global nuclear disarmament: consequences and challenges for Ukraine”.

approved by the order of the university from 10.11.2020 № 1750-III.

2. The term of completed paper submission by the student is 09.12.2020.

3. The purpose of the qualification paper is to investigate the causes and consequences of Ukraine’s nuclear disarmament and to assess the prospects for the return of nuclear status.

4. The object of the research is nuclear weapons.

5. The subject of the research is the reasons and consequences of Ukraine’s nuclear disarmament and prospects for returning nuclear status.

6. The qualification paper is carried out on materials of official statistics, legislative and normative acts, and scientific publications of Ukrainian and foreign authors.

7. Approximate master’s level degree qualification paper plan, terms for submitting chapters to the research advisor and the content of tasks for the accomplished purpose is as follows:

Chapter 1 “Nuclear factor in international relations and world politics”; till 20.11.2020.

Chapter 1 deals with the investigation of the essence of nuclear weapons, the history of creation and using nuclear weapons, dynamics of proliferation of nuclear weapons.

Chapter 2 “Global nuclear arms control and disarmament”; till 01.12.2020.

Chapter 2 deals with analyzing objectives and means of nuclear weapons control, the main nuclear weapons control and disarmament agreements, current nuclear arsenal of countries.

Chapter 3 “Nuclear disarmament”; till 06.12.2020.

Chapter 3 deals with the consideration of Ukraine as a powerful nuclear state, the investigation of reasons and consequences of nuclear disarmament of Ukraine, analyzing the main provisions of the Budapest Memorandum, the estimation of the prospects for returning the status of a nuclear state.

#### 8. Supervision on work:

Chapter	Full name and position of the advisor	Date, signature	
		task issued by	task accepted by
1	T.O. Kurbatova, Senior Lecturer of International Economic Relations Department	20.11.2020	20.11.2020
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9. Date of issue of the task: 24.09.2020.

Research Advisor: \_\_\_\_\_

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The tasks have been received: \_\_\_\_\_

N.V. Kapatus

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## LIST OF ABBREVIATIONS

USSR - Union of Soviet Socialist Republics

USA - United States of America

EU - European Union

UN - United Nations

CIS - Commonwealth of Independent States

NPT - Nuclear Non-Proliferation Treaty

IAEA - International Atomic Energy Agency

SWOT - Strong, Weaknesses, Opportunities, Tendences

NPP - Nuclear Power Plant

## INTRODUCTION

**Relevance of the theme.** Since its inception during World War II, nuclear weapons have been and remain a strong argument in international relations and have become a guarantee of the security of the countries that possess them. The world's leading countries have spent enormous sums on developing their own nuclear arsenal, and later on its development and maintenance.

The quantitative development of nuclear weapons reached its peak during the last years of the Cold War in 1980-1987, and only after 1987 the trend of reducing the number of nuclear weapons in the world have begun. Ukraine was one of the important participants of this process.

Having inherited the third largest nuclear arsenal from the USSR, Ukraine has renounced its nuclear weapons, becoming one of the few countries to make this step. However, military aggression in the east of the country makes it important to study the prospects for the return of Ukraine's nuclear status in order to guarantee territorial integrity and national security.

**The study of problem.** The causes of nuclear disarmament, its consequences and the chronology of the process were studied in the works of a number of scientists, namely: A.M. Zlenko, V.P. Gorbulin, A.G. Arbatov, V.F. Vasylenko, V.G. Lukyanenko, KV Shevchuk, D.O. Rafeenko, G.O. Kovalyako, P. Mozias, D. Goodby, S. Miller and others. However, the scientific literature pays little attention to the consequences of Ukraine's nuclear disarmament and the prospects for restoring its nuclear status.

**The purpose** of the qualification paper is to investigate the causes and consequences of Ukraine's nuclear disarmament and to assess the prospects for the return of nuclear status.

In accordance with the purpose of the qualification work, the following tasks were set:

- to study the history of development and use of nuclear weapons;
- to analyze the dynamics of nuclear proliferation;



- to consider international treaties relating to nuclear disarmament;
- to investigate the causes and consequences of Ukraine's nuclear disarmament;
- to assess the prospects and threats to Ukraine's return to nuclear status.

**The object** of study is nuclear weapons.

**The subject** of research is the reasons and consequences of Ukraine's nuclear disarmament and prospects for returning nuclear status.

**Research methods.** To achieve the goals set in the work, the following methods were used: abstract-logical, method of grouping and generalization, system and complex approach, factor analysis, causal analysis, and method of comparative analysis.

**Information base.** During writing qualification work, legislative and normative acts in the field of nuclear weapons disarmament, official statistics, publications of Ukrainian and foreign scientists were used.

# 1 NUCLEAR FACTOR IN INTERNATIONAL RELATIONS AND WORLD POLITICS

## 1.1 The essence of nuclear weapons

Nuclear weapons are weapons of mass explosive destruction based on the use of nuclear energy released during a nuclear fission chain reaction of heavy nuclei and / or a thermonuclear fusion reaction [1].

The concept of nuclear weapons includes:

- nuclear charges (missile and torpedo warheads, bombs, artillery shells, etc.);
- means of delivery to the target (missiles, planes, torpedoes, artillery guns);
- means of controls.

Nuclear weapons differ significantly from other weapons in both scale and nature of destruction. At a distance of about a kilometer from the center of the explosion, there is continuous destruction and all living things are destroyed. First of all, this action is due to the fact that the power of a nuclear explosion is much greater than any warhead created on the basis of a chemical explosive. That is why, among modern means of warfare, nuclear weapons have the greatest destructive power [2].

Nuclear weapons are based on the usage of internal nuclear reactions: the separation of heavy elements uranium - 233, uranium - 235, plutonium - 239 and the synthesis of helium atoms from light elements - deuterium and tritium. Per unit mass of the resulting mass, the synthesis reaction gives an energy output 4 times higher than the fission reaction. With an equal amount of reactants in the process of nuclear reactions, millions of times more energy is released than in the process of chemical reactions that occur during the explosion of a conventional warhead.

The energy of a nuclear explosion is spent on the formation of many damaging factors, the main of which are the explosive wave (it accounts for 50% of the total energy of the explosion), light radiation (35%), penetrating radiation at the time of explosion (5%), formation of nuclear fission products (10%). Unlike other weapons,

nuclear weapons are capable of simultaneously solving not only operational and tactical tasks, but also strategic tasks of war [3].

In the event of a surprising attack using nuclear weapons, the total human loss can reach up to 50-60% of the total population in the area of nuclear damage. At the same time, 1/3 of human losses will be irreversible, 2/3 will be sanitary losses. In the structure of sanitary losses in the epicenter of a nuclear explosion, 50-60% will be combined lesions [4].

Thus, nuclear weapon is the most dangerous type of weapon, which is distinguished by its destructive power, the nature of the damage and the range of use, which makes it possible to shape military strategies in a special way.

## 1.2 Creation and using nuclear weapons: a historical aspect

The history of nuclear weapons dates back to 1898, when Pierre and Marie Curie discovered a substance in the uranium mineral that emitted large amounts of radiation. This discovery has led scientists to speculate that there is a huge potential for new energy, which is hidden in the atoms of radioactive elements. Later, in 1911, Ernest Rutherford made a breakthrough in the study of atoms, and in 1932, Ernest Walton and John Cockcroft first split the nucleus of the atom [5].

In December 1938, German physicists Otto Hahn and Fritz Strassmann for the first time in the world carried out artificial fission of the nucleus of the uranium atom, which opened the possibility of creating a new type of high-explosive substance. This event was the impetus for the development of the German nuclear program - work aimed at creating nuclear weapons, which took place in Nazi Germany in 1939-1945.

The German nuclear program did not succeed, unlike the American one. In 1943, the USA of America (USA) nuclear weapons program began, codenamed the Manhattan Project. The program involved a group of prominent physicists, most of whom were refugees from Europe. On July 16, 1945 Americans tested the first

nuclear bomb in the history of mankind, called "Trinity", with a force of 21 kilotons (kt). This event took place in New Mexico [6].

On August 6, 1945, the USA first used an atomic bomb for military purposes. The USA dropped a uranium nuclear bomb called the "Little Boy" (11 kt) on the Japanese city of Hiroshima. Three days later, on August 9, 1945, an American bomber dropped a plutonium atomic bomb, "Fat Man" (21 kt), on the Japanese city of Nagasaki. The USA occupation army headquarters in Japan estimates that the Hiroshima bombing killed 140,000 people and the Nagasaki bombing killed 74,000 [7].

The exceptional destructive power of nuclear weapons, demonstrated by the bombing, marked the beginning of the nuclear arms race between the USA and the Union of Soviet Socialist Republics (USSR), which was an important part of the Cold War, global geopolitical, ideological, military and economic conformation.

### 1.3 Proliferation of nuclear weapons

The development of the USSR's atomic bomb began in 1942, and German scientists were also involved in the process. The development was succeeded when on August 29, 1949, "RDS-1" bomb (22kt) was successfully tested. Britain also joined the confrontation on October 3, 1952, after successful testing a bomb called "Hurricane" (25 kt) [8].

After the successful development of atomic bombs, countries began to develop means of delivery. Enormous sums were invested in improving the quality of weapons and increasing their quantity. At the beginning of the nuclear race, the USA, of course, had a great advantage over the USSR because they conducted nuclear tests of their own bombs four years earlier and even managed to use them for their intended purpose. Thus, as of mid-1952, the number of nuclear warheads in the service of the USA Army exceeded 1,000, while the USSR had only 50, and other countries were only engaged in development [9].

Such a division of forces did not suit the USSR, so the government allocated more and more money for the development of production, infrastructure and development of existing technologies. Both nations quickly began developing thermonuclear weapons. Soviet intelligence even tried to obtain information on the development of the American thermonuclear bomb, but this attempt was unsuccessful. The USA blew up such a device on November 1, 1952. The device was named "Ivy Mike" and had an incredible power, which was estimated at 10,400 kt [10]. On August 12, 1953, the USSR also tested its own thermonuclear weapons. The power of the explosion was estimated at 400 kt, which was much lower than the bomb produced by the USA, but the important fact was that the USSR bomb "RDS-6s" was the first bomb produced in the size of the bomb division of the aircraft, rather than a stationary structure the size of a two-story building. On November 8, 1957, Britain also tested a thermonuclear bomb [11].

A little later, France and China developed their own nuclear weapons. India, Pakistan, the Democratic People's Republic of Korea, Israel and South Africa later joined, but there are no reliable facts about the nuclear tests of the last two countries, there is only an assumption about a 2-3 kilotones nuclear explosion near Prince Edward Islands by Israel and South Africa [12].

The USSR government sought to neutralize the USA advantage by creating more and more warheads, but the Americans did not stand on the one place. For 1967, the USA had more than 31,000 nuclear warheads, while the USSR had about 8,300 charge warheads. Britain, France, and China also developed their own nuclear weapons, but their arsenals were meager compared to the two "superpowers," Britain had about 270 shells, France 36, and China 25 [13].

On May 26, 1972, the USA and the USSR signed the Strategic Arms Limitation Treaty, which marked the beginning of a process called the "discharging of international tensions." For the first time, the USSR and the USA have declared their intention to stop the nuclear arms race. The treaty limited the number of nuclear warheads, ballistic missiles and launchers on both sides to the level they were at at the time (at that time the United States had about 27,000 nuclear warheads and the

USSR about 15,000). It provided for the adoption of new ballistic missiles placed on submarines, strictly in the amount in which the obsolete ground-based ballistic missiles were previously written off [14].

The USA has indeed stopped increasing its nuclear weapons advantage, even by slightly reducing its nuclear arsenal, while the USSR has taken advantage of the situation and not only reduced the gap, but even surpassed the USA in nuclear power. Other countries had moderate stockpiles of nuclear weapons.

The nuclear arms race peaked in 1987, when the number of nuclear weapons reached about 63,500, of which about 38,000 were owned by the USSR and about 23,500 by the USA [15]. Awareness of the importance of the threat of nuclear weapons to humanity and civilization has led to the development of a number of international measures to minimize the risk of its proliferation and use. In 1979, the Second Strategic Arms Limitation Treaty was signed. And in 1987, the USSR and the USA signed an agreement to eliminate medium-range and short-range missiles, which led to a significant reduction in the number of nuclear weapons.

Thus, in five years, the number of nuclear weapons was reduced by more than a quarter, from about 63,500 nuclear warheads in 1987 to less than 40,000 (the USA had about 12,000, the USSR had about 25,000) in 1992, this was only the beginning of a declining nuclear weapons, which are preserved to this day [16].

The last country joined the club of nuclear-weapon states was the North Korea, conducting its first nuclear test in 2006. More details on the chronology of nuclear explosions can be found in Table 1.3.

Table 1.3 - Major nuclear explosions [17]

<b>Date</b>	<b>Country</b>	<b>Name</b>	<b>Power, kt</b>	<b>Value</b>
16 July 1945	USA	Triniti	21	The first atomic bomb explosion in history
6 August 1945	USA	Little Boy	11	The bombing of Hiroshima
9 August 1945	USA	Fat Man	21	The bombing of Nagasaki

Continuation of Table 1.3

<b>Date</b>	<b>Country</b>	<b>Name</b>	<b>Power, kt</b>	<b>Value</b>
29 August 1949	USSR	RDS-1	22	USSR's first nuclear explosion
3 October 1952	Great Britain	Hurricane	25	Great Britain's first nuclear explosion
1 November 1952	USA	Ive Mike	10400	USA's first thermonuclear explosion
12 August 1953	USSR	RDS-6s	400	USSR's first thermonuclear explosion
1 March 1954	USA	Castle Bravo	15000	USA's most powerful explosion
8 November 1957	Great Britain	Scrumble X	1800	GB's first thermonuclear explosion
13 February 1960	France	Blue jerboa	60	France's first nuclear explosion
30 October 1961	USSR	King Bomb	58600	Most powerful explosion in history
16 October 1964	China	596	22	China's first nuclear explosion
17 June 1967	China	Test 6	3300	China's first thermonuclear explosion
24 August 1968	France	Kanopus	2600	France's first thermonuclear explosion
18 May 1974	India	Smiling Buddha	12	India's first nuclear explosion
11 May 1998	India	Shakti-1	30	India's first thermonuclear explosion
28 May 1998	Pakistan	Chagai-1	~9	Pakistan's first nuclear explosion
9 October 2006	North Korea	Kwandai-ri	~2	DPRK's first nuclear explosion

Thus, nuclear weapon is the most dangerous type of weapon, which is distinguished by its destructive power, the nature of the damage and the range of use, which makes it possible to shape military strategies in a special way. The driving force behind the development of nuclear weapons was the USA which was the first to test and use nuclear weapons in action, and the USSR, which carried out the most powerful nuclear explosion in history.

## 2 GLOBAL NUCLEAR ARMS CONTROL AND DISARMAMENT

### 2.1 Objectives and means of nuclear weapons control

Nuclear weapons are still the embodiment of power and strength in international relations. Despite numerous innovations in the military sphere and the development of a number of new weapons, the role of nuclear weapons has not changed. This phenomenon has several dimensions.

Firstly, nuclear weapons are of strategic and political importance. For example, Britain or France would not have such influence, if not in the international arena as a whole, then at least in the United Nations (UN), if they did not possess nuclear weapons [18].

Secondly, countries with nuclear weapons are more prone to the use of military force and violations of international law. In some cases, the availability of nuclear weapons in the country was a determining factor in deciding to launch a military operation and send troops to different regions far from their own borders. For example, after World War II, the USA carried out about 70 military interventions. Also during this time, at least 10 times there have been open threats of the use of nuclear weapons, which can be considered as a passive use of nuclear capabilities during military or diplomatic conflicts. The USSR has also been involved in dozens of conflicts around the world, mostly without waiting for a UN Security Council resolution [19].

However, there are other examples. India and Pakistan are extremely reluctant to use force in the international arena in the absence of direct threats to their national security. China has also been embroiled in no conflict since the 1979 Sino-Vietnam War [20].

The above suggests that there is no direct link between nuclear capabilities and the country's aggression. Rather, it depends on historical and political circumstances.

Third feature of nuclear weapons is that their strategic and political significance directly affects its proliferation, as this is the motivation for those who



seek to possess them. This means that the threat of a non-proliferation regime will exist as long as nuclear weapons exist [21].

However, from the nine nuclear nations, only four command a strategic force ready for immediate deployment, while the other five keep their nuclear capabilities in reserve. This confirms the idea that in today's world, weapons of mass impression play primarily a political rather than a military role. As a source of international status and power, nuclear weapons guarantee sovereignty and security in an aggressive international environment.

At the height of the Cold War, it was believed that the exchange of nuclear strikes between the USSR and the USA would lead to the end of life on the planet [22].

The Caribbean crisis of 1962 is accepted to consider the beginning of disarmament, when the world first found itself on the brink of a nuclear catastrophe. The reason was the deployment of American medium-range missiles in Turkey, which provoked the USSR to urgently install similar missiles in Cuba. One of the consequences of the Caribbean crisis was the emergence of a powerful social movement in the West in support of nuclear disarmament. In the process of disarmament there was an economic implication: the expansion of the nuclear arsenal carried a colossal burden on the country's economy [23].

Nuclear disarmament is considered to be the process of reducing the arsenals of nuclear weapons, their carriers, means of delivery and production, the main purpose of disarmament is to reduce the likelihood of nuclear war, which, of course, is a threat to humanity.

The main legal means of controlling proliferation is the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), a multilateral international instrument developed by the UN Disarmament Committee to create a barrier to expanding the number of nuclear-weapon states and ensuring international control. To fulfill the obligations of the countries those have acceded to this agreement in order to prevent the possibility of a military conflict with the use of nuclear weapons [24].

It is the United Nations that deals with issues related to the threat and control of nuclear weapons. The UN system includes an international organization for the development of cooperation in the peaceful uses of nuclear energy, which was founded in 1957 and is called the International Atomic Energy Agency (IAEA) [25].

With the advent of NPT, agency's work has become particularly important, as the NPT has made it mandatory for each member state to conclude a safeguards agreement with the IAEA [26].

The purpose of the Agency's work in the country is to state that work in the peaceful nuclear field is not switched to military purposes. The state, signing such an agreement, guarantees that it does not conduct military research, so this document is called a guarantee agreement [27].

At the same time, the IAEA is a purely technical body. It cannot give a political assessment of the activities of a state. The IAEA has no right to speculate - the agency works only with ready-made facts, basing its conclusions solely on the actual result of inspections. The IAEA safeguards system cannot physically prevent the reorientation of nuclear material from peaceful to military purposes, but only allows for the reorientation of safeguarded material or misuse of a guaranteed installation and the initiation of consideration of such facts at the UN. At the same time, the Agency's conclusions are extremely careful and correct.

The functions of the Agency include:

- encouraging research and development on the peaceful uses of nuclear energy;
- encouraging the exchange of scientific achievements and methods;
- formation and application of a system of guarantees that civilian nuclear programs and developments will not be used for military purposes;
- development, establishment and adaptation of norms in the field of health and safety [28].

However, in addition to the NPT, there are a number of bilateral and multilateral international agreements that are holding back the increase in the number of nuclear weapons in the world.

## 2.2 Nuclear weapons control and disarmament agreements

Given the devastating consequences that nuclear war would have for all mankind, there is a need for humanity to make every effort to prevent the danger of such a war and to take measures to ensure the security of the peoples. This intention has led to the conclusion of a number of treaties controlling the number of nuclear weapons and their proliferation [29].

As already mentioned, the main means of controlling proliferation is NPT, developed by the United Nations Disarmament Committee.

The treaty was approved by the UN General Assembly on June 12, 1968 and entered into force on March 5, 1970. On May 11, 1995, more than 170 member states agreed to extend the treaty indefinitely without any additional conditions. The parties to the treaty are almost all independent states of the world, except for Israel, India, Pakistan, North Korea and South Sudan [30].

An agreement sets that the state, that owns a nuclear weapon, is considered as the state that created and blew up such weapon or device to January, 1, 1967 (the USSR, the USA, Great Britain, France and China).

By Agreement, each of states-participants that own a nuclear weapon is obligated not to pass weapon or other nuclear explosive devices, and also control above them neither straight, nor side; equal as and in no way to help, not to encourage and induce no state that does not own a nuclear weapon, to making or acquisition in any other way of nuclear weapon or other nuclear explosive devices, and also to control with them [31].

A basic problem from the point of view of control after the observance of NPT is that the same process - enriching of uranium is can be used both for the receipt of nuclear fuel for nuclear power stations and in creation of nuclear bomb. Making of nuclear materials for a bomb can come true secretly, under the guise of production of nuclear fuel (in what suspect Iran) - or, as in a situation with North Korea, a state-participant of NPT can simply go out from Agreement. In other words, presence or

absence of political will - it all, that can prevent to any state, develops nuclear energy, to create an own nuclear bomb. However creation of nuclear bomb is considerably more difficult process, than enriching of uranium is in peaceful aims [32].

However, except NTA there is yet a row of bilateral and multilateral international agreements that restrain the increase of amount of nuclear weapon in the world (Table 2.2).

Table 2.2 - The main nuclear arms control and disarmament treaties [33]

<b>Year</b>	<b>Treaty</b>
1959	Antarctic Treaty - prohibits weapons testing and deployment in Antarctica (multilateral)
1963	Partial Test Ban Treaty - bans atmospheric, underwater and outer-space nuclear tests (multilateral)
1967	Outer Space Treaty - bans the deployment of nuclear weapons in space
1968	Nuclear Non-Proliferation Treaty: 1) prohibits the acquisition of nuclear weapons by non-nuclear states; 2) commits the five recognized nuclear powers to the reduction and removal of their weapons over time (multilateral)
1972	Strategic Arms Limitation Treaty 1 - limits strategic nuclear weapons and freezes intercontinental ballistic missiles at 1972 levels (USA/USSR)
1972	Anti-Ballistic Missile Treaty - limits the number of anti-ballistic missiles (USA/USSR)
1987	Intermediate Nuclear Forces Treaty - eliminates all intermediate range nuclear weapons in Europe (USA/USSR)
1991	Strategic Arms Reduction Treaty 1 - limits the number of nuclear warheads and delivery systems (USA/USSR)
1991	Strategic Arms Reduction Treaty 2 - further limits the number of nuclear warheads and eliminates certain categories of the warhead (USA/Russia)
1996	Comprehensive Test Ban Treaty - bans the testing of weapons, but not ratified by the USA, China, India, Pakistan and North Korea (multilateral)
2002	Strategic Offensive Reduction Treaty - limits the number of deployed nuclear warheads (USA/Russia)
2010	New START Treaty - limits both sides' nuclear warheads to 1550, a 30% reduction on Strategic Offensive Reduction Treaty and a 74% reduction on Strategic Arms Reduction Treaty 1 (USA/Russia)
2017	Treaty on the Prohibition of Nuclear Weapons – comprehensively prohibit nuclear weapons, with the goal of leading towards their total elimination (multilateral)

The first treaty regulating the development of nuclear weapons was the Multilateral Treaty on the Prohibition of Nuclear Weapons Testing in the Atmosphere, Space and Underwater, signed in 1963 between Russia, the USA and Great Britain. In 1968, the above-mentioned Multilateral Treaty on the Non-Proliferation of Nuclear Weapons was signed. Subsequently, it was signed by almost all countries (except Israel, Pakistan and India) [34].

However, a number of treaties between the two superpowers, the USSR and the USA, which had nuclear arsenals dozens of times the arsenals of all other countries, had a greater impact on nuclear disarmament.

On May 26, 1972, the Strategic Arms Limitation Treaty was signed, which marked the beginning of a process that later became known as the "detente of international tensions." For the first time, the USA and the USSR have declared their intention to stop the nuclear race. The treaty limited the number of nuclear warheads, ballistic missiles and launchers on both sides to the level they were at the time [35].

On the same day, the Treaty on the Limitation of Missile Defense Systems was signed. The parties refused to create, test and deploy missile defense systems or components (AMD). From July 1974, under an additional protocol to the contract was allowed to have only one such system. The USSR has deployed its anti-missile system around Moscow, and the USA around 12 launchers at the Grand Forks base in North Dakota. Fulfillment of these obligations made the mutual destruction of the USSR and the USA inevitable in the event of a nuclear war between them. The threat of mutual destruction became the basis of the concept of nuclear deterrence [36].

On June 18, 1979, the Second Strategic Arms Limitation Treaty was signed. For the first time, the USSR and the USA agreed not only to limit but also to reduce the number of nuclear weapons. The agreement limited the number of strategic carriers (intercontinental ballistic missiles, ballistic missiles, submarines, and heavy bombers) to 2,400 units, by January 1, 1981 the countries undertook to reduce their number to 2,150. Of the total number of strategic systems, only 1,320 carriers could be equipped with main parts with combat units of individual guidance. Due to the

introduction of the USSR's troops into Afghanistan, the treaty was not ratified by the US Senate, although its provisions were respected by both parties [37].

On December 8, 1987, the Treaty on the Elimination of Medium-Range and Short-Range Missiles was signed. The deployment of American ballistic nuclear missiles in Western Europe reduced the time of their approach to the target in the USSR from 25-30 minutes to 7-10 minutes. At the same time, USSR's missiles could hit targets in Europe. This drastically reduced the reaction time and posed the threat of a "decapitated" first strike on enemy command posts, which called into question the guarantee of mutual destruction and increased the risk of nuclear war. The agreement provided for the destruction by the parties within three years of all existing surface-to-air missiles with a range of 500 to 5,500 km, as well as mutual inspections. The USSR destroyed 1,846 missile systems (about half of them were missiles that were not on combat duty); USA - 846 complexes, including missiles deployed in Western Europe [38].

On July 30-31, 1991, the Strategic Offensive Reductions Treaty was signed. For the first time, the USSR and the USA agreed on a significant reduction in nuclear weapons and mutual control over the implementation of obligations. Each of the parties undertook to have no more than 6,000 nuclear warheads seven years after the entry into force of the treaty. In reality, according to the "rules of offset" of warheads on heavy bombers, the USSR could have about 6,500 warheads, and the USA - 8,500. Basement of mobile ground missile systems was allowed only in limited areas [39].

On December 6, 2001, Russia and the United States announced their obligations under the START-1 Treaty. At that time, Russia had 1,136 strategic carriers and 5,518 nuclear warheads, and the USA had 1,237 carriers out of 5,948 warheads. The implementation of the agreements was complicated by the collapse of the USSR, as nuclear weapons were located in other former republics of the Union. On May 23, 1992, Russia, the USA, Ukraine, Kazakhstan, and Belarus signed an additional protocol under which three former USSR republics joined the treaty. All nuclear weapons on their territory were subject to destruction or transfer to Russian control [40].

On January 3, 1993, the Strategic Offensive Reductions Treaty was signed between Russia and the USA. The treaty provided for the most significant reduction in the history of the nuclear arsenals of the largest nuclear powers - almost 2 times. Russia and the USA have committed themselves to reducing the number of their strategic warheads to 3,000 to 3,500. More than 1,750 warheads could not be placed on naval-based ballistic missiles. The parties undertook to eliminate all ground-based ballistic missiles equipped with more than one warhead and all heavy missiles. Missile launchers with the main parts of individual guidance had to be either eliminated or converted into monoblock missile launchers. On May 24, 2002, the Agreement on Reducing Strategic Offensive Capabilities was signed. The treaty limited the number of nuclear warheads on combat duty to 1700-2200 for each party [41].

On April 8, 2010, the Strategic Offensive Reductions Treaty was signed, replacing two previous agreements. Russia and the USA have pledged to reduce and limit the number of deployed and non-deployed strategic offensive weapons. In particular, reduce the number of deployed strategic carriers on each side to 700 units, and ammunition on them - up to 1550 units. The parties agreed on a mechanism for mutual verification of compliance. Russia and the USA announced the achievement of the treaty level of 1,550 deployed warheads in early 2018 [42].

On July 7, 2017, the Treaty on the Prohibition of Nuclear Weapons was adopted - an international agreement that prohibits the development, testing, storage, acquisition, transportation and use of nuclear weapons. The treaty will enter into force after it is ratified by 50 states [43].

The Nuclear Weapons Ban Treaty, according to its supporters, should become an “unequivocal political commitment” to create and maintain a world free of nuclear weapons. However, unlike a comprehensive convention on nuclear weapons, the treaty does not contain all the legal and technical measures necessary to eliminate the threat. Such provisions will be the subject of subsequent negotiations to allow for an initial agreement without the involvement of the nuclear-weapon States.

The dynamics of changes in the number of nuclear weapons can be found in Figure 2.2 below.

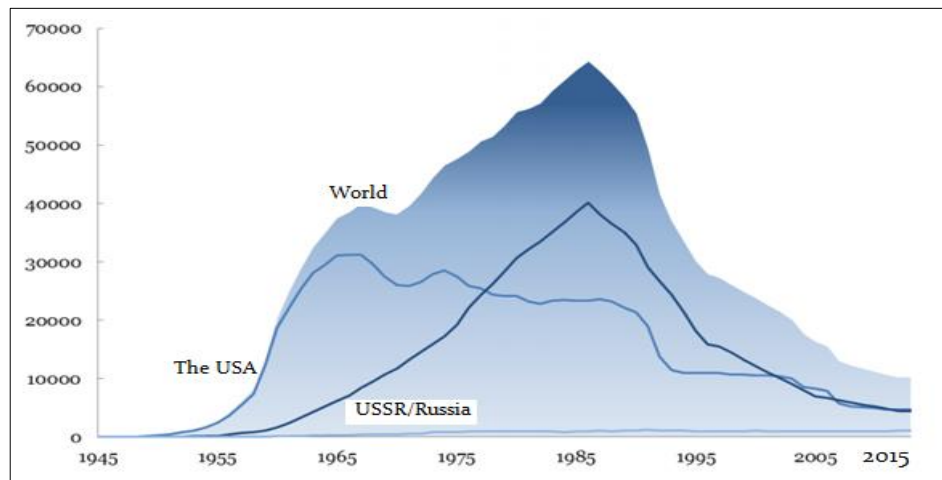


Figure 2.2 - Dynamics of changes in the world's nuclear arsenals in 1945-2015 [44]

Thus, there are several multilateral international treaties banning the proliferation of nuclear weapons, in which most countries of the world participate. There are also a number of agreements between Russia and the USA to limit and reduce the number of nuclear weapons and it is the bilateral agreements between the USA and Russia that are responsible for quantitative disarmament. However, it should be noted that in addition to reducing the number, there is a process of modernization of nuclear weapons, which is almost impossible to stop.

### 2.3 Nuclear arsenal of countries

The number of nuclear warheads in the world has declined significantly since the Cold War: from a peak of 63,500 in 1987 to 13,410 in early 2020 (Table 2.3).

Quite often, these achievements are portrayed as the result of existing arms control agreements, but most of the reduction took place in the 1990s. In recent years, the rate of reduction has slowed significantly, instead of planning nuclear disarmament, nuclear powers plan to maintain their arsenals for the indefinite future.



Table 2.3 - Nuclear arsenals of the world [45]

Country	Number of nuclear warheads
Russia	6370
USA	5800
China	320
France	290
Great Britain	195
Pakistan	160
India	150
Israel	90
North Korea	35

Nine nuclear powers - the USA, Russia, Britain, France, China, India, Pakistan, Israel and North Korea - together owned 13,400 nuclear weapons by the beginning of 2020, 465 fewer than last year. This decline was largely due to the disposal of obsolete nuclear arsenals by Russia and the USA, which together still hold more than 90% of the world's nuclear weapons. At the same time, Russia and the USA are implementing large-scale and expensive programs to replace and modernize their nuclear warheads, missile and aircraft delivery systems, as well as nuclear weapons production facilities. Both countries have assigned new or expanded roles to nuclear weapons in their military plans and doctrines, marking a significant reversal of the post-Cold War trend toward the gradual marginalization of nuclear weapons [46].

The numbers of nuclear warheads (table 2.3) clearly show that the global balance of nuclear capabilities plays in favor of Russia and the USA, which were constantly developing their strategic capabilities during the Cold War. They are the largest holders of nuclear warheads, and they are the main "contributors" to nuclear disarmament. As the two states are well ahead of all other nuclear powers in the stockpile of nuclear warheads, the latter lack sufficient motivation to reduce their own arsenals. For example, China has increased the number of nuclear warheads by more than a quarter in the last five years. India and Pakistan are gradually increasing the number and diversity of their nuclear forces, and North Korea is prioritizing its military nuclear program as a central element of its national security strategy.

### 3 NUCLEAR DISARMAMENT

#### 3.1 Ukraine as a powerful nuclear state

After the collapse of the USSR in 1991, one of the most painful issues was the division of military property of the former USSR army. The problem of belonging to a colossal nuclear arsenal was especially acute. The number of USSR's nuclear arsenals at the end of 1990, according to the American Arms Control Association, was more than 10,200 nuclear warheads. After the collapse of the USSR, the number of nuclear states in the Commonwealth of Independent States formally increased to four, as in addition to Russia, strategic forces remained in the territories of the newly independent republics - Ukraine, Belarus and Kazakhstan (Fig. 3.1).

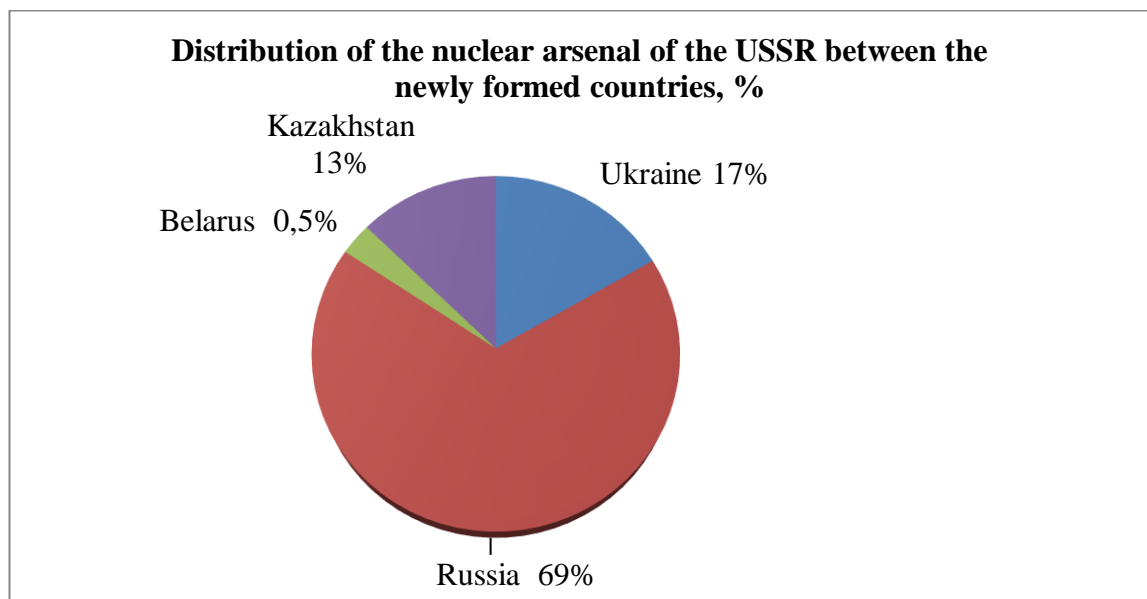


Figure 3.1 - Distribution of the nuclear arsenal of the USSR between the newly formed countries [47]

Ukraine's nuclear potential was the third in the world, after Russia and the USA.

Initially, the Russian Federation stated that it did not intend to control all strategic weapons remaining after the collapse of the USSR. Thus, on December 21,

1991, four states signed an agreement in Almaty on joint measures to control nuclear weapons. Nine days later in Minsk, the Commonwealth of Independent States (CIS) member states signed an agreement on the need to establish a Joint Command of the strategic forces of the former USSR [48].

However, between the signing of the two treaties on December 25, 1991, Russian President Boris Yeltsin received a device from Mikhail Gorbachev that stored codes to activate the nuclear arsenal, and the Russian leader became the sole owner of the symbolic key to the USSR's strategic arsenal. The Minsk agreements stated that from now on the decision on the use of nuclear weapons should be made by the President of Russia, but subject to mandatory coordination with the leaders of Ukraine, Belarus and Kazakhstan, as well as consultation with other CIS members [49].

At the same time, both among the members of CIS and in Western countries, there was growing confidence that none of the post-USSR republics would be able to ensure the proper storage and safety of nuclear warheads except Russia. The issue of the lack of a unified strategic weapons control in the former USSR has caused serious concern in the USA and Europe.

After Ukraine's declaration of independence, the tendency to change the principles of foreign policy and attitude to nuclear weapons began to gain momentum. It began with the fact that Kyiv renounced almost all agreements within the CIS, which concerned the common military-strategic space. The CIS Strategic Forces did not include any of the units stationed on Ukrainian territory that held strategic nuclear weapons. Moreover, in April 1992, Ukraine incorporated the Strategic Forces stationed on its territory into the Ukrainian army [50].

Maintenance of nuclear warheads is a complex of complex operations. Some operations can be carried out only at the factory-manufacturer of ammunition, especially in the case of ammunition that is in an emergency condition. The technical support of the warheads was managed from a single center - one of the main departments of the Ministry of Defense of the USSR, and then Russia. But the further the process of re-subordination of the Strategic Forces located on its territory to

Ukraine and bringing their personnel to the Ukrainian oath, the more confusion arose with the maintenance of nuclear weapons. Step by step, the criteria for physical access to ammunition were blurred. Former Minister of Justice of Ukraine S. Holovatyy then explicitly stated that Kyiv needed nuclear weapons to "deter Russia". In turn, the then President of Ukraine L. Kravchuk asked to provide guarantees that Ukrainian nuclear weapons will be destroyed and not transferred to the Russian army [51]. Nevertheless, with the mediation of the USA, the Ukrainian leadership managed to convince of the need to transfer strategic nuclear arsenals to Moscow.

### 3.2 Nuclear disarmament of Ukraine and the Budapest Memorandum

After the collapse of the USSR, Russia, Ukraine and Belarus considered it necessary to keep the existing nuclear forces under a single command. Already during the first meetings of the leaders of the three countries in Minsk on December 7-8, and then in Alma-Ata on December 21, 1991, the fate of the strategic nuclear weapons of the former USSR was discussed [52].

The principles of non-nuclear ("not to accept, produce or acquire nuclear weapons") were enshrined in the Declaration of State Sovereignty of Ukraine, adopted by the Verkhovna Rada of the Ukrainian Soviet Socialist Republic on July 6, 1990 [53].

The Ukrainian parliament, ratifying the CIS treaty, insisted on 13 reservations, 2 of which directly addressed the issue of nuclear weapons. Paragraph 8 stated that Ukraine intended to achieve non-nuclear status "by eliminating the entire nuclear arsenal under international control." Paragraph 9 declared that the presence of strategic forces on the territory of Ukraine was temporary and their legislative status and length of stay would be determined in accordance with Ukrainian law and by means of a "special international agreement concluded between the states where nuclear missiles of the former USSR are deployed" [54].

The main reasons that prompted Ukraine to abandon nuclear weapons are:

1. Lack of complete control over nuclear weapons. Ukraine's nuclear stockpile was powerful, but neither the first president of Ukraine, L. Kravchuk, nor the second, L. Kuchma, had access to an automated strategic nuclear arsenal management system. Kyiv has never had control over its nuclear weapons; all the keys were in Moscow. The maximum that Kyiv could count on was to be able to block launches without its consent. Thus, nuclear disarmament has become for Ukraine rather one of the steps to get out of the Kremlin's control [55].

2. Technical condition of nuclear weapons. There were many questions about the technical condition of nuclear missiles. The information was contradictory: from "everything is fine" to warnings that the "Second Chernobyl" is brewing in Ukrainian nuclear mines.

3. The cost of maintenance. In the early 1990s, the country was in an economic crisis, so Ukraine did not have the financial resources to maintain its nuclear potential, as it already had a significant state budget deficit [56].

4. Types of nuclear weapons. Strategic intercontinental missiles were Ukraine's nuclear weapon. Missiles aimed at the USA, which were powerless against Russia. Instead, Ukraine itself was targeted by American nuclear missiles. Theoretically, tactical nuclear weapons could deter Russia in the event of a conflict. At one time, Ukraine did have three to four thousand such warheads, but Russia quickly and semi-secretly took tactical nuclear weapons to itself in the first months after the country's declaration of independence. The strategic weapons that remained in Ukraine on the geopolitical chessboard only strengthened Moscow's position and played against the USA [57].

5. An idealistic view of the future of a world without nuclear weapons, advocated by young members of the new democratic movement and former Soviet dissidents.

6. Diplomatic isolation. Despite all these reasons, Kyiv was in no hurry to part with its nuclear weapons. This has put the country in de facto isolation in the international arena. US President Clinton's first visit to independent Ukraine was a demonstration of the pressure and threat of complete isolation. His plane landed in

Kyiv in January 1994, but Clinton did not even leave the airport. Ukrainian President L. Kravchuk had to go to the airport for talks [58].

In such circumstances, there was neither opportunity nor real sense in Kyiv to continue to insist on the preservation of nuclear weapons. The choice was simple: either join the club of new states and build democracy with the support of the West, or shut yourself off from nuclear missiles that you can't even control, and become a country isolated from the world.

On November 16, 1994, Ukraine acceded to the Treaty on the Non-Proliferation of Nuclear Weapons of July 1, 1968. These actions confirmed that Ukraine is the owner of all nuclear weapons inherited from the USSR and intends to get rid of them completely, using nuclear energy exclusively for peaceful purposes [59].

In view of the accession to the Treaty on the Non-Proliferation of Nuclear Weapons and Ukraine's commitment to eliminate all nuclear weapons on its territory, the Budapest Memorandum was concluded on December 5, 1994 between Ukraine, the USA, Russia and the United Kingdom, providing appropriate security guarantees (Table 3.2) [60].

Table 3.2 - Countries involved in the process of concluding the Budapest Memorandum [61]

<b>Country</b>	<b>Leader</b>	<b>Participation</b>
Ukraine	L.Kuchma	Country-signatory of memorandum
Russia	B.Yeltsin	Country-signatory of memorandum
Great Britain	D.Major	Country-signatory of memorandum
USA	B.Clinton	Country-signatory of memorandum
China	T.Tsemin'n	Did not participate in the signing of the memorandum, but joined its provisions, providing Ukraine with security guarantee
France	F.Mitteran	Did not participate in the signing of the memorandum, but joined its provisions, providing Ukraine with security guarantee

Under Memorandum, the USA, the Russian Federation, and the United Kingdom undertook:

- respect the independence, sovereignty and existing borders of Ukraine;
- refrain from the threat of force, its use against the territorial integrity / political independence of Ukraine; never use weapons against Ukraine other than for self-defense purposes or in any other way in accordance with the UN Charter;
- to refrain from economic pressure aimed at subordinating to its own interests the exercise by Ukraine of the rights inherent in its sovereignty, to obtain any benefits;
- seek immediate action by the UN Security Council to assist Ukraine if it is threatened with aggression using nuclear weapons;
- not to use nuclear weapons against Ukraine, except in the case of an attack on themselves, their and their territories, the armed forces, their allies;
- consult in the event of a situation giving rise to a question of these obligations [62].

A number of scholars and politicians believe that the Budapest Memorandum has no security guarantee mechanism due to the difference between the English and Ukrainian texts of the Memorandum: in the Ukrainian version the title sounds like "Memorandum on Security guarantees", in English - "Memorandum on Security Assurances" [63].

On the other hand, the document contains the phrase "Signed in four equally authentic copies in Ukrainian, English and Russian." The signatures of the President of the USA and the Prime Minister of the United Kingdom are not only under the English text, but also under the Ukrainian and Russian texts, which state "гарантії" and "гарантии".

Thus, in addition to the signatory countries to this agreement (USA, Ukraine, Great Britain, Russia), its parties are also China and France, which have acceded to the provisions of the memorandum. However, despite the fact that the Budapest Memorandum provided security guarantees to the most powerful countries in the international political arena, they were later violated.

### 3.3 Results of nuclear disarmament for Ukraine and prospects for returning the status of a nuclear state

Following the course of renouncing its nuclear status, Ukraine has fulfilled its obligations, despite all obstacles. In May 1996, the export of nuclear warheads from Ukraine was completed [64].

Ukraine's declaration of non-nuclear status has not only had positive consequences, but has also created new foreign policy challenges for our country, forcing scientists, researchers, politicians and the public to constantly return to studying and analyzing this topic [65].

Ukraine became the center of attention of the world community in 2014 after the annexation of Crimea and the start of hostilities in eastern Ukraine - in Luhansk and Donetsk regions. In connection with these events, discussions in Ukrainian society intensified on the issue of nuclear disarmament in Ukraine and the implementation of the terms of the Budapest Memorandum.

On November 27, 2018, the Ministry of Foreign Affairs of Ukraine, pursuant to paragraph 6 of the Memorandum, appealed to the signatories of the Budapest Memorandum to hold urgent consultations to ensure full compliance and immediate cessation of Russian aggression against Ukraine [66].

However, did this appeal have no positive consequences, which once again underlined the ineffectiveness of the Budapest Memorandum and called into question the appropriateness of Ukraine's renunciation of its nuclear arsenal?

The past presence of nuclear potential, appropriate infrastructure and professionals in this field of production provide Ukraine with the necessary basis for the restoration of nuclear weapons. The success of the development of a "peaceful" atom also has a positive aspect. Thus, according to the World Nuclear Association, as of 2019, the share of nuclear energy in the structure of total production in Ukraine is 53.9%. According to this indicator, Ukraine shares 2-3 places in Europe with Slovakia and is second only to France (70.6%). In addition, Ukraine ranks first in



Europe and 10th in the world in terms of proven uranium reserves. Together, I am creating the preconditions for a possible restoration of the state's nuclear status [67].

The issue of ways to restore Ukraine's nuclear status is often discussed by political authorities. A number of politicians believe that the disarmament of Ukraine under the Budapest Memorandum was meaningless, as weapons continue to be the main argument in international relations, focusing on restoring the status of a nuclear state as a deterrent to aggressive actions by the Russian Federation.

Let's consider in more detail the prospects for the return of Ukraine's nuclear status in the framework of the SWOT analysis (Table 3.3).

Table 3.3 - SWOT-analysis of prospects for the return of Ukraine's nuclear status

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>▪ Large reserves of uranium;</li> <li>▪ Experience in owning of nuclear weapon ;</li> <li>▪ availability of scientific potential in this field;</li> <li>▪ availability of design bureaus and productions that are possible to renew;</li> <li>▪ presence of operating nuclear reactors</li> </ul>	<ul style="list-style-type: none"> <li>▪ International non-proliferation obligations;</li> <li>▪ obsolescence of the material base;</li> <li>▪ lack of financial resources;</li> <li>▪ hostilities on the territory of the country;</li> </ul>
<b>Perspectives</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>▪ strengthening the country's military power;</li> <li>▪ increasing influence in international politics;</li> <li>▪ creation of new jobs</li> </ul>	<ul style="list-style-type: none"> <li>▪ economic and political sanctions;</li> <li>▪ risk of international isolation;</li> <li>▪ state budget deficit;</li> <li>▪ fact of the presence of nuclear weapons on the territory (its storage is already a certain risk);</li> <li>▪ duration of the process of rebuilding the nuclear arsenal</li> </ul>

The main prospect of creating its own nuclear arsenal is to strengthen military power in order to guarantee territorial integrity and national security. After all, there has never been a case in the world where a country with nuclear weapons has been

subjected to a military attack. And given the annexation of Crimea and the start of hostilities in the Donbas by Russia, this issue is becoming vital.

And although the creation of new jobs at the expense of this area will not be of great importance in the country, the beginning of a nuclear program can be an impetus for the development of Ukrainian science. In the longer term, we can gain increased influence in the international political arena and the opportunity to join North Atlantic Treaty Organization.

In order to fully assess the scale of the threats posed by the prospect of developing nuclear weapons, it is important to assess global trends in the use of nuclear energy.

And in the world there is a tendency to abandon the use of nuclear energy. Italy became the first country to shut down its own nuclear power plants, Austria was the first country to build nuclear power plants but did not put them into operation, moreover, it abandoned the use of electricity produced by nuclear power plants in other countries [68]. Other countries are joining this process. France, Taiwan, Switzerland and Belgium have already developed plans to cut off electricity from nuclear power plants, which will be implemented in the near future. Also, a number of countries have launched processes to reduce nuclear energy production. Atomic energy leaders such as the USA, Britain, France, Japan, and a number of other countries have launched processes to reduce nuclear power production, significantly reducing the number of plants [69].

There are two main reasons for this trend:

- accidents at the Three Mile Island NPP, the Chornobyl NPP and the Fukushima-1 NPP, which showed threats to the use of these energy sources.
- development of renewable energy.

This process is important given the uranium enrichment procedure. NTP predicts that uranium can be enriched only for peaceful purposes - up to 4-5%. Armed uranium must be enriched at least up to 90 percent. Therefore, countries enriching uranium for military purposes are trying to hide this process, keeping it a secret.

Unlike Ukraine, its partners are not fulfilling their part of the agreement on Ukraine's nuclear-free status. Although Ukraine has every legal basis to withdraw from the agreements, the main risk is international economic and political sanctions, under the influence of which Ukraine may find itself in complete isolation, the negative consequences of which are difficult to exaggerate.

Also significant is the problem of maintaining and servicing nuclear weapons, which require significant financial costs. Each year, the International Campaign to Abolish Nuclear Weapons publishes a report with approximate costs. In 2019, total costs amounted to 72.9 billion dollars. The largest in the USA - 35.4 billion, in France - 4 billion, in India - 2.3 billion, in Israel and Pakistan - about one billion dollars. This is just the cost of maintenance, we add to this the cost of creation (an accurate estimate of which is impossible, but in the experience of other countries costs many times more than the cost of maintenance) and we get a significant burden on the country's budget [70].

Based on the SWOT analysis, it can be concluded that the successful development of nuclear energy in combination with significant natural uranium reserves and scientific potential in this area can be a good basis for the development of Ukrainian nuclear weapons. However, weak economy, international treaties on nuclear non-proliferation and the general trend of denuclearization of the world add doubts about the possibility of restoring Ukraine's nuclear status in the current international environment.

## CONCLUSIONS

1. Nuclear weapons are the most dangerous weapons, the proliferation and use of which are controlled by special rules of international law. A country with nuclear weapons not only gains a military advantage over other countries, but also has greater influence in the international political arena.

2. Nuclear weapons were first invented and tested by the USA in 1945. The exceptional destructive power of nuclear weapons, demonstrated by the bombing, marked the beginning of a nuclear arms race in which the USA and the USSR became the main protagonists.

3. Currently, 9 countries have nuclear weapons; among them are the USA, Russia, China, Britain, France, Pakistan, India, North Korea and Israel. The USA and the USSR make up more than 90% of the world's nuclear arsenal.

4. The assessment of the threat to humanity, the fear that the exchange of nuclear strikes between the United States and the USSR will lead to the end of life on the planet and the enormous burden on the economies of the countries led to a reduction in nuclear arsenals, carriers and means of delivery.

5. There are several multilateral international treaties banning the proliferation of nuclear weapons, in which most countries participate. There are also a number of bilateral agreements between Russia and the USA to reduce the number of nuclear weapons which have made the biggest contribution to quantitative disarmament. However, in addition to reducing the number, there is a process of modernization of nuclear weapons, which is almost impossible to stop.

6. After gaining independence, Ukraine inherited from the USSR the third largest nuclear potential in the world, second only to the USA and Russia. However, in the process of lengthy negotiations and the conclusion of a number of international agreements, the Ukrainian leadership decided to abandon nuclear weapons in exchange for security guarantees.

7. The main reasons that prompted Ukraine to abandon nuclear weapons were: lack of full control over the nuclear arsenal, the risk of international isolation,

unsatisfactory technical condition of weapons and the high cost of its maintenance. These factors led to Ukraine's accession to the Treaty on the Non-Proliferation of Nuclear Weapons and the signing of the Budapest Memorandum.

8. The signing of the Budapest Memorandum became the quintessence of the process of depriving Ukraine of its nuclear status. In exchange for the renunciation of nuclear weapons, Ukraine has received certain security guarantees from 5 countries that possess nuclear weapons. However, the events of 2014 showed that these guarantees were violated, and none of the signatories of the Memorandum was held responsible. The situation with nuclear weapons in Ukraine has confirmed the need to develop new approaches to the problem of ensuring the security of the state in changing geostrategic conditions.

9. The foreign policy challenges facing our state force us to return again and again to the analysis of the prospects for restoring Ukraine's nuclear status and creating a new nuclear arsenal. However, based on the SWOT analysis, it can be argued that today the revival of the nuclear program will create more new threats to national interests than development prospects. Weak economy, international treaties on nuclear non-proliferation and the general trend of denuclearization of the world make impossible restoring Ukraine's nuclear status in the current international environment.

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## SUMMARY

Kapatus N. V. Global nuclear disarmament: consequences and challenges for Ukraine. - Masters-level Qualification Thesis. Sumy State University, Sumy, 2020.

The master's thesis focuses on the study of the causes and consequences of Ukraine's nuclear disarmament and prospects of returning Ukraine's nuclear status. The history of development and proliferation of nuclear weapons is studied. The role and influence of countries with nuclear weapons in the international political arena are assessed. The causes and consequences of Ukraine's nuclear disarmament have been analyzed. Prospects and threats to return of Ukraine's nuclear status are estimated.

Key words: nuclear weapons, proliferation, disarmament, nuclear states, international treaties, Ukraine.

## АНОТАЦІЯ

Капатус Н. В. Глобальне ядерне роззброєння: наслідки та виклики для України. - Кваліфікаційна магістерська робота. Сумський державний університет, Суми, 2020.

Кваліфікаційна магістерська робота присвячена дослідженню причин та наслідків ядерного роззброєння України та оцінці перспектив повернення ядерного статусу. Досліджено історію розробки та поширення ядерної зброї. Оцінено роль та вплив країн, що мають ядерну зброю, на міжнародній політичній арені. Проаналізовано причини та наслідки ядерного роззброєння України. Оцінено перспективи та загрози повернення ядерного статусу України.

Ключові слова: ядерна зброя, поширення, роззброєння, ядерні держави, міжнародні договори, Україна.