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Belaia Anastasiia

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Academic advisor:

Malygina A.A.

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Associate professor

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Kovchegin D.A.

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Introduction

Export control is a set of measures that regulates the procedure for carrying out foreign economic activity in relation to goods, information, works, services, and the results of intellectual activity that can be used to create weapons of mass destruction (WMD), their delivery vehicles, and other types of weapons and military equipment. Thus, export control is one of the main tools for preventing the proliferation of weapons of mass destruction.

As a nuclear-weapon state under the NPT Treaty, Russia also has a number of non-proliferation obligations. Given the role that nuclear exports play in Russian economy, Russian active participation in a nuclear market today and also how closely the state corporation Rosatom, responsible for the export of nuclear materials, is connected to Russian government, the topic of the relationship between politics and nuclear export control in Russia can be called viable. For the Russian Federation such studies will not lose their relevance as long as it has the ability to engage in nuclear exports.

In Russia, the export control policy underwent legislative and administrative changes due to change of political regime (collapse of the Soviet Union). Russia, recognized as a successor country to the Soviet Union, was entering the market, which was previously divided among Western companies and states.

At the same time, the development of international cooperation in trade which was and still is one of the goals for Russia, intersects with the need to prevent the transfer of critical technologies. Under the necessity to find a place in the world market and promote national products and international cooperation, it was important to comply with non-proliferation obligations.

The **aim** of this master thesis is to determine what political problems in the area of nuclear export control arose after the collapse of the USSR and how Russia tackled them

According to the aim of this research, the following tasks have been formulated:

1. To analyse the consequences of the Soviet Union dissolution for the export control system of Russian Federation;
2. To indicate Russian approach to re-establishing the system of nuclear export control;
3. To observe Russian solutions to the international export control regulations on the national and corporate level

The aim and tasks of the master thesis determine the **structure of the research**.The first chapter analyses consequences of the USSR dissolution in the context of the non-proliferation responsibilities of Russian Federation. The second chapter indicates structural changes that happened in the administrative and legislative sphere and that influenced nuclear export control policy. The third chapter is dedicated to the Russian role in the global nuclear governance and seeks to identify what are Russian solutions to the tightening measures of nuclear export control regulations on the international, national and corporate level.

Therefore, **the timeline of the paper** studied three periods. First, before the stable and comprehensive system of export control, appropriate for the new political and economic reality, was formed. Second, when Russia was in the process of reforms. And the third, when the reforms were over. The first part starts with the dissolution of the USSR. It helps to identify the main political problems Russia faced in the field of export control and how Russian government dealt with them. The second part researches the period of the mid 1990s and the beginning of 2000s and observes the development of the legislative and administrative basis for the nuclear export control system. The third part considers the increased role of Russia in the nuclear market and how non-proliferation obligations formed and influenced the nuclear export control in the country. It extends up to the mid-2010s.

The study used the information obtained from various primary and secondary **sources**. Primary sources may be divided into several parts.

First set of primary sources that were used in this research are international documents that form the basis of the non-proliferation regime and nuclear export control regulations. They give general understanding of the Russian place in the world nuclear governance and the current state of affairs

1. The United Nations documents and resolutions

Treaty on the Non-Proliferation of Nuclear Weapons (NPT)[1] sets out the basis of the nuclear export control policy by the Articles I, III, and IV. The Articles impose the obligations of non-proliferation, exporters responsibilities and also claim equal access to nuclear energy for peaceful purposes.

[1] Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // United Nations Office for Disarmament Affairs, URL: https://www.un.org/disarmament/wmd/nuclear/npt/text/

The NPT Treaty serves as the cornerstone for several United Nations Security Council Resolutions. For instance, Resolutions 687[2] and 1051[3], which reinforced the non-proliferation regime and also imposed restrictions on the transfer of nuclear technologies and materials to certain states. Thus, the UN documents create a general framework for the nuclear export control regulations and also supplement the framework by additional restrictions when needed.

2. IAEA documents

IAEA Comprehensive Safeguards Agreement[4] and Additional Protocol[5] are the documents that indicate the nuclear exporters and importers non-proliferation responsibilities. The Status Lists[6] indicate different countries adherence to the Comprehensive Safeguards Agreement and Additional Protocol. Apart from that, the NSG guidelines are also formulated through the IAEA curriculars.[7]

Second set of primary sources concern exclusively Russia and are published in Russian language or mostly for the Russian audience.

3. Russian government documents

Russian laws allow to track the development of Russian legislative[8] and administrative[9] structures of the nuclear export control. Many Russian presidential decrees[10]

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[2] Резолюция 687 Совета Безопасности Организации Объединенных Наций // UN Department of Political and Peacebuilding Affairs (DPPA) – 1991. URL: https://peacemaker.un.org/sites/peacemaker.un.org/files/IQ%20KW_910403_SCR687%281991%29%28ru%29.pdf

[3] Резолюция 1051 Совета Безопасности Организации Объединенных Наций // United Nations – 2016, URL: https://undocs.org/ru/S/RES/1051(1996)

[4] The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons - INFCIRC/153 // International Atomic Energy Agency (IAEA) – 1972. URL: https://www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf

[5] Model Additional Protocol designed for States having a Safeguards Agreement with the IAEA - INFCIRC/540 // International Atomic Energy Agency (IAEA) – 1998. URL: https://www.iaea.org/sites/default/files/infcirc540c.pdf

[6] Conclusion of Additional Protocols Status List // International Atomic Energy Agency (IAEA) – 2020. URL: https://www.iaea.org/sites/default/files/20/01/sg-ap-status.pdf

[7] NSG Part 1 Guidelines for Nuclear Transfers – INFCIRC/254/Rev.13/Part 1 // International Atomic Energy Agency (IAEA) – 2016. URL: https://www.iaea.org/sites/default/files/publications/documents/infcircs/1978/infcirc254r13p1_rus.pdf

[8] Федеральный закон от 13.10.1995 г. № 157-ФЗ О государственном регулировании внешнеторговой деятельности // Официальные сетевые ресурсы президента России. – 1995. URL: http://www.kremlin.ru/acts/bank/8383

[9] Указ Президента РФ от 29.01.2001 N 96 (ред. от 25.04.2005) "О Комиссии по экспортному контролю Российской Федерации" // Официальные сетевые ресурсы президента России – 2005. URL: http://www.kremlin.ru/acts/bank/16528

[10] Указ Президента РФ №36 от 14.01.2003 г. "Об утверждении Списка оборудования и материалов двойного назначения и соответствующих технологий, применяемых в ядерных

reflect Russian political establishment attitude towards nuclear export control[11] and the development of Russian nuclear export control system.[12] Special set of government official declarations consists of the Ministry of Foreign Affairs official reports[13] for the mass media that are published on the official web-site.

4. *Rosatom State Corporation official documents and reports*

This set of sources concerns the documents on the nuclear cooperation[14] that Rosatom concludes with various partner countries representatives. The reports of the Rosatom State Nuclear Energy Corporation performance[15] represent Russian nuclear industry export aims and prospects. These documents and reports provide an understanding of Rosatom foreign activities and its goals and prospects as a national corporation.

As for the secondary sources, the literature that created a solid foundation for the master thesis can also be divided into several groups. First group is composed of the monographs and research articles dedicated to the Russian context of the nuclear export control in the historical period from 1991 and to the beginning of 2000s. There was a big spark of the analytical literature on this topic in the 1990s, since that is the time when the problem was the most relevant due to the common concern about Russian political power transition and possible risks that could arise due to that. This set of literature contributes to a better understanding of the political and economic processes in Russia after the dissolution of the USSR and in what ways these processes are relevant to the non-proliferation. Historical dimension of the problems of the Russian nuclear export control, as well as its prospects and

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целях, в отношении которых осуществляется экспортный контроль" // Официальные сетевые ресурсы президента России. – 2003. URL: http://www.kremlin.ru/acts/bank/19050

[11] Указ Президента Российской Федерации от 11.04.1992 г. № 388 О мерах по созданию системы экспортного контроля в Российской Федерации // Официальные сетевые ресурсы президента России – 1992. URL: http://www.kremlin.ru/acts/bank/1187

[12] Федеральный закон № 183-ФЗ от 18.07.1999 года «Об экспортном контроле» // Официальные сетевые ресурсы президента России – 1999. URL: http://www.kremlin.ru/acts/bank/14157

[13] Сообщение для СМИ о мирном ядерном сотрудничестве с Индией, МИД России // Официальный сайт Министерства Иностранных Дел России – 2008. URL:https://www.mid.ru/eksportnyj-kontrol/-/asset_publisher/UhKoSvqyDFGv/content/id/326162

[14] Меморандум о взаимопонимании между Госкорпорацией «Росатом» и Министерством энергетики Республики Гана о сотрудничестве в области использования атомной энергии в мирных целях // Официальный сайт Государственной корпорации Росатом –. 2012. URL: https://www.rosatom.ru/upload/iblock/248/248442a5f88647ae8230799747766510.pdf

[15] Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2019 год // Официальный сайт Государственной корпорации Росатом. 2019. URL: https://report.rosatom.ru/go/rosatom/go_rosatom_2019/%D0%93%D0%BE%D0%B4%D0%BE%D0%B2%D0%BE%D0%B9_%D0%BE%D1%82%D1%87%D0%B5%D1%82_%D0%A0%D0%BE%D1%81%D0%B0%D1%82%D0%BE%D0%BC_2019.pdf

solutions up to the beginning of 2000s were analyzed by the PIR center research monograph[16] written by Orlov V., Timerbaev R., Khlopkov A. The researchers describe the formation of Russian non-proliferation policy, its dynamics and specific features. The export control issues are also included in the context of this work and are represented by the various historical cases. The monograph contains the analysis of the Russian nuclear export control system development.

Also, various journals and bulletins issued by the research institutes and international centers for peace and non-proliferation were used in this thesis. Some of them are dedicated to the problems discussed in the first chapter and describe development of the Russian nuclear export and observe historical cases where the nuclear export control of Russian Federation caused concern of the international society or non-proliferation researchers.[17] In this regard, Nonproliferation review[18]and Bulletin of the Atomic scientists[19] issued various articles dedicated to the problems that Russian export control system could face due to the Soviet Union dissolution. Security Dialogue[20], Arms Control Today,[21] and Yaderny Kontrol[22] are more concentrated on the observation of the proliferation risks while taking Russian context into account.

The second set of literature is composed of researches conducted on legislative and

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[16] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В.Орлов, Р.Тимербаев, А. Хлопков. – М. : ПИР-Центр полит. исслед., 2001.

[17] Beck, M., Bertsch, G., Khripunov, I. The Development of Nonproliferation Export Control in Russia / M. Beck, G. Bertsch, I. Khripunov // World Affairs. – Vol. 157, №1 – 1994. – P. 3–18. URL: www.jstor.org/stable/20672403

[18] Orlov, V. Export control in Russia: Policies and practices / V.Orlov // The Nonproliferation Review – Vol.6 №4 – 1999 – P. 139-151, DOI: 10.1080/10736709908436786 *or* Wehling F. Russian nuclear and missile exports to Iran / F. Wehling // The Nonproliferation Review. – 1999. P.134-143. URL: https://www.non-proliferation.org/wp-content/uploads/npr/wehl62.pdf

[19] Orlov, V., Potter, W. The Mystery of the Sunken Gyros / V. Orlov, W. Potter // Bulletin of the Atomic Scientists. – 1998. №54. – P. 35-36 *or* Goldanskii, V. Russia's "red-brown" hawks / V. Goldanskii // Bulletin of the Atomic Scientists. – 1993. №5. – P. 24–37

[20] Zagorski, A. Post-Soviet Nuclear Proliferation Risks / A. Zagorski // Security Dialogue – 1992. №3. – P.27–39. URL: www.jstor.org/stable/44471404

[21] McGoldrick F. The Road Ahead for export control: Challenges for the Nuclear Suppliers Group / F. McGoldrick // Arms Control Association – 2011. URL: https://www.armscontrol.org/act/2011-01/road-ahead-export-controls-challenges-nuclear-suppliers-group *or* Potter, W. Nuclear Exports From the Former Soviet Union: What's New, What's True / W. Potter // Arms Control Today – Vol. 23, №1. – 1993. P. 3–10. URL: www.jstor.org/stable/23624922

[22] Litovkin, D. Indian Nuclear Submarine Development Program: Russian Participation / D. Litovkin // Yaderny Kontrol. – 1999. №3(12) – P.29-31., *see also:* Yablokov, A. Dangerous Consequences of Minatom's Foreign Policy/ A. Yablokov //Yaderny Kontrol Journal. – 1997. *or* Фишер, Д. Почему я поддерживаю российско-иранский контракт. Ответ профессору Яблокову / Д. Фишер // Ядерный контроль. – 1995. №6. – С.20-21. URL: http://pircenter.org/media/content/files/9/13464103580.pdf *or*

administrative changes in the Russian export control system and the influence of these changes on the nuclear export control policy. The monograph of Malkevich, V.[23] is of significant importance for this research paper as it analyzed the challenges that were posed to the nuclear export control policy of Russian Federation. This monograph also identified several problems and gaps that could be found in the legislative and the administrative structures of the Russian nuclear export control system. It contributed to an understanding of the legal stages of the formation of the export control system and facilitated the understanding of current nuclear export control structure.

Special attention should be paid to the Grave A. and Petrenko A.[24] research dedicated to the functions of federal authorities in the national system export control of the Russian Federation. The researchers emphasized the national features of the export control system. A big part of the research paper was dedicated to the problems of Rusian customs functioning and how these problems may cause proliferation risks.

Third set of literature contributed mostly to the third part of the master thesis, where interaction between Russia and global nuclear governance is a basic material. It is analytical literature, research papers, articles and reports dedicated to the nuclear export regulations in the context of international non-proliferation regime. This set of works describes the functions and challenges in front of the Nuclear Suppliers Group. The comprehensive study on the NSG mechanisms, challenges and prospects for the development made by Hibbs, M.[25] clarified the tasks and problems the NSG faces. The studies on the NSG contribute to understanding of the nuclear governance mechanisms.

The reports and analytical papers of research centers and peace research institutes formed a large basis for the third group of literature dedicated to the international dimension of nuclear export control regulations. The analysis of the international nuclear governance efforts on formulating and amending export control regulations and guidelines were done by

[23] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – 512 С.
[24] Граве А., Петренко А. Экспортный контроль в России и безопасность международных перевозок ядерных материалов / А. Граве, А. Петренко // Индекс безопасности – №2 (85) – 2008 – С. 85-100, URL: http://pircenter.org/media/content/files/0/13412225440.pdf
[25] Hibbs, M. The Future of the Nuclear Suppliers Group / M. Hibbs. - W.: Carnegie Endowment for International Peace, 2011 – 70 P. URL: https://carnegieendowment.org/files/future_nsg.pdf

Nuclear Threat Initiative[26]and Center for Energy Security and International Studies[27] analytical reports.

The author of the master thesis has found that the reports, analytical papers and the journals dedicated to the nuclear export control of Russia mostly concern two aspects: the problems in the field of nuclear export control that Russia experienced after the dissolution of the Soviet Union and up to the mid-2000s and modern Russian nuclear export policy. There are little comprehensive papers which track the development of the nuclear export control policy up to its current stage. Thus, the **novelty** of the work is in its analysis of the Russian nuclear export solutions in a highly restricted non-proliferation regime starting from the 1990s and up to the latest moment.

[26] Past and Current Civilian HEU Reduction Efforts // Nuclear Threat Initiative. – 2011. URL: www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/
The James Martin Center for Nonproliferation Studies Global Incidents and Trafficking Analysys // Nuclear Threat Initiative. – 2020. URL: http://www.nti.org/analysis/reports/cns-global-incidents-and-trafficking-database/ *or* Civilian HEU reduction and elimination resource collection // Nuclear Threat Initiative – 2020. URL: https://www.nti.org/analysis/reports/civilian-heu-reduction-and-elimination/

[27] *see* McGoldrick, F. Nuclear Trade Controls: Minding the Gaps / F.McGoldrick // Center for Strategic and International Studies report – 2013. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/130122_McGoldrick_NuclearTradeControls_Web.pdf *or*
Nakano J. The Changing Geopolitics of Nuclear Energy, A Look at the United States, Russia, and China / J. Nakano // Center for Energy Security and International Studies – 2020. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf

Chapter 1. Consequences of the USSR dissolution in the context of the NPT regime

The state of Russia at the beginning of the 1990s, after the dissolution of the Soviet Union, made the President's administration face a number of difficulties. Some of them (for example, the Coup in 1993, separatist sentiments in some regions of Russia, and the first Chechen war of 1994-1996) were highly urgent since they directly threatened the integrity of the state and the survival of the political establishment.

Among the most urgent issues that worried the administration of President Gorbachev and then Yeltsin was the economy, as it influenced many other spheres. The abolition of the policy of government planning of the economy (and the elimination of the GOSPLAN structure, also responsible for nuclear trade controls), a severe "release of prices" followed after it and the subsequent economic crisis (which also developed into a social one), have brought the country into a state of turmoil. The economic and social problems that Russia went through in the 1990s also directly affected its ability to adequately bear all the international commitments and obligations it assumed regarding the non-proliferation regime. Russian Federation was legally recognized as the successor of the USSR concerning international treaties and nuclear potential. Therefore, Russia was forced to conform to the image of an impeccable party to the non-proliferation regime (as it was during the previous political leadership).

This chapter seeks to identify how the collapse of the USSR could pose a threat to the NPT regime. It should be kept in mind that export control is one of the most important components of non-proliferation. Russia's challenges as a successor state could directly affect its capabilities to control nuclear export and comply with the NPT regime. The paragraphs will look at how the challenges posed by the collapse of the Soviet Union could affect nuclear export control. The chapter is divided into three sections that touch upon economic problems, domestic political problems, and geopolitical issues.

1.1. Economic challenges posed by the collapse of the Soviet Union

This section seeks to identify the challenges posed by the collapse of the Soviet Union and its planned economy for the country's export control policy and ability to comply with

the NPT regime. With the collapse of the USSR, Russia entered the new system of free world economy. This led to a number of problems associated with the reorientation to the free market:

- a necessity to develop international cooperation in trade in order to find a place in the market
- rivalry between world exporter enterprises
- lobbying issues within the Russian government
- unprepared exporters, who sought to get more profit in hard currency
- concerns about privatization
- export control structures that were not ready for the stream of independent exporters

Reorientation to the free market in the 1990s posed to the Russian government several conflicting tasks which overlapped in the area of export control. First, under the necessity to find a place in the world market and promote national products, it was important to comply with non-proliferation obligations.

New independent countries of the former Soviet Union were now entering the market, which was previously divided among Western companies and states, where the leaders were the American company Westinghouse and the French AREVA.[28] Western countries and suppliers had to accept the emergence of a new market participant and recognize a certain export share for Russian products. Otherwise, the inability to use market institutions could create the danger of trade with rogue states. Thus, one of the sources of possible problems with violation of the non-proliferation regime is the imbalance between the requirements for Russia in terms of international obligations and the real possibilities of including a new player in the market.

The international market also faced the problem of conversion. This is due to the fact that the traditional Soviet export used to consist of the items produced by the military complex. The best decision was to convert such items. This solution could meet some of the economic needs of the Russian nuclear industry. Moreover, it could give a possibility to prevent traditional types of cooperation contracts based on supplying military items. The

[28] Market Competition in the Nuclear Industry / Nuclear Energy Agency report– 2008. URL: https://www.oecd-nea.org/upload/docs/application/pdf/2019-12/6246-market-competition.pdf

conversion was able to make Russian exports more adaptable to the realities of the free market.[29]

Another contradicting issue is that international cooperation in trade intersects with the need to prevent the transfer of critical technologies. This contradiction leads to a clash of interests between lobbyists and the state, and the need to carefully monitor and coordinate export control issues, while not "stifling" business.[30]

Russian companies and foreign partners of Russia could successfully lobby their interests in the government. For example, Chinese, Indian and Syrian lobbying organizations significantly influenced the advancement of their own interests. There were no anti-corruption campaigns that could deal with this type of problem in the early 1990s. Whole ministries were associated with state and non-state corporations and promoted their interests, sometimes contrary to the national interests of the Russian Federation related to security.[31]

Moreover, with the free economy, the state monopoly on foreign trade vanished: unprepared exporters, who sought to get more profit in hard currency (since the country was in an economic crisis) entered the world market. The Soviet system of export control could not provide for independent export transactions. Therefore, until the mid-1990s, there was a danger of foreign economic operations contrary to the interests of the state and international obligations. Strict supervision and vigilance regarding dual-use goods have so far been weakened[32]. The export control system retained what the Soviet Union had established long ago without taking into account the free market economy. This jeopardized compliance with the nuclear non-proliferation regime, of which the Russian Federation was a part[33].

For instance, the lack of funding and weak export control regulations are among the reasons which led the military-industrial complex to the smuggling of ballistic missile guidance systems to Iraq.[34] Such shipments contradicted the UN Security Council resolution

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[29] Beck, M., Bertsch, G., Khripunov, I. The Development of Nonproliferation Export Control in Russia / M. Beck, G. Bertsch, I. Khripunov // World Affairs. – Vol. 157, №1 – 1994. – P. 3–18. URL: www.jstor.org/stable/20672403

[30] Орлов, В. Национальная система экспортного контроля россии в ядерной области, Экспортный контроль в России: политика и практика : Сб. статей / ПИР-ЦЕНТР — Центр полит. исслед. в России; [Ред.: Д. Г.. Евстафьев и В. А. Орлов]. — М. : ПИР-Центр, 2000. — 215 с.

[31] Orlov, V. Export control in Russia: Policies and practices/ V.Orlov // The Nonproliferation Review – Vol.6 №4 – 1999 – P. 139-151

[32] Рей, А. Критический экспорт и экспортный контроль в России / А. Рей // Научные Записки ПИР-Центра – 1998. URL: http://www.pircenter.org/media/content/files/9/13464242930.pdf

[33] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – С.195-198.

[34] Orlov, V., Potter, W. The Mystery of the Sunken Gyros / V. Orlov, W. Potter // Bulletin of the Atomic Scientists. – 1998. №54. – P. 35-36.

687[35] since they related to military equipment and dual-use goods, but this was not a deliberate policy of the state. The problem was rather negligence on the part of Russian enterprises, the lack of understanding which goods are prohibited for delivery to foreign countries, as well as the lack of experience and awareness of the customs services.

Another problem that threatened to bring serious consequences if not solved was privatization. Most sectors of the economy and traditionally state-owned companies in Russia acquired new private owners in the 1990s. Sometimes, by coincidence, these were people from the government and parliament, and sometimes not. The privatization of the nuclear industry, if it happened, could cause problems concerning international obligations since, before that, the state strictly controlled the industry. For example, the state-owned company Techsnabexport, formed in 1962, engaged in nuclear trade until 1991. This company had been conducting business following the requirements of the IAEA.[36] Widespread privatization in Russia in the 1990s could have led corporations that produce military-sensitive items into the hands of profit-seeking individuals who did not fully understand the importance of non-proliferation principles. Moreover, the lack of practical experience in export control within private corporations and firms could cause a problem with the proliferation of sensitive materials. Even though Russia united all the export companies under Minatom in 1992, the problem was the lack of experience of the foreign contracts and their possible negative political consequences for the state.

For instance, in 1996 the Scientific Research and Design Institute of Power Engineering signed a contract with the Atomic Energy Organization of Iran to conduct an examination of the project of a heavy water production plant[37]. Such a contract can be called an attempt to illegally export technologies and scientific and technical information .

Re-establishing the export control structures that had been functioning within the State Planning Committee for years immediately after the collapse was rather difficult. Reorganized structures had flows in their functioning, especially customs regulation. This

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[35] Резолюция 687 Совета Безопасности Организации Объединенных Наций // UN Department of Political and Peacebuilding Affairs (DPPA) – 1991. URL: https://peacemaker.un.org/sites/peacemaker.un.org/files/IQ%20KW_910403_SCR687%281991%29%28ru%29.pdf

[36] Potter, W. The Soviet Union and Nuclear Proliferation / W. Potter // Slavic Review – 1985. Vol. 44. – P. 487. URL: https://doi.org/10.2307/2498015

[37] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В.А. Орлов, Р.М. Тимербаев, А.В. Хлопков. - М. : ПИР-Центр полит. исслед., 2001.

can also be proved by a number of concerning incidents connected with the smuggling, mostly for private economic reasons:

- Stealing of more than 4kg of enriched uranium at the Sevmorput shipyard in late 1993[38]
- Incident with plutonium, which was found by the German police in Tengen, Germany in 1994[39]
- Smuggling of more than 2kg of enriched uranium to Prague[40]

These cases indicate the poor performance of the administrative and executive branches of the export control system and customs services functioning within it. They also triggered international concern (the United States[41], for example).

1.2. Challenges for the presidential administration

With the collapse of the Soviet Union, many administrative structures within the government have changed. The committees were disbanded and transformed into new ones; the laws also changed. The new political system was in the process of being formed. These factors posed many problems for the presidential administration in the 1990s. This paragraph seeks to consider how these changes could affect nuclear export control. The text examines domestic political structures' problems faced by the presidential administration. The choice of these particular problems is based on the fact that they could directly affect Russian compliance with its international obligations under the non-proliferation regime. Therefore, the following domestic issues will be discussed:

- lack of comprehensive legal component that could regulate the export in the new political and economic reality

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[38] Information on Nuclear Smuggling Incidents / Nuclear non-proliferation: U.S. Efforts to Help Other Countries Combat Nuclear Smuggling Need Strengthened Coordination and Planning. – 2002, URL: https://www.atomicarchive.com/almanac/smuggling/smuggling_details.html

[39] Ibid.

[40] Ibid.

[41] Loose Nukes, Nuclear Smuggling, and the Fissile-Material Problem in Russia and the NIS : Hearings before the Subcommittee on European Affairs of the Committee on Foreign Relations // United States Congress, Senate Committee on Foreign Relations. Subcommittee on European Affairs – 1995. P.- 7-9.

- brain drain
- gaps in the administrative system
- several questions concerning the former USSR countries

The international community was concerned about the possible emergence of illegal shipments of nuclear materials from Russia or the Commonwealth of Independent States. Part of this concern may stem from an underdeveloped legal component that could tightly control all government exports of sensitive and dual-use materials. In 1992, the Nuclear Suppliers Group presented an updated and revised trigger list and general requirements for full-scope safeguards as a requirement for nuclear export. Russia also committed to these standards the same year by the presidential decree, but the domestic legislation was not yet prepared.[42]

Export control policy of the Russian Federation was governed by a decree №312 of President Boris Yeltsin. The decree established that the export of nuclear materials, as well as technologies, equipment, installations and special non-nuclear materials intended for their processing, use or production, to any state that does not possess nuclear weapons, can be carried out only on condition that all nuclear activities of this states are placed under the Safeguards of the International Atomic Energy Agency.[43] At the same time, transactions with dual-use goods that could be used to create weapons of mass destruction still did not fall into Russian legislation as illegal. Moreover, it is worth noting that control was based on a presidential decree and numerous government resolutions.[44] There were state laws legally prohibiting businesses from exporting such goods . However, comprehensive control was still a long way to go.[45] Such a situation created the necessity for the development of new administrative structures that would adjust legislation to the new conditions. Thus, the creation of a comprehensive law on export control and a clear distribution of responsibilities between administrative structures responsible for export control was the next step for the political establishment of the Russian Federation.

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[42] Ibid.
[43] Указ Президента Российской Федерации № 312 от 27.03.1992 г. "О контроле за экспортом из Российской Федерации ядерных материалов, оборудования и технологий" // Официальные сетевые ресурсы президента России – 1992. URL: http://www.kremlin.ru/acts/bank/1100
[44] Ibid.
[45] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В.Орлов, Р.Тимербаев, А. Хлопков. – М. : ПИР-Центр полит. исслед., 2001.

Insufficiently reformed legislation is also linked to the problem of brain drain. Being part of the nuclear industry, the nuclear scientists also had to "survive" difficult times, when the wages dropped significantly, so the profession's prestige did. The collapse of the Soviet Union made it less prestigious to work in science: salaries were small and were not paid regularly or at all. Russian government, universities and Academies of Science often had neither time nor money to solve the problems with the salaries of nuclear physicists, while many scientists either left their professions to earn more money in other spheres or subsisted on very low salaries. Against this background, prominent scientists often received cost-effective job offers abroad. Given the strong fall of the Russian currency and no positive prospects for the economy in the near future, wages in foreign currency also became particularly attractive. This often led to a "brain drain."

Earlier, due to the closed borders of the USSR, there was no possibility to travel abroad without state permission. However, in the early days after the collapse of the Soviet Union, there was no regulation regarding international travels. The “iron curtain” fell and scientists of different fields were able to leave Russia for more profitable work. This became a serious challenge for two reasons: nuclear science and industry were losing potential working power, and the leakage of sensitive information which those scientists had. Often the countries that offered work opportunities were engaged in nuclear development not supported or even opposed by the international community. For example, India, Iran, Algeria, Israel, Libya were among such countries.[46] There have been increasing reports of the continued risk of losing skilled personnel in favour of states wishing to pursue nuclear research or, worst-case scenario, create a nuclear weapon.[47]

Domestic political problems related to the distribution of posts in the new administration of Boris Yeltsin also caused concern in the international community[48]. In 1992 the export control commission was headed by the same person who headed the committee on military-technical cooperation (Georgy Khizha)[49]. The main mandate of this committee on military-technical cooperation was the sale of military-technical devices. This administrative situation could easily lead to a conflict of interests regarding the export of dual-use goods,

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[46] Goldanskii, V. Russia’s “red-brown” hawks / V. Goldanskii // Bulletin of the Atomic Scientists. – 1993. №5. – P. 24–37.

[47] Zagorski, A. Post-Soviet Nuclear Proliferation Risks / A. Zagorski // Security Dialogue – 1992. №3. – P.. 27–39. URL: www.jstor.org/stable/44471404

[48] Graeme, G. Markwick, D. Russia's Stillborn Democracy? From Gorbachev to Yeltsin / G.Graeme, D. Markwick. – Oxford: Oxford University Press, 2000. – P. 219.

[49] Potter, W. Nuclear Exports From the Former Soviet Union: What's New, What's True / W. Potter // Arms Control Today – Vol. 23, №1. – 1993. P. 3–10. URL: www.jstor.org/stable/23624922

which also risked undermining the integrity of the non-proliferation regime. Such a situation threatened to turn into a negative scenario when Khizha first proposed to combine the two committees into a single administrative body. This initiative was not destined to be carried out; however, such initiatives could speak of weak control over the administrative structure.[50]

It is worth noting, however, that there could have been other reasons for this decision. With the change of the political regime and a new economic reality, export control received a new task – it was important to regulate economic activity among a large number of new participants in market relations and, at the same time, consider national interests and the country's international responsibilities. Rapid restructuring of the management of the export control system, depending on the change of its role in the new state, is a very difficult, if not impossible task. It took the country and the political establishment time to determine new national interests, the vector of foreign policy, and, subsequently, methods to reduce national security risks and the threat to the proliferation regime through the export control system.

Last but not the least important issue was the fact that after the collapse of the USSR all the mechanisms of export regulations which performed a stable functioning, remained in Russia. As the legal successor to the USSR, Russia assumed all Soviet non-proliferation obligations and undertook responsibility to monitor nuclear security within the borders of the former Soviet Union. Russian President Boris Yeltsin stated this in his address to the UN General Assembly in 1992 : "Awareness of this high responsibility before the world guides the actions of Russia, Belarus, Kazakhstan, and Ukraine to ensure the unified and reliable control of nuclear weapons and to prevent their proliferation, measures to preserve the core of the united armed forces with a unified command, as a contribution to international concord".[51] He also claimed to conduct "the closest possible cooperation and coordination among CIS member states on these issues".[52]

Thus, as another legacy of the Soviet Union, Russia also received responsibility for the Soviet nuclear warheads and nuclear weapons components on the territory of the former USSR countries. The first step was to withdraw and destroy all military-strategic nuclear potentials from Belarus, Ukraine, and Kazakhstan.[53] Apart from the need to ensure that these countries join the NPT as non-nuclear states, one of the reasons was preventing the illegal

[50] Ibid.
[51] Address by President of the Russian Federation Boris Yeltsin to the UN Secretary General // United Nations. – 1992.
[52] Ibid.
[53] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В.Орлов, Р.Тимербаев, А. Хлопков. – М. : ПИР-Центр полит. исслед., 2001.

export of sensitive nuclear materials to other countries. The presence of Soviet nuclear weapons on those territories created a portion of political tension. For example, in 1992, the press in Israel[54] began speculating that Kazakhstan had sold one or two nuclear warheads to Iran. Such loud statements are hard to prove. However, the task of Russia as the successor of the Soviet Union, depositary of the NPT and the nuclear weapon state, was to prevent such a scenario.

In order to do so, Russia attempted to coordinate the export control policy between the former Soviet Union countries to avoid violating the non-proliferation regime. Since 1991, the republics independently issued export licenses, which were previously authorized to be issued only by the Ministry of Foreign Trade. For some time, the problem was resolved by the creation of the State Commission on export control, which consolidated the policy of the republics. However, it did not last long since by December of the same year, the Soviet Union had collapsed, and only Russia applied to the Commission for a license.

In 1992, Boris Yeltsin signed a decree on the creation of a new commission, which included representatives of the Ministry of Foreign Affairs, the Ministry of Foreign Trade and the Ministry of Industry, and was headed by Yegor Gaidar.

The main working body of this commission is the export control department of the Ministry of Economy. Although the department has successfully rejected requests for transactions of sensitive nuclear items, the export of satellite engines to India shows the prevalence of the Soviet-style, where a trade depended on political decision-making. Two regulatory bodies barred the deal, but industry representatives pushed the agreement through the political decision-making level and ignored the peer review. Similar problems occurred in the former Soviet republics, where traditionally military-oriented exports also prevailed. Their economic condition was in a similar position to Russia's, so the risk of smuggling or exporting sensitive materials into the hands of an unreliable buyer remained high. In addition, there was no situation-awareness in the post-Soviet bloc enterprises, and the need to control dual-use items was not completely understood by private enterprises.

The risks of nuclear proliferation were also associated with the fact the chances of the proliferation of nuclear materials from such countries as Ukraine and Kazakhstan were high. In particular, due to the fact that the mechanisms for regulating export control remained in

[54] Rodan, S. Iran Paid $25m for Nuclear Weapons, Documents Show / S.Rodan // Jerusalem Post. – 1998. URL: https://www.jpost.com

Russia[55], where they were formed during the period of the USSR. Proliferation risks were significantly reduced by the mid-1990s. This happened mainly because national export control systems have been formed in Belarus, Ukraine, and Kazakhstan.

Despite its close ties with the CIS countries, Russia did not play an important role in establishing these mechanisms. Moreover, even with the incoming information that there were reserves of enriched uranium on the territory of Kazakhstan and Georgia, which the "unreliable" countries were interested in, Russia refused to take these materials from their territory and provide significant assistance in preventing these materials from being exported. Some formal steps were taken, but, nevertheless, these were only mechanisms within the framework of the CIS, which did not bring noticeable results.

This political non-interference can be explained by the fact that the Russian Federation also had a difficult period of reforming its export control system and could not provide political or economic support to the CIS countries. As a result, Russia was no longer a responsible state. Export control problems have become sovereign. Besides, the inability of the Russian Federation to support the CIS countries led to the fact that this role was transferred to the United States.[56]

1.3. Geopolitical problems posed by the collapse of the Soviet Union

Another set of problems that Russia experienced regarding nuclear export control is rather political. In the 1990s, Russia tended to trust and agree with its Western partners. Given its desire to join the international market, Russia yielded to foreign opinion when it came to nuclear exports. Thus, despite formal compliance with international guidelines on nuclear export control, Russia could review its nuclear export contracts due to political pressure. This will be demonstrated by the cases of Russian cooperation with Iran and India.

Russian cooperation with Iran resulted in the construction of the Bushehr nuclear reactor. Although this contract brought financial benefit, it was not vital for the nuclear industry. It should be noted that Russia has regarded Iran as a partner country since the days of the Soviet Union and did not see this country as a threat. Geographically, Iran is located at

[55] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В. Орлов, Р. Тимербаев, А. Хлопков. - М.: ПИР-Центр полит. исслед – 2001. С. 64. URL: http://www.pircenter.org/media/content/files/9/13464044500.pdf

[56] Ibid.

the southern borders of Russia and it cannot be said that Russia could actively and deliberately support the nuclear weapons development in Iran since this would mean, among other things, a threat to Russian national security. Taking into account the requirements set by the IAEA, the contract between Russia and Iran did not contradict Russia's non-proliferation obligations.[57] The project also initially included the transfer of uranium enrichment technology, training of nuclear cycle operators, physicists and mathematicians, as well as supplying the technology for extracting the necessary ore.[58]

The preparation of a contract for the construction of a nuclear power plant began in 1991, while the USSR still existed. However, an agreement on trade and cooperation with Iran was signed a few years earlier, in 1989. Furthermore, cooperation was reinforced by the Soviet-Iranian agreement "on the peaceful use of nuclear energy" which was signed in August of 1992. Even then it was criticized by Western states.[59] The main criticism was coming from the United States and Israel[60] and generally boiled down to the fact that the Russian reactor, as well as uranium enrichment technology, could be used to create plutonium for military purposes. The United States also worried[61] that through cooperation with Russia, Iran would gain enough experience to build its own nuclear bomb. In Russia such statements were considered unjustified[62], since Iran complied with the NPT and IAEA Safeguards and later on agreed to additional inspections in the framework of "93+2 Program". In addition, the part of the agreement which related to the construction of centrifuges for uranium enrichment and could indeed contradict Russia's obligations under the NPT, was eventually removed from the contract under US pressure.[63]

The United States saw cooperation between Russia and Iran as supporting the latter in its nuclear ambitions. There were fears that Russian reactors and cooperation between Russia

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[57] Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В. Орлов, Р. Тимербаев, А. Хлопков. - М.: ПИР-Центр полит. исслед – 2001. С. 129. URL: http://www.pircenter.org/media/content/files/9/13464044500.pdf

[58] Pomper, M. The Russian Nuclear Industry: Status and Prospects / M. Pomper // Nuclear Energy Futures – 2009. №3 – P. 1-29. URL: www.jstor.org/stable/resrep16171

[59] Safranchuk, I. Russian-Iranian Cooperation and export control / I. Safranchuck // PIR Study Papers. – 1998. №8.

[60] Wehling F. Russian nuclear and missile exports to Iran / F. Wehling // The Nonproliferation Review. – 1999. P.134-143. URL: https://www.non-proliferation.org/wp-content/uploads/npr/wehl62.pdf

[61] Cohen A. Countering Russian-Iranian Military Cooperation / A. Cohen. URL: https://www.heritage.org/europe/report/countering-Russian-iranian-military-cooperation

[62] Бовт, Г. Отношения России и Ирана / Б. Говт // Коммерсантъ. – 1996. №222. – P. 4. URL: https://www.kommersant.ru/doc/245560

[63] Yablokov, A. Dangerous Consequences of Minatom's Foreign Policy/ A. Yablokov //Yaderny Kontrol Journal. – 1997,

and Iran would contribute to an Iranian military nuclear program. However, Iran was fulfilling its obligations under the NPT Treaty.[64] Russia contributed to the implementation of Article IV, which guarantees "...the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination…".[65]

It is worth noting that the United States used various levers of pressure on Russia to ensure that cooperation would not occur. The US approach in this situation was to impose sanctions on those Russian companies that cooperated with Iran. Thus, the problem of the international market divided among the Western exporters only intensified. Perhaps a different path – integration, strengthening relationships, and control through international institutions – could have led to the desired result without pressure on Russian political establishment and export companies. For example, there were ideas among the members of the US Congress to link the ABM treaty signing or financial assistance to Russia with its withdrawal from the contract. Another leverage was to use the G7 platform as a means of manipulation, as Russia could become one of the members if its vision of the situation coincides with the vision of the United States and the international community.[66]

Expansion of cooperation with Iran could be considered as a consequence of a lack of funds and a desire to open more markets. However, taking into account that similar cooperation agreements were made before 1992, it becomes clear that the roots of this cooperation go back to the USSR and are partially due to the earlier political and economic strategies and decisions. There is no reason to believe that the Russian nuclear industry was willing to partner with anyone for a profit.

Another cause of concern of the international community was Russian cooperation with India, since it contradicted the strengthening of the non-proliferation regime, because India was not a party to the NPT treaty. There were two areas of cooperation in the 1990s: the construction of a nuclear power plant at Kudankulam and the supply of nuclear-powered submarines to India. Although the supply of submarines did not directly contradict Russian legislation or international obligations, such a deal could contribute to the development of the

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[64] Фишер, Д. Почему я поддерживаю российско-иранский контракт. Ответ профессору Яблокову / Д. Фишер // Ядерный контроль. – 1995. №6. – С.20-21. URL: http://pircenter.org/media/content/files/9/13464103580.pdf

[65] Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // United Nations Office for Disarmament Affairs, URL: https://www.un.org/disarmament/wmd/nuclear/npt/text/

[66] Safranchuk, I. Russian-Iranian Cooperation and export control / I. Safranchuck // PIR Study Papers. – 1998. №8.

Indian nuclear fleet.[67] The contract for the construction of the nuclear power plant was signed even before the Nuclear Suppliers Group decided to apply full-scope Safeguards. And although the USSR cooperated with India for about thirty years, in the 1990s such cooperation began to cause major concerns of the United States. Partially because a powerful nuclear fleet could become a lever of pressure that would force the United States and other members of the nuclear club to take India more seriously.[68] Such cases lead to the understanding that sometimes international concerns about the policy of export control of Russia are rather political.

Both of the above examples illustrate the role of the United States in the global nuclear export market. It is not clear whether the United States would similarly actively oppose signing of an agreement with Iran and express such a negative attitude towards cooperation between Russia and India if Russia disposed of influence and powers comparable to those of the USSR.

The change of the political regime and economic crisis in Russia posed several difficult tasks for the Russian government. Three major challenges that could affect the area of nuclear export control can be noted : economic crisis, domestic political changes, and international pressure.

The country was in an economic downturn, which affected the nuclear industry: there were problems with financing enterprises, unprepared independent exporters, and brain drain. Domestic political issues could also threaten Russia's compliance with the non-proliferation regime. It was necessary to unify the export control law and adjust the work of the government's administrative structures to prevent proliferation risks. Furthermore, one can note Russia yielded to outside pressure, adapting contracts on nuclear exports under foreign influence. The country was in a systemic crisis that demanded actions.

[67] Litovkin, D. Indian Nuclear Submarine Development Program: Russian Participation / D. Litovkin // Yaderny Kontrol. – 1999. №3(12) – P.29-31
[68] Ibid.

Chapter 2. Russian approach to reforming the export control system

While there are a number of international guidelines and trigger lists that contribute to the regulation of export control, they cannot replace national export control systems. Every country must adapt its legislation and administrative structure to meet the requirements of the international non-proliferation regime.

The absence of a unified law on export control in the early 1990s, as already mentioned, could lead to the fact that the actions of private entrepreneurship were contrary to the interests and international obligations of the state. At the same time, Russian science-intensive products were competitive, which ensured a commercial interest in their sale. Thus, it was important for the political establishment to adapt the administrative and legal system of the country's export control in such a way as to ensure adherence to international obligations, but at the same time to protect national interests.

As mentioned earlier, Russia did not need to build an export control system from scratch, as it inherited the mechanisms that regulated export in the Soviet Union. Nevertheless, considering all the changes that have occurred due to the change of political regime and the collapse of the planned economy, the system had to be adapted to the new conditions.

In the previous chapter, some problems were identified that have arisen due to the economic and political changes in Russia. These problems could be solved through legislative and administrative reforms, which will be discussed in the following chapter. Also, one of the paragraphs of the previous chapter described the US political influence over Russian nuclear export contracts. Therefore, in this chapter an overview of American assistance in reforming Russian nuclear export control will be made.

2.1. Harmonizing Russian export control legislation

The first important step in transforming the export control system, inherited from the Soviet Union, was presidential decree №388 of 1992 “On measures to create an export

control system in the Russian Federation."[69]. This decree declared the need to create an effective administrative system for export control, as well as to establish criminal and administrative penalties for violations. It was decided to form a Commission on Export Control of the Russian Federation ("Exportcontrol" of Russia) under the Government of the Russian Federation. The Commission included representatives of a number of ministries (including the Ministry of Foreign Affairs, Ministry of Economy, Ministry of Defense, Industry Ministry). The decree also ordered the creation of an updated list of items, materials and services subject to licensing. Thus, this decree itself did not contain provisions that could be applied when exporting items and services. This was only a strategy which provided for the stages of reforms for the government .

The first law that actually included guidelines for the export control regulations was Federal Law №157 of October 13, 1995 "On State Regulation of Foreign Trade".[70] This law included an "export control" provision that regulated licensing. The main principles of the export control system were compulsory licensing, as well as the declaration of a number of materials, equipment, technologies and the results of scientific and technical activities. For the exported materials, equipment, or technology to obtain a license and authorization, contracts had to include provisions that the importer does not re-export the goods to a third party without written permission and does not use the goods or services for purposes prohibited by international regimes.

In 1997, the President supplemented the Russian Federation law on "State secrets", and instead of "design works of great defense or economic importance", he extended the definition: "information on the achievements of science and technology, research, development, design work and technologies of significant defense or economic importance, affecting the security of the state."[71] Thus, this amendment put under protection not only the ongoing research and development, but also completed ones, which was an important step in resolving the issue of the security of information about critical technologies.

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[69] Указ Президента Российской Федерации № 388 от 11.04.1992 г. "О мерах по созданию системы экспортного контроля в Российской Федерации" // Официальные сетевые ресурсы президента России. – 1992. URL: http://www.kremlin.ru/acts/bank/1187

[70] Федеральный закон № 157-ФЗ от 13.10.1995 г. "О государственном регулировании внешнеторговой деятельности" // Официальные сетевые ресурсы президента России. URL: http://www.kremlin.ru/acts/bank/8383

[71] Федеральный закон №131-ФЗ от 06.10.1997 г. "О внесении изменений и дополнений в Закон Российской Федерации "О государственной тайне" //Собрание законодательства Российской Федерации. – 2003. №40 Часть 1. – Ст.3822
URL:http://www.szrf.ru/szrf/docslist.phtml?nb=100&div_id=1&numb=&st=3822&tn=0&tx=&ora=0

Decree of the Government of the Russian Federation №1132 of 09.29.1998 (amended on 28.08.2017) “On priority measures for the legal protection of the interests of the state in the process of economic and civil circulation of the results of research, development and technological works of military, special and dual purpose”[72] also solves the problem of possible abuse by suppliers, since it focuses on protecting state interests and transfers all rights on critical technologies to the Russian Federation.

From the perspective of legislative changes, Russia referenced them to its participation in international non-proliferation regimes. For example, when the country joined the Missile Technology Control Regime and the Wassenaar Arrangement, the legislation changed: new goods, materials, and technologies appeared in the trigger lists.[73] There are six trigger lists for various materials, the export of which needs to be prohibited or restricted. The lists became the new guide, giving clear guidelines on how the export procedure should be carried out (approval of goods and licensing, for instance).[74] Along with the approved lists, provisions governing export procedures were introduced.[75] Thus, the Russian Federation's nuclear export control policy was regulated by two presidential decrees that established two nuclear material trigger lists. Both decrees were first published in 1996, as were the first lists. Subsequently, they underwent changes in 1997, 2000, 2004, 2005, 2008, 2014, 2017 and 2021.[76]. Amendments to trigger lists are usually made along with the amendments to similar trigger lists established by international regimes. At the same time, despite the fact that the work on editing the lists begins immediately after changes are made to the lists of the relevant

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[72] Постановление Правительства РФ №1132 (ред. от 28.08.2017) от 29.09.1998 "О первоочередных мерах по правовой защите интересов государства в процессе экономического и гражданско-правового оборота результатов научно-исследовательских, опытно-конструкторских и технологических работ военного, специального и двойного назначения"// Официальный сайт правительства Российской Федерации. – 2017. URL: http://government.ru/docs/all/113007/

[73] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – С. 195-210

[74] Указ Президента Российской Федерации №202 от 14.02.1996 года «Об утверждении Списка ядерных материалов, оборудования, специальных неядерных материалов и соответствующих технологий, подпадающих под экспортный контроль» // Официальные сетевые ресурсы президента России. – 1996. URL:, http://www.kremlin.ru/acts/bank/8899

[75] Постановление Правительства РФ №574 от 8.05.1996 г. "Об утверждении Положения о порядке экспорта и импорта ядерных материалов, оборудования, специальных неядерных материалов и соответствующих технологий” // Официальный сайт правительства Российской Федерации. – 1996. URL: http://government.ru/docs/all/18545/

[76] Указ Президента РФ №36 от 14.01.2003 г. "Об утверждении Списка оборудования и материалов двойного назначения и соответствующих технологий, применяемых в ядерных целях, в отношении которых осуществляется экспортный контроль" (с изменениями и дополнениями) // Официальные сетевые ресурсы президента России. – 2003. URL: http://www.kremlin.ru/acts/bank/19050

international regime, in the Russian Federation this process may take a year or more. Implementation is greatly complicated by a convoluted administrative mechanism of interagency agreements within the government.[77]

As an example, it can be regarded how Russia began activities to harmonize national trigger lists and conditions for the supply of nuclear materials with the updated lists and regulations of the Nuclear Suppliers Group (adopted in 1992).[78] In 1993, Russia sent a circular[79] to the IAEA regarding the export of nuclear material, equipment and technologies. Declaring its intentions in 1993, Russia legally formalizes them in 1996 by presidential Decree №202[80] of February 14, 1996 "On Approval of the List of Nuclear Materials, Equipment, Special Non-Nuclear Materials and Related Technologies Subject to Export Control".

Another achievement in the sphere of legislative reformation of the export control system was the creation of articles that determined the consequences that awaited violators of the introduced export control regulations. The articles were included in the Criminal Code in 1997.[81]

As for the comprehensive legislative act, which would include all the above aspects (namely: lists of materials, technologies, items, the process of approval, licensing, customs control), and also determined the vector of Russian policy in the field of export control, it appeared only in 1999.[82] This indicates some sluggishness of the administrative apparatus of the government. However, the law itself is written in the spirit of the Russian Federation's international obligations. Among the goals declared by the legislative act are maintaining international non-proliferation regimes and countering international terrorism. Also, Article 20 of this law introduces the "catch-all" principle, according to which "Russian persons are prohibited from entering into, performing foreign economic transactions with goods,

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[77] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству. – М.: Общество сохранения литературного наследия. – 2012. С. 195-210

[78] NSG Part 1 Guidelines for Nuclear Transfers – INFCIRC/254/Rev.13/Part 1 // International Atomic Energy Agency (IAEA). – 2016. URL: https://www.iaea.org/sites/default/files/publications/documents/infcircs/1978/infcirc254r13p1_rus.pdf

[79] Ibid.

[80] Указ Президента Российской Федерации №202 от 14.02.1996 г. "Об утверждении Списка ядерных материалов, оборудования, специальных неядерных материалов и соответствующих технологий, подпадающих под экспортный контроль" // Официальные сетевые ресурсы президента России. – 1996. URL:http://www.kremlin.ru/acts/bank/8899

[81] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству. – М.: Общество сохранения литературного наследия. – 2012. С. 195-210

[82] Федеральный закон № 183-ФЗ от 18.07.1999 года «Об экспортном контроле» // Официальные сетевые ресурсы президента России. – 1999. URL: http://www.kremlin.ru/acts/bank/14157

information, works, services, results of intellectual activity (rights to them) or participating in them by any other way if such persons are reliably aware that these goods, information, works, services, results of intellectual activity will be used by a foreign state or a foreign person for the purpose of creating weapons of mass destruction and their delivery vehicles".[83]

In the 2007 amendment, there was an additional provision stating that it is also prohibited to conduct such transactions if it is known about the intention of a foreign person to commit a terrorist act.[84] The 2007 edition clarified many concepts and included the rights to objects of intellectual activity in the objects of export control. Thus, the Russian legislation was improved responding to the challenges of the time, and fully satisfied international standards in relation to export control.

With the introduction of the 1999 law, intra-corporate export control systems became mandatory, which also became the beginning of solving the problem with enterprises that were just developing as independent participants in the international market.

Other laws can also be cited in the context of the Russian Federation commitment to the global non-proliferation efforts. The Federal Law "On the Basis of State Regulation of Foreign Trade Activity", adopted in 2003, establishes that foreign trade may be restricted or prohibited by the relevant authorities (customs or law enforcement agencies) due to the country's participation in the sanctions regime introduced by the UN.[85] At the same time, this law also, despite the demonstration of commitment to the international community restrictions, appeared later than the above regulation was declared mandatory. It was applied in practice through the implementation of presidential decrees, which corresponded to the resolutions adopted by the UN. For example, in 1996 the UN Security Council issued a resolution 1051[86] in order to create an international mechanism for monitoring and control over the supply of items, technologies and equipment to Iraq covered by the plans for monitoring and control approved by UN Security Council Resolution 715 of October 11, 1991. A presidential decree on measures to implement the regulations was issued in the Russian Federation in the next year .[87]

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[83] Ibid.
[84] Ibid.
[85] Федеральный закон №164-ФЗ от 08.12.2003 г. "Об основах государственного регулирования внешнеторговой деятельности" // Официальные сетевые ресурсы президента России – 1999. URL: http://www.kremlin.ru/acts/bank/20277
[86]Резолюция 1051 Совета Безопасности Организации Объединенных Наций от 1996 // Организация Объединённых Наций.– 1996. URL: https://undocs.org/ru/S/RES/1051(1996)
[87] Указ Президента Российской Федерации № 972 от 02.09.1997 г. // Официальные сетевые ресурсы президента России – 1997. URL:http://www.kremlin.ru/acts/bank/11427

Therefore, there is reason to assert that Russian legislation is not keeping pace with the political decisions taken to preserve the non-proliferation regime. As a result, there is a gap between the intention of the state and adopting the law demonstrating commitment to the international decision. In practice, there is no evidence that unscrupulous suppliers exploited these gaps or that this gap led to the leakage of sensitive materials or technologies. However, the belated introduction of the legislative norm on the decision adopted jointly with the international community can be called a feature of the functioning of the Russian export control system.[88]

2.2. Strengthening the administrative system of export control

As noted earlier Russia inherited many administrative structures of export control that functioned in the Soviet Union. At the same time, the duration of development of the administrative system of export control shows that in order to create a well-functioning system – in the conditions of the transition from a centralized planned economy and state monopoly of foreign trade, the development of private entrepreneurship and the liberalization of foreign economic relations - it was necessary to modify administrative mechanisms for several times.

In the Soviet Union, contracts on the export of nuclear materials that did not meet national interests were terminated even before they were concluded. The system worked in such a way that, having passed all the approvals in various departments, in the end each significant contract was discussed at the highest level, reaching the Politburo of the Central Committee of the Communist Party of the Soviet Union.[89]

After the collapse of the USSR, the situation changed. Since control was no longer so centralized, not all transactions went through the same rigid control stages as during the Soviet era. This situation could create opportunities for the export of critical technologies, which could be contrary to the country's national interests, and this problem needed to be addressed.

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[88] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – С. 195-210

[89] Рей, А. Критический экспорт и экспортный контроль в России / А. Рей // Научные Записки ПИР-Центра – 1998. №9. URL: http://www.pircenter.org/media/content/files/9/13464242930.pdf

After the liquidation of the State Planning Commission, its functions were transferred to the Ministry of Economy of Russia.[90] The cornerstone of export control was the Federal Service of Russia for Currency and Export Control, created in 1993 (and functioned until 2000). Later on its functions were transferred to the Ministry of Economic Development and Trade of the Russian Federation. Within this ministry, an export control department which worked until 2004 was formed.[91]

However, these aforementioned authorities did not undertake all the necessary export control activities. In 1992, the President issued a decree on export control, by which he declared the necessity to create a new administrative body – the Commission for Export Control of the Russian Federation (Exportcontrol of Russia). This Commission was meant to be responsible for the organizational and methodological work on export control policy. It was supposed to develop and submit to the government of the Russian Federation trigger lists of types of materials, equipment, technologies, and scientific and technical information that are used or can be used in the creation of weapons of mass destruction. After a while, in November 1992 (the decree of President Yeltsin was signed and entered into force in January 1992), the commission's workers were approved, and its powers were determined.[92] They could receive the necessary information upon request from departments or ministries, involve Russian and foreign specialists in their work.

The department that dealt with export control directly was the Federal Service of Russia for Currency and Export Control (VEC of Russia). The service was responsible for compliance with the legislation in the field export and import operations conducted in foreign currency. Later, the service functions were expanded to cover export control of military and dual-use items and technologies.

To improve and coordinate the work of all structures involved in the export control regulations, the Interdepartmental Coordination Body (Export Control Commission) was established by Decree №96 of 29.01.2001 of the President of the Russian Federation. In addition to coordination, the Export Control Commission function was also to prepare proposals on the main directions of state policy in the field of export control in order to comply with the regime of non-proliferation of weapons of mass destruction and their

[90] Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – С. 238
[91] Ibid.
[92] Ibid.

delivery vehicles, to ensure the national security of the Russian Federation.[93] The Commission, in addition to having full powers to develop draft regulations, aimed at improving the export control system. They are the ones who were preparing the annual report to the Government of the Russian Federation and the President of the Russian Federation on the problems of non-proliferation of weapons of mass destruction. This Commission also dealt with international cooperation in the field of export control. It analyzed the policies of other countries in this area, as well as the interaction of similar structures in different countries. Thus, it was the Export Control Commission that got the opportunity to recommend to the government cooperation with certain countries and organizations in the field of export control.

Since 2004, the Federal Service for Technical and Export Control has become the cornerstone in the export control system. This Federal Service was implementing state policy and special and control functions related to state security on export control issues. The President of the Russian Federation headed them.

Thus, while the Export Control Commission coordinated interagency cooperation (between the Rosatom State Corporation, Roscosmos, the Russian Academy of Sciences, the Ministry of Defense, the Ministry of Foreign Affairs of the Russian Federation), the Federal Service for Technical and Export Control was directly addressed by participants in foreign economic activity with applications for licenses.[94] This service thus, among other things, monitors compliance with national legislation, as well as compliance with Russia's international obligations in the field of export control. They deal with trade, economic, scientific, and technical cooperation of the Russian Federation with foreign states and Russia's accession to international economic sanctions. The creation of this Federal Service tackled a number of issues that concerned the international community in the 1990s, when the Soviet Union collapsed. In the 1990s, there was an issue concerning the problems of export control in the CIS countries. It is FSTEC that prepares and implements measures to harmonize and unify national legislation in the field of export control of the CIS member states and the Eurasian Economic Community member states.[95]

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[93] Указ Президента РФ №96 (ред. от 25.04.2005) от 29.01.2001 "О Комиссии по экспортному контролю Российской Федерации" // Официальные сетевые ресурсы президента России. – 2005. URL: http://www.kremlin.ru/acts/bank/16528

[94] См. Приложение 1

[95] Указ Президента Российской Федерации №1085 от 16.08.2004 г. "Вопросы Федеральной службы по техническому и экспортному контролю"// Официальные сетевые ресурсы президента России. – 2004. URL: http://www.kremlin.ru/acts/bank/21312

There is a problem in the distribution of responsibilities among the departments of export control – it is difficult to understand affiliation of functions. Such a complex administrative structure can complicate the transactions for participants in foreign economic activity. The FSTEC, the Ministry of Foreign Affairs, the Federal Security Service, the Ministry of Defense, the Foreign Intelligence Service, the Ministry of Internal Affairs, the Federal Customs Service, Rosatom, and the Export Control Commission are all involved in the process of issuing licenses and conducting operations with nuclear materials.[96]. It turns out that the process of issuing licenses for the export of nuclear materials is rather long and laborious, taking into account the number of interested ministries. In the Russian Federation, there is no particular unification that would allow one administrative body to handle the entire scope of the audit.

Taking into account all the verification processes by Rostekhnadzor, the Export Control Service, the Federal Agency for Legal Protection of the Results of Military, Special and Dual-Purpose Intellectual Activities, coordinating agencies and licensing authorities – customs control is the last instance for carrying out export control within the country. The multiple levels of administrative bodies dealing with licensing and document checking sometimes create a gap. For example, the customs service does not have access to the databases of the Federal Service for Technical and Export Control, which issues licenses. Overcrowding of the administrative structures by various committees and services may not always be interrelated. The customs service checks the documents only upon the submission of the exporter, without being able to verify their authenticity in the database. [97]

From the above, a rather long and complex evolution of the administrative system can be noted. One department was replaced by another, they were often reformatted and renamed. The Russian Federation's path to the system of export control that exists today took 12 years, from 1992 to 2004. Moreover, the reforms took place not only on the legislative and administrative level, but also on the level of exporters. Minatom became the State Atomic Energy Corporation Rosatom.

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[96] См. Приложение 1

[97] Граве А., Петренко А. Экспортный контроль в России и безопасность международных перевозок ядерных материалов / А. Граве, А. Петренко // Индекс безопасности. – 2008. №2 (85) – С. 85-100, URL: http://pircenter.org/media/content/files/0/13412225440.pdf

2.3. American assistance in reforming Russian export control system

As mentioned in the previous chapter, in the 1990s, Russia tended to agree with its Western partners and accept their assistance. When Russian export control system needed reformation, not only domestic efforts were undertaken. The state also accepted international assistance in reforming the nuclear export control system.

The paragraph will examine the influence of foreign aid on reforming the nuclear export control system of Russia. In the context of the paragraph, attention will be paid to American aid. As already mentioned, America had a great weight in the global market, was one of the most important nuclear suppliers, and could exert political influence on Russia. This is why the paragraph examines American assistance in the export control structures reformation. The purpose of this paragraph is to understand to what extent Russia was influenced by the United States in the period of reforms.

In the 1990s, Russia had every opportunity to receive financial and technical assistance from America in creating an export control system. A draft agreement on cooperation in this area was ready in 1993, but was not signed by the Russian side. Instead, only a Memorandum of Understanding was signed in 1994[98]. This memorandum included some aspects of Russian-American cooperation in this area:

- conducting bilateral and multilateral consultations at the political and technical levels on the improvement of export control systems;
- conducting bilateral consultations at the expert and government levels on obligations not to use goods subject to export control for unauthorized purposes;
- bilateral consultations on specific multilateral export control regimes and their implementation, as well as technical parameters of subject items and technologies;
- participation in seminars, conferences and other multilateral meetings devoted to the consideration of export control issues;
- discussion of the possibilities of training personnel related to the implementation of export control, the work of licensing and customs authorities;
- joint efforts to expand cooperation in the field of export control

[98] Ibid.

Considering Russia's desire to establish active interaction with Western countries and trusting relations with the United States, since the mid-1990s Russia has been pursuing rather close cooperation with the United States in the field of nuclear export control. In 1995, an agreement on mutual visits of American and Russian experts[99] was signed. In 1996 it was supplemented by a Letter of Cooperation between Minatom and the US Department of Energy.

Since 1998, cooperation has expanded to create working groups engaged in improving the export control system.[100] In addition, from 1998 to 2003, the Non-Proliferation and Disarmament Fund, established in the United States, allocated about $27 million for assistance to Russia.[101]

The US Department of Energy and the State Department, through the Bureau of Nonproliferation, assisted Russia in developing licensing procedures, in training Minatom employees in the field of export control and spreading the information materials related to the export of dual-use items and critical technologies. It also helped in facilitating the customs authority through providing equipment for detection. Russia also received technical assistance in the creation of export control structures.

The US Department of Energy aimed to provide greater support in informing employees of nuclear fuel cycle facilities, bringing their rights and responsibilities to their attention, and spreading the information related to export control that the employees of enterprises needed to know to describe export products accurately.

. This cooperation has brought particular benefits. The US Department of Atomic Energy and Minatom, during their annual scientific conferences, have been involved in raising the awareness and qualifications of nuclear industry workers regarding export control.

In 1998 Guidelines for Establishing In-House Export Control Systems at Enterprises[102] was published. The guidelines recommended each company the appointment of an officer in charge of export control who could suspend transactions if they have a chance to violate the international obligations of the Russian Federation or Russian export control legislation.

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[99] Сотрудничество во имя глобальной безопасности / Ю. Фёдоров [и др.]; под ред Ю. Фёдорова. - М.:Изд-во «Права человека», 2002. – 125 С. URL: http://www.pircenter.org/media/content/files/9/13464207240.pdf

[100] Ibid.

[101] Ibid.

[102] Методическое руководство по созданию на предприятии (в организации) внутрифирменной системы экспортного контроля // Федеральная служба по техническому и экспортному контролю. – 1998. URL: https://fstec.ru/eksportnyj-kontrol/vnutrifirmennye-programmy/292-metodicheskoe-rukovodstvo

It should be noted that cooperation between Russia and the United States was aimed precisely at those areas in which there could pose proliferation risks in the 1990s, but this does not mean that the assistance provided by the United States was critically needed. Besides, the United States were more likely to share experience than directly structure the export control system, licensing procedures and legal framework within the framework of this program. However, this is an important line of cooperation between the two countries, once again emphasizing that Russia was inclined to cooperate with its Western partners on many aspects regarding nuclear export control.

There was also a program named “the second line of defense” program, which started in 1998[103] and was aimed at minimizing the risk of illegal transfers of nuclear and other radioactive materials across the state border. This program focused on improving the customs regulation of nuclear exports, also providing specialized equipment for the detection of nuclear materials at border crossing points. It can be said that the Russian export control system was created to some extent based on the experience of the United States. In addition to financial support for the restructuring of certain areas of the export control system, the United States also provided technical assistance.

The United States were also interested in creating jobs in the commercial sector for those scientists who were greatly influenced by the economic crisis. Getting a job in the commercial sector could significantly reduce the risks of a brain drain.[104] In 1996, the United States launched the Proliferation Prevention Initiative, which helped attract non-civil nuclear research scientists to civil projects within Russia. Both private enterprises and the US Department of Energy have collectively invested about $160 million in commercial nuclear projects.[105] Given that few have benefited significantly, it can be argued that the main purpose of the investment was to prevent proliferation risks.

The United States also cooperated with Russia in establishing and strengthening multilateral export control regimes. As a significant geopolitical actor, together with Russia, the United States contributed to the implementation of United Nations Security Council Resolution 1540, which was the legally binding document on the nuclear export regulations

[103] Кравченко, Н., Рыбаченков, В. Российско-Американский проект "Вторая линия защиты"/ Н.Кравченко, В. Рыбаченков // Центр по изучению проблем контроля над вооружениями, энергетики и экологии – 2014. URL: https://dropdoc.ru/doc/306847/vtoraya-liniya-zashhity

[104] Wolfsthal, J. Nuclear Status Report: Nuclear Weapons, Fissile Material, & Export controls in the Former Soviet Union / J. Wolfsthal // Carnegie Endowment for International Peace – 2011, URL: https://carnegieendowment.org/files/NSRFullTextEnglish.pdf

[105] Сотрудничество во имя глобальной безопасности / Ю. Фёдоров [и др.]; под ред Ю. Фёдорова. - М.:Изд-во «Права человека», 2002. – 125 С. URL: http://www.pircenter.org/media/content/files/9/13464207240.pdf

(as it was adopted on the basis of the UN Charter, Chapter VII "Actions against threats to the peace, violation of the peace and acts of aggression"), and contributed strengthening the non-proliferation regime.[106]

In addition, Russia and the United States cooperated in the “Global Partnership Against the Proliferation of WMD” program. At the same time, comparing to Russia, the US risk assessment is somewhat different. If Russia seeks mainly to include countries in the international nuclear market, given the already restricted access of countries to nuclear materials and products, the United States is pursuing a more restrictive policy.[107]

After a difficult period of domestic political reforms in the legislative and administrative spheres, Russia managed to establish a comprehensive export control system. An export control law was adopted, accompanied by regularly updated lists of nuclear technologies, items and materials that had to be monitored. In addition, a number of quite complex administrative structures that were responsible for controlling nuclear export emerged. In addition to its own efforts, Russia has also to some extent adopted the experience of the United States, accepting assistance. At the same time, there is no reason to assert that the United States were able to exert a decisive influence on the system. When creating the legislative and administrative framework, Russia was guided, first of all, by international recommendations regarding export control and its non-proliferation obligations.

With the beginning of the new millennium, Russia's political position and ambitions also transformed. The country has taken a more independent position regarding its Western partners, it has become guided by its own national interests. Nuclear export control developed into a well-functioning system that, reportedly, did not allow serious leaks and did not violate the nuclear non-proliferation regime.

[106] Кириченко Э. Экспортный контроль как инструмент поддержания лидерства США в меняющемся мире. – Полис. Политические исследования. 2020. №1. С. 74-88. https://doi.org/10.17976/jpps/2020.01.06
[107] Ibid.

Chapter 3. Russian increased role in the nuclear market and international nuclear governance

It is clear that Russian nuclear export control system is based on Russia's participation in a number of non-proliferation regimes. Russia is bound by international obligations regarding the NPT Treaty, participation in Nuclear Suppliers Group and Zangger Committee, signing of UN Security Council Resolution 1540 and conventions on physical protection[108], safety[109] and security.[110] Export control legislation which concerns trigger lists of exporting products and technologies is constantly reviewed, depending on international regimes' amendments and recommendations. Being strongly involved in international nuclear governance, Russia is not fully independent in its nuclear export control policy.

Since 2007, Russian nuclear exports have reached a new level, becoming more independent from the opinion of Western partners (compared to the influence the US sanctions and political pressure had on Russian enterprises after cooperation with Iran and India in the 1990s). Rosatom began to provide a fairly wide range of services, which found its customers in foreign markets.[111] The company has managed to secure a strong position in the uranium enrichment market, in the nuclear power plants construction and nuclear medicine. However, it should be noted that neither Russia nor Rosatom has any exceptional concessions regarding nuclear export control.

Interestingly, Rosatom is a State Atomic Corporation, and in addition to the obvious financial assistance from the state, this enterprise may receive some support in the form of more favorable legislative initiatives aimed at encouraging nuclear export contracts. Financial assistance can also help Rosatom develop market strategies that operate in a way that only due to them it is possible to avoid some nuclear export regulations imposed by international nuclear governance. At the same time, every contract is signed in the framework created by the IAEA Safeguards agreement and NSG trigger lists and guidelines.

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[108] Amendment to the Convention on the Physical Protection of Nuclear Material, Status List // International Atomic Energy Agency (IAEA) – 2021. URL: http://www-legacy.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf

[109] *for instance*, Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

[110] International Convention for the Suppression of Acts of Nuclear Terrorism // United Nations – 2005. URL: https://treaties.un.org/doc/db/Terrorism/english-18-15.pdf

[111] Thomas, S. Russia's Nuclear Export Programme / S. Thomas // Energy Policy, Elsevier – 2018. Vol. 121 – P.236-247. URL: https://www.researchgate.net/publication/327992247_Russia's_Nuclear_Export_Programme

Since the topic of the work is nuclear export control, it seems most appropriate to talk about a regime that develops guidelines for nuclear export. That is the primary reason why this chapter reviews Russian nuclear exports in the framework of international nuclear export control guidelines set by the NSG.

The basis of the non-proliferation regime in terms of export control is the NPT Treaty and safeguards system developed by the IAEA. The IAEA carries out checks in recipient countries, collects reports from exporting countries on the export of sensitive items and materials, cooperates with member states, and also issues information circulars regarding dual-use goods and technologies. At the same time, the NSG is more involved in formulating specific regulations regarding nuclear exports based on the IAEA recommendations. Therefore, the first paragraph of this chapter will observe what framework the NSG creates for Russian nuclear export. The second paragraph seeks to define how Russian government conducts nuclear exports policy within this framework. Third paragraph is dedicated to the corporate level. It observes what specific solutions Russian nuclear industry found in order to make nuclear export contracts possible despite the difficulties caused by international restrictions.

3.1. Nuclear Suppliers Group as a political platform

The paragraph gives a general description of the NSG regulations' influence over Russian nuclear export contracts. That is followed by an observation of how the NSG can serve as a platform for facilitating nuclear cooperation using the example of India in the first section. Another section describes the opposite: how the NSG initiatives on export control regulations may complicate bilateral nuclear export cooperation.

It is believed that Rosatom is guided by political reasons when concluding contracts[112] due to the fact that nuclear energy in Russia is concentrated in the "hands" of Rosatom: it manages both the civil and military nuclear sphere, and its strategic interests are determined

[112] *see* Jermalavičius T. Hybrid Atoms: Rosatom's Projects and Russia's Geopolitical Strategy /Jermalavičius T. URL: https://icds.ee/en/hybrid-atoms-rosatoms-projects-and-russias-geopolitical-strategy/ *or* Dobrev B. Rosatom & Russia's Nuclear Diplomacy / Dobrev, B. URL: https://www.researchgate.net/publication/306353522_Rosatom_Russia's_Nuclear_Diplomacy

by the President of the Russian Federation.[113] Rosatom controls activities related to the nuclear fuel cycle, uranium mining, enrichment, fuel creation, as well as the use and construction of nuclear power plants and related processes (care of radioactive waste and spent fuel).[114]

Moreover, Rosatom itself has the ability to conclude contracts with foreign governments. The corporation has staff at various Russian embassies (for example, there are Rosatom employees at the Russian embassies in Belarus, Iran, India, Turkey[115]).

However, there are other factors – other than oftenly suggested geopolitics – that influence the choice of partners for nuclear exports:

- The economic crisis led to the expansion of Rosatom's partners. This is due to the fact that many nuclear "newcomer" countries did not have the opportunity to pay for expensive contracts, while receiving financing from foreign partners was also difficult. Russia took a chance to invest in the development of nuclear energy projects in different countries and, thus, was able to take a more stable place in the market, compared to what it occupied in the early 2000s[116]

- The export strategy of Rosatom is suitable both for those countries that are "nuclear newcomers" and for those who need specific services. This allows the company to penetrate markets and be one of the leaders in the nuclear industry.

At the same time, despite the expansion of the geography of partners and the signing of various memorandums of understanding and bilateral agreements on cooperation in the use

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[113] Nakano J. The Changing Geopolitics of Nuclear Energy, A Look at the United States, Russia, and China / J. Nakano // Center for Energy Security and International Studies – 2020. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf

[114] Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2016 год // Официальный сайт Государственной корпорации Росатом. – 2016. URL: https://www.rosatom.ru/upload/iblock/d9a/d9a7d8a9569667eb38bcfc153a7016fe.pdf

[115] Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2019 год // Официальный сайт Государственной корпорации Росатом. – 2019. URL: https://report.rosatom.ru/go/rosatom/go_rosatom_2019/%D0%93%D0%BE%D0%B4%D0%BE%D0%B2%D0%BE%D0%B9_%D0%BE%D1%82%D1%87%D0%B5%D1%82_%D0%A0%D0%BE%D1%81%D0%B0%D1%82%D0%BE%D0%BC_2019.pdf

[116]Obergfaell, K. Nuclear Energy Trends: Geopolitics, Export Drivers, Governance Norms / K.Obergfaell // International Institute for Strategic Studies Workshop report. – 2019. URL: https://www.iiss.org/blogs/analysis/2019/03/geopolitics-nuclear-export-workshop

of atomic energy for peaceful purposes with countries of Africa, Asia, Latin America, Russia's nuclear export still depends on a number of international regulations.

Most of the countries exporting and importing nuclear materials and products are already members of the Nuclear Suppliers Group, which eliminates the problems of technology re-export and thus proliferation. Countries within the NSG have adopted the IAEA Safeguards arrangement and their nuclear activity facilities are being monitored. Bigger risks are caused by a situation when the importer is not a member of the NSG (among the countries to which Russia has been actively exporting in recent years, and which are not members of the NSG – Bangladesh, Sudan and Egypt). In such a case, it is typical practice to conclude bilateral agreements on cooperation and peaceful use of nuclear energy. [117]

Model Russian agreements on nuclear materials changed in 2011 when the NSG updated the guidelines – they were strengthened to include follow-up controls in relation to facilities, technologies and materials of nuclear enrichment and reprocessing. These technologies are called ENRs, and they carry proliferation risks, so they can be used both for the creation of nuclear weapons and for peaceful use.

Russia gives its clients the opportunity to sign contracts even when the importing state has signed only the NPT and Comprehensive Safeguards Agreement with the IAEA (while there is also the Convention on the Physical Protection of Nuclear Material and International Convention on the Suppression of the Acts of Nuclear Terrorism). Among the main importers of Rosatom's products and services, there are states that have ratified and implemented most of the international safety and security standards, yet not all (India, Bangladesh, Turkey), and there are those who are not part of any conventions (Sudan), or signed and ratified few (Iran and Egypt).

Thus, it can be said that some countries which Russia cooperates with in the nuclear field may not fully meet international safety and security standards, since the Russian side does not make the signing of these conventions a condition for concluding contracts. At the

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[117] An Effective Export Control Regime for a Global Industry // World Nuclear Association Report. – 2018. URL: https://www.world-nuclear.org/getmedia/cc6d54da-ee87-4642-aee3-99e0231016d9/Export-Controls-Report.pdf.aspx
see also as an example: Меморандум о взаимопонимании между Госкорпорацией «Росатом» и Министерством энергетики Республики Гана о сотрудничестве в области использования атомной энергии в мирных целях // Официальный сайт Государственной корпорации Росатом. – 2012. URL:https://www.rosatom.ru/upload/iblock/248/248442a5f88647ae8230799747766510.pdf *or* Соглашение между Правительством РФ и Правительством Турции о сотрудничестве в области использования атомной энергии в мирных целях// Официальный сайт Государственной корпорации Росатом. – 2009. URL: https://www.rosatom.ru/upload/iblock/c08/c0834f6a44d1bef051ca9aa0d1ad00d4.pdf

same time, it cannot be said that Russia is the only nuclear supplier state that cooperates with these countries, despite the proliferation risks that exporters are normally unable to control. Such risks can be various and range from coups d'état, general instability in the country and terrorist groups who may target products of the nuclear fuel cycle to a poor system of export control within the importing state. Moreover, the cooperation with the abovementioned countries does not contradict NPT Treaty, Russian legislation on nuclear exports, or guidelines of the NSG.[118]

The desire of countries that have nuclear fuel cycle technology to minimize proliferation risks may escalate into the fact that developing countries' access to these technologies will be severely limited. Trigger lists for export control systems become more and more stringent over the years[119],while developing countries that are new to the nuclear field are often unable to ensure (technically, administratively or financially) compliance with all the conventions on safety, security, and protection which makes them subject to more severe export control regulations.[120]

At the same time, international export control regimes, in particular the NSG, can also serve as a platform for creating more comfortable conditions for nuclear exports, weakening the mechanism of export control in relation to certain countries.

For example, Russia contributed to the fact that the Nuclear Suppliers Group, as an exception, lifted “export control restrictions on interaction with Delhi in the nuclear field.”[121] The Russian Foreign Ministry then stated that it “actively contributed to the adoption of this document.”[122]

During the plenary sessions of the Nuclear Suppliers Group, Russia has repeatedly spoken out “in favor of India's full participation in the work of the NSG as a state adhering to

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[118] Schepers, N. Russia’s nuclear energy exports: status, prospects and implications/ N.Schepers// Non-Proliferation and Disarmament Papers. – 2019. №61 – P.1-16. URL: https://www.non-proliferation.eu/wp-content/uploads/2019/03/EUNPDC_no-61_FINAL.pdf

[119] *see:* Указ Президента РФ №36 от 14.01.2003 г. "Об утверждении Списка оборудования и материалов двойного назначения и соответствующих технологий, применяемых в ядерных целях, в отношении которых осуществляется экспортный контроль" // Официальные сетевые ресурсы президента России. – 2003. URL: http://www.kremlin.ru/acts/bank/19050 *amendments were made in 2006, 2008, 2014, 2017, 2021*

[120]Kassenova, T. Brazil, Argentina, and the Politics of Global Nonproliferation and Nuclear Safeguards/ T. Kassenova // Carnegie Endowment for International Peace – 2016. URL: ttps://carnegieendowment.org/2016/11/29/brazil-argentina-and-politics-of-global-non-proliferation-and-nuclear-safeguards-pub-66286

[121] Сообщение для СМИ о мирном ядерном сотрудничестве с Индией // Официальный сайт Министерства Иностранных Дел России – 2008. URL: https://www.mid.ru/eksportnyj-kontrol/-/asset_publisher/UhKoSvqyDFGv/content/id/326162

[122] Ibid.

internationally recognized norms in the field of export control, possessing significant industrial potential in the nuclear sphere, and also capable of making a significant contribution to solving the problems of the NSG."[123]

Therefore, to weaken the international framework that tightens export control to certain states, it may seem quite reasonable for Russia to use political instruments. For instance, finding a partner country that supports similar ideas on amending regulations. Active participation in the regimes allows the exporter country to take part in the formation of trigger lists and the development of regulations for the export of nuclear items, technologies and materials.

An opposite example of how the NSG's tightening of international norms leads to obstacles to cooperation is the case of Brazil and Argentina. These two countries are among those states whose position in the international arena is strengthening. They participate in discussions on global nuclear issues through the NSG, the IAEA and the NPT Review Conferences. However, in the case of these countries, the proliferation risks may be higher than international standards allow to conduct nuclear export. For example, cases of nuclear materials smuggling have been reported.[124], and also in the past there was a risk of nuclear terrorism (due to the activities of Hamas and Hezbollah).[125]

Moreover, neither Brazil nor Argentina have signed the Additional Protocol.[126] This could have turned into a problem when the NSG reformed the Export Guidelines in 2011. The first draft of the amendment included a provision under which the recipient countries must also be countries that have signed the Additional Protocol.[127] If such a principle of export control was approved, it would complicate nuclear exports to these two countries. Here it is worth mentioning that both Argentina and Brazil are Rosatom partners countries[128]

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[123] Ibid.

[124] The James Martin Center for Nonproliferation Studies Global Incidents and Trafficking Database // Nuclear Threat Initiative. – 2020. URL: http://www.nti.org/analysis/reports/cns-global-incidents-and-trafficking-database/

[125] Мачаин, А «Граница в свете террора»/ А. Мачанин // BBC News. – 2020. URL: http://news.bbc.co.uk/2/hi/americas/2248487.stm

[126] Conclusion of Additional Protocols Status List // International Atomic Energy Agency (IAEA). – 2020. URL: https://www.iaea.org/sites/default/files/20/01/sg-ap-status.pdf

[127]Dalton, T. Kassenova, T. Williams, L. Perspectives on the Evolving Nuclear Order /T. Dalton, T. Kassenova, L. Williams. - W.: Carnegie Endowment for International Peace, 2016 – 124 P. URL: https://carnegieendowment.org/2016/06/06/perspectives-on-evolving-nuclear-order-pub-63711

[128] *In* 2015, a representative of Rosatom signed a Memorandum of Understanding with a representative of a leading company in the Brazilian nuclear industry (Nuclebrás Equipamentos Pesados S.A. (NUCLEP)).
Also Since 2015 Rosatom also has a framework for cooperation with Argentina to build a nuclear power station there. There are plans for joint uranium exploration and mining projects as well.

in the nuclear sphere and had this amendment been accepted it would pose difficulties for Russian companies.

Although the NSG is not an official organization, and its provisions are not legally binding for all participating countries, ignoring its provisions may be contrary to the spirit of the international non-proliferation regime. It can be assumed that ignoring the guidelines set by the NSG can lead to political resistance from other members of the group. At least, there was the resistance from the NSG countries as a response to the cooperation between Russia and India until 2008, as well as cooperation between China and Pakistan. Neither first nor the second violates formal norms and provisions, however, its expediency for strengthening the non-proliferation regime is disputed by a number of NSG member states,[129] as well as scientists.[130]

Due to dissatisfaction with the NSG proposals on Additional Protocol signing as a requirement, Brazil and India proposed a clause equating the Additional Protocol to bilateral agreements on Safeguards under the ABACC.[131] Thus, an important exception was made. The signing of the Additional Protocol is the sovereign right of each state. As a member of the NPT and having accepted full-scope safeguards, the state is not legally obliged to sign an Additional Protocol.

The NPT leaves much more room for countries with regard to the peaceful uses of nuclear energy compared to NSG guidelines. However, even as an informal group, the NSG can influence how export control policies are shaped in member states. From the examples above it is seen that the international non-proliferation regime may influence national export decisions and propose regulations that are more strict than the national legislation of the participant countries.

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[129] Hibbs, M. The Future of the Nuclear Suppliers Group / M. Hibbs. - W.: Carnegie Endowment for International Peace, 2011 – 70 P. URL: https://carnegieendowment.org/files/future_nsg.pdf

[130] *see* Kimball, D. The Nuclear Suppliers Group at a Glance / D. Kimball // Arms Control Association Fact Sheet. – 2017. URL: https://www.armscontrol.org/factsheets/NSG

[131] Horner, D. NSG Revises Rules on Sensitive Exports / D. Horner // Arms Control Association. – 2011. URL: https://www.armscontrol.org/act/2011-07/nsg-revises-rules-sensitive-exports

3.2. NSG guidelines and opportunities for Russian nuclear export

It is evident that the export of nuclear materials is strictly controlled not only on the national level, but also internationally. At the same time, sometimes international restrictions or trends towards more strict control are more comprehensive than Russian legislation. This paragraph will observe how Russia used the clauses in the regulations imposed by the Nuclear Suppliers Group. The first section will focus on the "grandfather clause" and "safety clause". The second is concentrated on the trend towards limiting the supply of highly enriched uranium for civil purposes. Both aspects will be illustrated by specific cases.

The foundation of the international nuclear governance regime is Article 4 of the NPT Treaty, which ensures the equal, safe and peaceful use of nuclear energy.[132] In addition to it, there are also international treaties and conventions that are designed to maintain the nuclear non-proliferation regime. The Nuclear Suppliers Group, of which Russia is a part, is also a non-proliferation regime. Its creation dates back to 1978 – in response to a nuclear explosive device test conducted by India, and the group's goal was to establish guidelines for nuclear trade.[133] NSG is informal and does not legally bind participants, but its goal is to ensure that trade in nuclear energy and technology does not violate the principles of non-proliferation. Therefore, all agreements between Russia and the recipient countries of Rosatom's products include provisions related to the non-proliferation obligations established by the NSG guidelines.[134]

Until the 1990s, when the NSG introduced the requirement for the adoption of full-scope safeguards as a condition for nuclear export of dual-use items and materials from trigger lists, some states did not seek to reduce cooperation with countries such as Argentina, Brazil, India, Pakistan or South Africa (which did not sign the full-scope safeguards), although there were reasons to believe that they had an undeclared nuclear program.[135]

Since 1992, when conditions for full-scope safeguards were adopted, there also appeared some "gaps" that exporters could use to export nuclear materials despite renewed regulations.

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[132] Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // United Nations Office for Disarmament Affairs, URL: https://www.un.org/disarmament/wmd/nuclear/npt/text/

[133] Hibbs, M. The Future of the Nuclear Suppliers Group / M. Hibbs. - W.: Carnegie Endowment for International Peace, 2011 – 70 P. URL: https://carnegieendowment.org/files/future_nsg.pdf

[134] Ibid.

[135] Anthony, I., Ahlstrom. C., Fedchenko, V. Reforming Nuclear export control: The Future of the Nuclear Suppliers Group / I. Anthony, C. Ahlstrom, V. Fedchenko // SIPRI Research Report No. 22 – 2007. URL: https://www.sipri.org/sites/default/files/files/RR/SIPRIRR22.pdf

It is possible to identify two loopholes in the NSG guidelines. The first one is the so-called grandfather clause. It implies that the adoption of IAEA comprehensive safeguards as a condition for the supply of sensitive nuclear materials to non-nuclear countries is not necessary for those treaties that were concluded before 1993, when this rule came into force. This is what Russia used to justify its nuclear cooperation with India. Russian government claimed the contract was first signed back in 1988, before the NSG adopted new requirements. However, it is widely believed this was not a contract but an agreement with a general legal basis for cooperation and did not contain any supply obligations.[136]

The second one is the "safety clause". That clause allows nuclear trade with the countries which have not adopted comprehensive safeguards if that is necessary for the safety of existing nuclear facilities that are under the safeguards. In 2001, Russia signed a contract for the supply of fuel for two nuclear reactors in India, which were built by the United States in Tarapur, and, in order to comply with the established rules of the NSG, it used the above rule.

NSG member states met such cooperation with disapproval, claiming that it was "contrary to guidelines" and in 2004, under pressure, Russia cut off supplies.[137] However, two years later Russia resumed them, taking advantage of the same "loophole", which formally allows this to be done. The same clause was used again in 2008 so that India could continue receiving necessary uranium for Tarapur reactors.[138]

The use of these export control clauses in order to continue supplies does not imply that Russia is violating the non-proliferation regime. Despite the dissatisfaction of some countries, as well as researchers[139], and their inclinations that such an attitude towards nuclear exports may undermine the spirit of an international treaty, Russia does not formally violate its international obligations. In fact, Russia cannot unilaterally compel India to comply with a number of formal requirements for nuclear exports.

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[136] McGoldrick F. The Road Ahead for export control: Challenges for the Nuclear Suppliers Group / F. McGoldrick // Arms Control Association. – 2011. URL: https://www.armscontrol.org/act/2011-01/road-ahead-export-controls-challenges-nuclear-suppliers-group

[137] Hibbs, M. A More Geopoliticized Nuclear Suppliers Group / M. Hibbs // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/12/14/more-geopoliticized-nuclear-suppliers-group-pub-75027

[138] Hibbs, M. The Future of the Nuclear Suppliers Group / M. Hibbs. - W.: Carnegie Endowment for International Peace, 2011 – 70 P. URL: https://carnegieendowment.org/files/future_nsg.pdf

[139] McGoldrick F. The Road Ahead for export control: Challenges for the Nuclear Suppliers Group / F. McGoldrick // Arms Control Association. – 2011. URL: https://www.armscontrol.org/act/2011-01/road-ahead-export-controls-challenges-nuclear-suppliers-group

It can be noted that cooperation between India and Russia met international resistance quite often, but this resistance was rather connected with political and economic motives, and not with the aim of maintaining the spirit of the non-proliferation regime. India is an interesting example of how Russia, having obvious political obstacles to nuclear exports, tried, not violating international treaties and conventions, to continue fulfilling its bilateral agreements.

Political motives to confront the bilateral agreements between Russia and India become apparent when one considers the US actions. In 2008, Russia, along with the United States, seized the moment by advocating in the NSG the idea that the exception should be made for India to allow it to import the trigger lists' items from participating countries.[140] Nuclear Suppliers Group was finally used as an instrument that could facilitate cooperation of different countries with India. Apart from Russia and the United States, France was also interested in concluding contracts with this country.[141] When Russia's political and economic interests coincided with two other NSG members there were fewer obstacles to cooperation with India.

International non-proliferation regimes are becoming more and more stringent, responding to the challenges of the times, and this may hinder the export of nuclear materials and technologies for the equal access to the civil nuclear energy.

Part of Rosatom's strategy to open new markets and develop more intensive cooperation is to actively use various areas: student events, scholarships, investments in nuclear infrastructure, as well as participation in research projects, including the export of nuclear materials for research reactors.[142] These measures, like export control systems for dual-use items and technologies, can also be regarded as a tool for prevention of proliferation risks. At the same time, there are ongoing attempts to tighten measures regarding the supply of highly enriched uranium (hereinafter: HEU).

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[140] Ibid.
See also: О мирном ядерном сотрудничестве с Индией // Официальный сайт Министерства Иностранных Дел России. – 2008. URL: https://www.mid.ru/eksportnyj-kontrol/-/asset_publisher/UhKoSvqyDFGv/content/id/326162

[141] Hibbs, M. A More Geopoliticized Nuclear Suppliers Group / M. Hibbs // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/12/14/more-geopoliticized-nuclear-suppliers-group-pub-75027

[142] Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2019 год // Официальный сайт Государственной корпорации Росатом. – 2019. URL: https://report.rosatom.ru/go/rosatom/go_rosatom_2019/%D0%93%D0%BE%D0%B4%D0%BE%D0%B2%D0%BE%D0%B9_%D0%BE%D1%82%D1%87%D0%B5%D1%82_%D0%A0%D0%BE%D1%81%D0%B0%D1%82%D0%BE%D0%BC_2019.pdf

The supply of highly enriched uranium is closely related to the risk of nuclear proliferation, because the higher the level of enrichment, the less material is required for a nuclear explosive device. Questions regarding the reduction of civilian use of highly enriched uranium were raised during the G8 summit in 2004 and at the nuclear security summits.[143] However, there is no international regulation or agreement that would prohibit the export of HEU for installation in research reactors. In addition, research reactors may be located in countries that do not have a nuclear power sector and, therefore, are not always able to provide adequate standards for the safe handling of research reactors.[144] No new civilian HEU research reactors have been built in Western countries since the early 1980s and, moreover, there is now a tendency to convert HEU used in research reactors to LEU in order to prevent proliferation risks[145].

The NSG calls for restraint in the export of weapons-usable materials but imposes no explicit ban on exports of plutonium or HEU for civilian purposes, provided recipients meet the NSG guidelines. Many world suppliers do not impose severe restrictions on HEU exports such as those required by the US law, for example. As a result, tighter restrictions from one supplier open up opportunities for other suppliers (other than the United States). At present, Russia, which has not established additional restrictions on the export of HEU in addition to those established by the NSG, is one of the competing participants in this market. Rosatom concluded agreements to supply HEU for research reactors in Canada and in some countries in the European Union (for reactors in France, Germany, and the Netherlands).[146] Russia resumed production of highly enriched uranium, which is used for research reactors and for the production of medical isotopes in 2012.[147]

The market for highly enriched uranium is one of the few where Russia has little competition due to the fact that in 1992 the United States imposed rather strict restrictions on

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[143]Civilian HEU reduction and elimination resource collection // Nuclear Threat Initiative – 2020. URL: https://www.nti.org/analysis/reports/civilian-heu-reduction-and-elimination/

[144] Gill, L. Countries move towards low enriched uranium to fuel their research reactors / L. Gill // IAEA Bulletin – 2019. Vol.60 №4. – P. 2-40. URL: https://www.iaea.org/sites/default/files/bull604researchreactorsnov2019corr2.pdf

[145] Ibid.

[146] Past and Current Civilian HEU Reduction Efforts // Nuclear Threat Initiative. – 2011. URL: www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/

[147] McGoldrick, F. Nuclear Trade Controls: Minding the Gaps / F.McGoldrick // Center for Strategic and International Studies (CSIS) report – 2013. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/130122_McGoldrick_NuclearTradeControls_Web.pdf

this export.[148] Russia has become the main supplier of HEU not only for the countries already mentioned above, but also for Indonesia and China[149]. The tendency to convert fuel from highly enriched uranium to low enriched uranium is contrary to the economic incentives that Rosatom might have. While Russia cannot influence this trend, it simply does not abstract from this issue, taking part in the summits on nuclear security (with the exception of 2016[150]), but also does not show active support in these issues.

In addition to fuel for research reactors, Russia also uses HEU to make medical isotopes. This is quite beneficial from an economic point of view, since their production and price are significantly less than medical isotopes at LEU.[151] The problem that worries experts is that medical isotopes may contain small amounts of enriched uranium, but the enrichment percentage will be around 90, which is a clear risk in the event of smuggling or illicit trafficking.[152]

That being said, while these concerns are understandable, export control guidelines so far do not prohibit these types of export for civilian purposes. Russian legislation also does not have comprehensive restrictions on exporting medical isotopes of HEU or HEU for research reactors. The question here can be rather about the possible risk of such supplies, anticipated by researchers.[153]

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[148]Sokova, E. Phasing Out Civilian HEU in Russia: Opportunities and Challenges / E. Sokova // Nonproliferation Review. – 2008. Vol 15 №2. – P.209-236. URL: https://doi.org/10.1080/10736700802117288

[149] Ibid.

[150] Ильина, Н. Россия не поедет на саммит по ядерной безопасности / Н. Ильина // Ведомости. – 2016. URL: https://www.vedomosti.ru/politics/articles/2016/03/31/635839-rossii-yadernoi-bezopasnosti

[151] Vessels, K. HEU for Isotope Production in Canada and Russia: Expansion or Phaseout? / K. Vessels // Global HEU Phaseout NPPP Policy Research Project . – 2011.

[152] Pomper, M. Toward the Global Norm: Supporting the Minimization of Highly Enriched Uranium in the Civilian Sector / M. Pomper. 2011. URL: http://en.asaninst.org/contents/issue-brief-no-12-toward-the-global-norm-supporting-the-minimization-of-highly-enriched-uranium-in-the-civilian-sector/#10

[153] *see:* Glaser, A. Hippel N. Global Cleanout: Reducing the Threat of HEU-Fueled Nuclear Terrorism // Arms Control Association. – 2006. URL: https://armscontrol.org/act/2006-01/features/global-cleanout-reducing-threat-heu-fueled-nuclear-terrorism

3.3. Russian nuclear industry export control solutions

Rosatom, as a state corporation, can benefit from wider access to information, finance, and direct communication with the country's top leadership.[154] Basically, Russia created a new special exporter, combining commercial and administrative functions. However, in general, close interaction with the state government and political establishment gives Rosatom only several advantages when concluding contracts. These advantages will be indicated in the paragraph and are the following: financial opportunities to use the "build-own-operate" strategy, wider opportunities for including required provisions in the contracts and return of spent nuclear fuel.

The common conviction about using nuclear exports as a geopolitical leverage of the state and creating its own zone of interests in various regions is due to the fact that the design of nuclear power plants (which can be in operation for about 60 years on average) can link the supplier and the recipient for a long time, maintaining bilateral relations for many years because of cooperation in the nuclear field. In addition, a successfully completed contract paves the way for new agreements. As an example, foreign researchers cite Armenia, Bulgaria, the Czech Republic, Slovakia, Hungary and Ukraine, where the Soviet-made reactors still operate. Due to the design features, as well as some of the terms of the contracts, Rosatom is the only possible producer of fuel for the reactors that Russia has built in these countries.[155]

The energy sector in Russia is extremely important in maintaining the country's global position – this is true. Energy export policy is to some extent related to foreign policy, in particular because the energy sector is controlled by the government. Rosatom receives its share of funding from the state (from the federal budget), which is redirected to funds created to support foreign construction projects.[156] At the same time, given that Rosatom is a

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[154] Hibbs, M. Does the U.S. Nuclear Industry Have a Future? / M. Hibbs // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/08/10/does-u.s.-nuclear-industry-have-future-pub-72797
see also: Levite, A. Leveling Up the Nuclear Trade Playing Field // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/09/07/leveling-up-nuclear-trade-playing-field-pub-73038

[155] Česnakas, G., Justinas, J. Nuclear Geopolitics in the Baltic Sea Region: Exposing Russian Strategic Interests Behind Ostrovets NPP / G. Česnakas, J. Justinas // Atlantic Council – 2017. URL: www.jstor.org/stable/resrep03497

[156] Федеральный закон № 317-ФЗ от 01.12.2007г. О Государственной корпорации по атомной энергии «Росатом»// Официальные сетевые ресурсы президента России. – 2007. URL: http://www.kremlin.ru/acts/bank/26621

commercial enterprise, it is concerned about the economic profit, even though it is controlled and financed by the state. As an exporter, Rosatom must comply with market rules and international regulations for the export of critical technology and materials. Thus, the corporation may well separate its commercial activities and the foreign policy of the state.[157] Indeed, the politicization of exports can lead to the fact that exported products become unattractive to the buyer, due to overlapping political relationships.[158]

As already mentioned, the nuclear materials market is quite competitive, so Rosatom often acts in such a way as to give a greater advantage to those countries that are new to the market. It is worth noting that, although not always, the status of a nuclear "newcomer" is often associated with the risks that the country either does not have enough funds for cooperation in the nuclear field (inability to pay for a nuclear power plant, for example), or it is a country that has somehow proved itself as unreliable with regard to non-proliferation issues (Sudan, for example, due to the internal political instability).

From this point of view, it is interesting to consider the correlation between Rosatom's nuclear exports to such states and the efforts that the corporation makes to ensure that all contracts are held within the framework of the export control regulations of the Russian Federation and international non-proliferation norms.

Even if one accepts the thesis that Rosatom is an instrument of Russian geopolitics, this instrument cannot work outside the framework of nuclear export control. This framework is imposed not only by Russia (legislatively), but also by the international community (Through the provisions of NPT Treaty, nuclear export guidelines of NSG, UN resolution 1540, Zangger Committee).

Cooperation between Russia and Turkey can be considered as an example. Rosatom's nuclear project Akkuyu in Turkey, launched in 2008, has both political and economic significance. Taking into account the unstable governments, which changed including through coups d'état, as well as the economic crisis in Turkey, apart from Rosatom, there were no suppliers willing to participate in the Turkish nuclear program at the time when the

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[157] Thomas, S. Russia's Nuclear Export Programme / S. Thomas // Energy Policy. – 2018. Vol. 121 – P.236-247. URL: https://www.researchgate.net/publication/327992247_Russia's_Nuclear_Export_Programme

[158]Nakano J. The Changing Geopolitics of Nuclear Energy, A Look at the United States, Russia, and China / J. Nakano // Center for Energy Security and International Studies – 2020. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf

government opened the tender.[159] Turkey at that time did not have nuclear projects for the construction of stations on its territory and was a newcomer.

Rosatom used the BOO (build-own-operate) strategy, according to which the corporation itself is engaged not only in the construction, but also in the operation of the nuclear power plant, and also resolves all the risks and problems associated with obligations regarding the non-proliferation of nuclear weapons. Implementing types of contracts which include the exporter responsibility for operation of the nuclear power plant is a corporation's solution to the international export control restrictions.[160]

Since 2006, Russia has been expanding nuclear cooperation with South Africa. in particular, it concerns agreements on the supply of fuel for the Koeberg nuclear power plant, which is "part of the nuclear weapons program inherited from the apartheid regime."[161]

It should be taken into account that from a financial point of view South Africa was not sufficiently solvent to pay for the construction and operation of nuclear power plants. Rosatom acts rather as a geopolitical actor than as a commercial enterprise which is normally interested exclusively in profit. Indeed, in this situation, the remuneration for the transaction could take a long time, and further prospects for long-term cooperation also become unclear. At the same time, the deal went simultaneously with the conclusion of an interstate agreement on strategic nuclear cooperation[162] which marked the beginning of the construction of the first Russian-designed nuclear power plant on the African continent.

At the same time, since South Africa is not a signatory to the Amendment to the Convention on the Physical Protection of Nuclear Material,[163] the cooperation agreement itself includes provisions such as "strengthening the system for ensuring nuclear and radiation safety", "improving safety systems and ensuring physical protection of nuclear facilities in

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[159]Varnum, J. Closing the Nuclear Trapdoor in the U.S.-Turkey 'Model' Partnership: Opportunities for Civil Nuclear Cooperation / J. Varnum // Turkey Project Policy Paper. – 2013. №1. – P.1-17. URL: https://www.brookings.edu/wp-content/uploads/2016/06/17-us-turkey-nuclear-partnership-cooperation-varnum.pdf

[160] Diakov, A. NPT Problems in light of increased competition in the global market of nuclear materials and technologies / A. Diakov // Russia: Disarmament and international security – 2020. doi: 10.20542/978-5-9535-0578-9

[161]Weiss, A. Nuclear Enrichment: Russia's Ill-Fated Influence Campaign in South Africa / A. Wess // // Carnegie Endowment for International Peace – 2019. URL: https://carnegieendowment.org/2019/12/16/nuclear-enrichment-russia-s-ill-fated-influence-campaign-in-south-africa-pub-80597

[162] Agreement Between the Government of the Republic of South Africa and the Government of the Russian Federation on Strategic Cooperation in the Fields of Nuclear Power and Industry / Zondo Commission. – 2018. URL: https://www.sastatecapture.org.za/site/files/documents/18/NENE_3.pdf

[163] Amendment to the Convention on the Physical Protection of Nuclear Material, Status List // International Atomic Energy Agency (IAEA). – 2021. URL: http://www-legacy.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf

the Republic of South Africa", "developing and introducing a nuclear and radiological emergency response system in the South African Republic".[164]

Signing international conventions is the sovereign decision of every state, however, the history of Russian exports to Iran and India shows that the implementation of minimum required international non-proliferation conventions by the recipient country may lead to international criticism and political criticism. Therefore, including obligations on physical protection of nuclear material in bilateral contracts might be a means to prevent political criticism due to the export in a "newcomer" country, which has not proved its reliability yet.

Rosatom includes more non-proliferation obligations in the declarations on cooperation and contracts than it is actually required by the nuclear governance. Having as many aspects of the trade in nuclear materials as the exporter now needs to consider, it might be a good solution to include more provisions on re-export, physical protection, safety and security in the bilateral treaty than is generally required by the NSG guidelines. Such an approach strengthens the international non-proliferation regime, prevents possible proliferation risks and political criticism.

Russia does not seek to tighten existing export control standards. This is evidenced, among other things, by the fact that it does not make it mandatory for importing countries to sign certain international conventions. However, like any other nuclear-weapon state, it is clear that Russia does not want the development of nuclear terrorism, the aggravation of proliferation problems or the misuse of exported nuclear materials. At the same time, its market is quite strongly focused on India, Egypt, Iran, and "newcomer" countries. It can be suggested that bilateral cooperation agreements are a means to maintain a balance between tightening international regulations for nuclear exports and the need to promote national nuclear industry products.

It can be noted that, besides including additional provisions in the bilateral framework agreements and contracts, there is another correlation of Rosatom's export proposals with non-proliferation obligations of the Russian Federation.

Rosatom is the only corporation that takes spent nuclear fuel back to the territory of its state for reprocessing or disposal, and if the fuel is Russian, it can leave the reprocessed fuel on its territory. In fact, this is also an advantageous offer for countries that cannot

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[164] Соглашение между Правительством Российской Федерации и Правительством Южно-Африканской Республики о стратегическом партнерстве и сотрудничестве в области атомной энергетики и промышленности // Официальные сетевые ресурсы президента России. – 2014. URL: http://kremlin.ru/supplement/1428

independently deal with reprocessed fuel (for economic reasons, for example), and also prevents the threat of proliferation.[165]

Such a decision is beneficial in cooperation with countries in difficult situations. For example, an agreement with Iran to return spent fuel to Russian territory helps to avoid proliferation risks associated with spent plutonium, which could serve as a nuclear weapon.[166]

Although the amendment on the return of reprocessed fuel is not mandatory for bilateral cooperation, it is interesting to trace at what point it began to appear in international contracts and when it was allowed by the Russian legislation. The decree of the Government of the Russian Federation on the regulation of the import into Russia of spent nuclear fuel from reactors built by Russia in other countries appeared in 1995.[167] The law was expanded in 2003, after several changes in the Russian legislation.[168] In 2001 amendments were made to Article 50 of the Federal Law "On Environmental Protection" which prohibited the import of radioactive materials into the country.[169]

In 2011 a new federal law "On radioactive waste management and on amendments to certain legislative acts of the Russian Federation" was adopted.[170] Unlike the previous ones, it allowed Russia not only to import into its territory spent nuclear fuel and irradiated fuel assemblies of nuclear reactors (laws of 1995 and 2003 respectively), but also radioactive waste.

That is to say, Russian legislation over years gave Rosatom more and more powers in relation to the return of radioactive materials (fuel and waste) to the territory of Russia. It can be assumed that this was done for economic reasons. However, there are reasons to assert that

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[165] Diakov, A. NPT Problems in light of increased competition in the global market of nuclear materials and technologies / A. Diakov // Russia: Disarmament and international security – 2020. doi: 10.20542/978-5-9535-0578-9

[166] Kerr, P. Iran, Russia reach nuclear agreement / P.Kerr // Arms Control Today – 2005. URL: https://www.armscontrol.org/act/2005-04/iran-nuclear-briefs/iran-russia-reach-nuclear-agreement

[167] Указ Президента Российской Федерации № 389 от 20.04.1995 г. "О дополнительных мерах по усилению контроля за выполнением требований экологической безопасности при переработке отработавшего ядерного топлива" // Официальные сетевые ресурсы президента России. – 1995. URL: http://www.kremlin.ru/acts/bank/7744

[168] Постановление Правительства РФ №418 от 11.07.2003 г. "О порядке ввоза в Российскую Федерацию облученных тепловыделяющих сборок ядерных реакторов" // Бюллетень по атомной энергии. – 2003 № 10. URL: http://elib.biblioatom.ru/text/byulleten-atomnoy-energii_2003_v10/go,62/

[169] Федеральный закон №93-ФЗ от 10.07.2001 г. "О внесении дополнений в статью 50 Закона РСФСР "Об охране окружающей природной среды" // Официальные сетевые ресурсы президента России. – 2001. URL:http://www.kremlin.ru/acts/bank/17163

[170] Федеральный закон №190-ФЗ от 11.07.2011 (ред. от 08.12.2020) "Об обращении с радиоактивными отходами и о внесении изменений в отдельные законодательные акты Российской Федерации" // Официальные сетевые ресурсы президента России. – 2011. URL: http://www.kremlin.ru/acts/bank/17163

such a legislative framework allows Rosatom to conclude a larger number of contracts that are safe and carry less proliferation risks. For example, a similar amendment on fuel intake was included in the contract with Bangladesh, Turkey (at the insistence of the Turkish side), Iran.[171]

The supply of nuclear materials for the Bushehr nuclear power plant in Iran was made on the condition that all spent fuel would be returned to Russian territory. This condition reduces the risk of re-export and malign use and allows both the exporter and the recipient.[172]

The return of spent fuel by Rosatom is in some way an alternative to "clear text" which NSG drafted in 2008.[173] According to this text, the recipient country must meet a number of criteria, in particular:

- be a member of the NPT
- have a comprehensive safeguard agreement
- have an additional protocol in effect
- implement effective export control in accordance with the UN 1540 Resolution
- include assurances of non-proliferation in a bilateral agreement with the exporter
- provide high standards of physical protection and safety standard

In fact, this means that the importing country must be a party to a number of regimes and conventions, which is not always possible. Moreover, the text asked for taking into account the considerations about the state before agreeing on transfers. That is to say, if a state may be a potential proliferator (for any reason: malign use or inability to sustain high standards of physical protection and safety) this state should not receive the access to the nuclear materials and technologies.[174]

The practice of taking back the fuel can be considered a good alternative to the "clear text", which, at the same time, will not extend the criterion of "subjective judgment" to importers. The NPT is considered a discriminatory agreement by a number of developing

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[171] Feiveson, H. Managing Spent Fuel from Nuclear Power Reactors: Experience and Lessons from Around the World / H. Feiveson // International Panel on Fissile Materials. - P.:2011, P.74–75
[172] Goldschmidt, P. U.S. - Russia Strategic Partnership against Nuclear Proliferation/ P. Goldschmidt // Center for Strategic and International Studies. – 2008, URL: https://carnegieendowment.org/files/goldschmidt_usrussiastratpart.pdf
[173] Viski, A. The revised nuclear suppliers group guidelines: a european union perspective / A.Viski // Non-Proliferation Papers –2012. №15. URL: https://www.non-proliferation.eu//wp-content/uploads/2018/10/andreaviski4fba1277ab8f9.pdf
[174] Ibid.

countries, and the NSG is treated as a cartel[175]. A subjective assessment of the risk associated with the transfer of nuclear materials to the signatory states of the NPT has every chance to exacerbate this perception. If a state has enough political commitment to offer full support for peaceful nuclear programs, it will strengthen non-proliferation, not the other way around.

Russia is an active participant in a number of international export control regimes. The trend is that multilateral export control regulations become stricter over time, with more and more obligations being imposed on countries (this affects both exporters and importers).

Sometimes international regulations are stricter than national ones, as national legislation must not only meet minimum export control requirements, but also leave as many opportunities for exporters as possible to still sign contracts. In situations where restrictions on the export of nuclear materials imposed by the non-proliferation regime (in our case: NSG) may interfere with the fulfillment of bilateral contractual obligations or prevent the signing of contracts with partner countries, Russia finds the following solutions:

1. Russia can use NSG as a platform for facilitating nuclear cooperation with certain countries
2. Russia used the clauses in the NSG guidelines, which allowed the signing of contracts despite the updated requirements
3. There are a number of solutions at the Rosatom corporation level that make nuclear export contracts possible, despite the difficulties caused by international regulations. These decisions are possible mostly because Rosatom is a state corporation controlled directly by the President and the government of the Russian Federation.

[175] McGoldrick F. The Road Ahead for export control: Challenges for the Nuclear Suppliers Group / F. McGoldrick // Arms Control Association. – 2011. URL: https://www.armscontrol.org/act/2011-01/road-ahead-export-controls-challenges-nuclear-suppliers-group

Conclusion

The collapse of the Soviet Union has had a significant impact on the area of nuclear export control. Russia faced a systemic crisis that could affect its non-proliferation obligations. There were several aspects that caused major concern: economic crisis, domestic political problems, and geopolitical pressure.

The planned *economy* was abandoned. The operation of Russian exporters was no longer supported by the government. They became independent and had to readjust to a competitive world market. Therefore, various companies and enterprises had to independently develop international cooperation and promote products. Yet they were not prepared for independence: there was no clear understanding about the dangers of exporting sensitive products. Export control received a difficult task – it was important to regulate economic activity among a large number of new participants in the market. At the same time, national interests and the country's international responsibilities had to be taken into account.

Another change that brought many challenges was *political transition*. Russia was struggling with establishing a new political system and defining national interests. The governmental structures were renewed, so was the political establishment. These caused problems at both international level and a national one.

As for the international level, in the 1990s Russian political establishment tended to agree with its Western partners. Thus, sometimes Russian nuclear export policy could become the subject of international attention. It is evident in the cases of nuclear cooperation with Iran and India. Despite formal compliance with international recommendations on nuclear export control, Russia revised its nuclear export contracts due to the political pressure of the United States. It demonstrates the desire of the political establishment to integrate after a long period of confrontation. In the described period political concessions were seen as a condition to be recognized as an equal partner. However, later they were regarded as counter-productive.

At the national level, there was a lack of a comprehensive legal component that could regulate the export in the new political and economic reality and gaps in the administrative system. The systemic crisis demanded legislative and administrative reforms.

The reforms did start in the early 1990s, but they were slow. A new legal and administrative framework that would guarantee the strict implementation of the nuclear export control procedure according to international standards was a challenge. Nuclear export

control in Russia, as we see it today, was forming over years to tackle systemic problems while complying with the NPT regime. One department was often replaced by another; they were frequently re-established and renamed. In such a situation administrative structures could duplicate functions of each other which may lead to bureaucracy and reduce the efficiency. The decision-making system was not transparent for both participants in foreign economic activity and the export control workers, which were part of the system themselves.

The Russian Federation's path to the extensive system of export control that exists today took 12 years. It demonstrates the commitment of the political establishment to make it comprehensive. However, the same commitment could lead the export control departments to mistakes due to the frequent changes and unstable operation.

Here it can also be noted that some reforms to the system were done with the United States assistance. It does not imply that the Russian nuclear export control system is a duplicate of an American one. Instead, this assistance is an additional reflection of the Russian government’s desire to cooperate in as many spheres as possible. The adherence to the other countries’ recommendations was regarded as a chance to become an equal political actor.

In the course of the political and economic transition, and while the export control system was under reformation, Russia was more inclined to yield to political pressure and influence. However, the government strengthened over time. It defined Russian political, national, and economic interests. By the mid-2000s it became clear that cooperation and integration do not necessarily help to reach national interests. The final amendments to the system of nuclear export control coincide with the period of disappointment by the Western partners. That opens the new period of independent approach with regard to nuclear export controls. When the political and economic transition period was over and the export control system was finally formed and became comprehensive, a new stage began for Russian nuclear exports.

It appeared that sometimes international restrictions or trends towards control are more strict than what is accepted by the Russian legislation. The desire of countries that have nuclear fuel cycle technology to minimize proliferation risks could escalate into the fact that developing countries' access to these technologies is severely limited. Trigger lists for export control systems become more and more stringent over the years. And with the beginning of the more independent political period, the Russian political establishment and industry may avoid certain nuclear export restrictions.

Firstly, it can be noted that Russia is able to use clauses in the NSG guidelines if the international export control regulations are stricter than the regulations accepted by the Russian system of export control. The clauses are based on the necessity to adapt the IAEA comprehensive safeguards as a condition for nuclear supply after 1992. This restriction can be avoided if the nuclear supply contract was signed before 1993 when the amendment came into force. Another way to avoid it is to claim the nuclear supply is necessary for the safety of existing nuclear facilities that are under the safeguards. Russia used both these clauses for cooperation with India in the energy sector.

The use of these export control clauses in order to continue supplies does not imply that Russia is violating the non-proliferation regime. Formally Russia fulfills its obligations.

Even though there is a trend to tighten nuclear export control restrictions, Russia so far avoids including stricter regulations in its national legislation. For the political and economic partnerships that the country developed the status quo is more convenient sometimes. This means that in order to reach its national interests Russia should sustain this status quo or push the international regimes towards more favorable decisions.

While multilateral export control regimes may serve as a platform for facilitating cooperation in the nuclear sphere, Russia uses them. If there is a political opportunity to weaken the international framework that tightens export control to certain states, it may seem quite reasonable for Russia to use political instruments to do so. Russia finds strategic allies that have similar interests and cooperates with them to promote a more beneficial decision or advocates certain decisions unilaterally. Active participation in the regimes allows the exporter country to take part in the formation of trigger lists and the development of rules for the export of nuclear technology, materials, items and services.

Finally, Russia may find solutions to the international nuclear export control regulations on the level of a corporation. During the 1990s the nuclear industry was struggling to prove its financial benefits. It took time to build a partnership with the government and, with the new independent period, the nuclear industry received more attention from the political establishment. In 2007 Rosatom turned into a national corporation. This means it can benefit from wider access to information, finance, and direct communication with the country's top leadership.

Close interaction with the state government and political establishment gives Rosatom several advantages when concluding contracts. The first advantage is that the corporation has financial opportunities to use the “build-own-operate” strategy, which implies that the operation of the nuclear power plant will be carried out by the exporting country. This

approach also resolves the risks associated with obligations regarding the non-proliferation of nuclear weapons. Types of contracts which include the exporter's responsibility for the NPP operation is a corporation's solution to the international export control restrictions.

Second, close ties with the government give Rosatom wider possibilities for the provisions of the contracts. It is independent enough to include obligations of the state level. For instance, Rosatom includes wider non-proliferation obligations in the bilateral contracts than it is actually required by the nuclear governance. It might be a good solution to include more provisions on re-exports, physical protection, safety, and security in the bilateral treaty than is generally required by the NSG or national government on export control. Such an approach supports the international non-proliferation regime, and prevents possible proliferation risks.

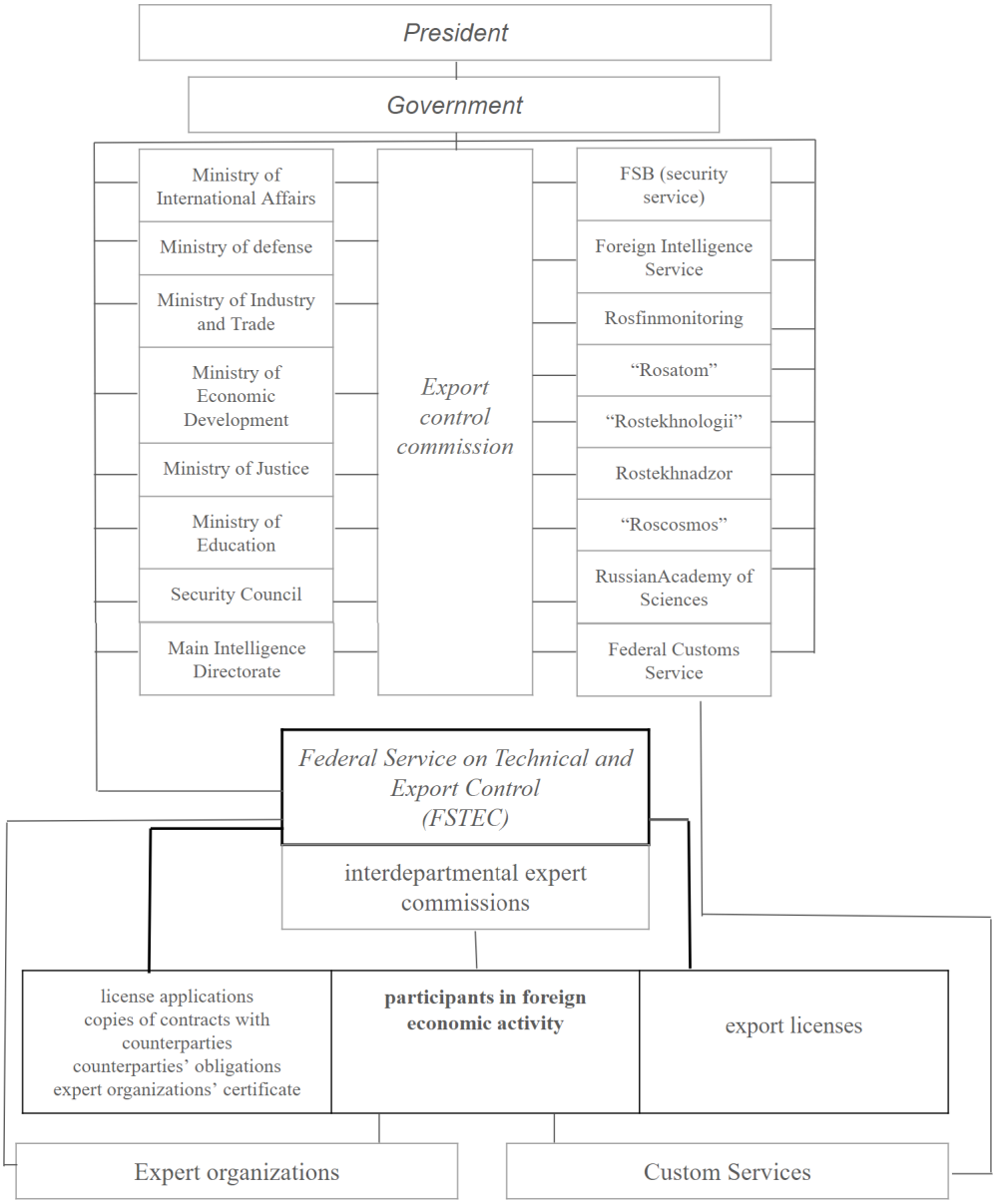
Besides, Rosatom has a legislative opportunity to take back the spent nuclear fuel for reprocessing or disposal. If the fuel is Russian, it can leave the reprocessed fuel on its territory. In fact, this is also an advantageous offer for countries that cannot independently deal with reprocessed fuel (for economic reasons, for example). Such an offer prevents the threat of proliferation.

To sum up, by the current moment Russia solved the problems that were posed by the collapse of the Soviet Union. The economic situation improved, problems of political transition were solved. Russia is able to conduct independent politics and make independent nuclear export decisions. Political establishment is able to use necessary platforms for achieving its goals when it comes to international nuclear export control regulations. The government finds solutions to the tightening export control guidelines on the national and corporate level, if that corresponds to the national interests and does not lead to proliferation.

Annexes

Annex 1

Scheme of export control system operation in Russian Federation



Source: Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – С.241

References

I. Sources:

International Organizations' official documents

1. Address by President of the Russian Federation Boris Yeltsin to the UN Secretary General // United Nations. – 1992.
2. Agreement Between the Government of the Republic of South Africa and the Government of the Russian Federation on Strategic Cooperation in the Fields of Nuclear Power and Industry / Zondo Commission. – 2018. URL: https://www.sastatecapture.org.za/site/files/documents/18/NENE_3.pdf
3. Amendment to the Convention on the Physical Protection of Nuclear Material, Status List // International Atomic Energy Agency (IAEA) – 2021. URL: http://www-legacy.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf
4. Conclusion of Additional Protocols Status List // International Atomic Energy Agency(IAEA).– 2020. URL: https://www.iaea.org/sites/default/files/20/01/sg-ap-status.pdf
5. International Convention for the Suppression of Acts of Nuclear Terrorism // United Nations – 2005. URL: https://treaties.un.org/doc/db/Terrorism/english-18-15.pdf
6. Model Additional Protocol designed for States having a Safeguards Agreement with the IAEA - INFCIRC/540 // International Atomic Energy Agency (IAEA) – 1998. URL: https://www.iaea.org/sites/default/files/infcirc540c.pdf
7. NSG Part 1 Guidelines for Nuclear Transfers – INFCIRC/254/Rev.13/Part 1 // International Atomic Energy Agency (IAEA) – 2016. URL: https://www.iaea.org/sites/default/files/publications/documents/infcircs/1978/infcirc254r13p1_rus.pdf
8. The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons - INFCIRC/153 // International Atomic Energy Agency (IAEA) – 1972. URL: https://www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf
9. Treaty on the Non-Proliferation of Nuclear Weapons (NPT) // United Nations Office for Disarmament Affairs, URL:

https://www.un.org/disarmament/wmd/nuclear/npt/text/

10. Резолюция 687 Совета Безопасности Организации Объединенных Наций // UN Department of Political and Peacebuilding Affairs (DPPA) – 1991. URL: https://peacemaker.un.org/sites/peacemaker.un.org/files/IQ%20KW_910403_SCR687%281991%29%28ru%29.pdf
11. Резолюция 1051 Совета Безопасности Организации Объединенных Наций // United Nations – 2016, URL: https://undocs.org/ru/S/RES/1051(1996)

Russian legislative documents

a) Federal laws

12. Федеральный закон №93-ФЗ от 10.07.2001 г. "О внесении дополнений в статью 50 Закона РСФСР "Об охране окружающей природной среды" // Официальные сетевые ресурсы президента России. – 2001. URL:http://www.kremlin.ru/acts/bank/17163
13. Федеральный закон №131-ФЗ от 06.10.1997 г. “О внесении изменений и дополнений в Закон Российской Федерации "О государственной тайне” //Собрание законодательства Российской Федерации. – 2003. №40 Часть 1. – Ст.3822. URL: http://www.szrf.ru/szrf/docslist.phtml?nb=100&div_id=1&numb=&st=3822&tn=0&tx=&ora=0
14. Федеральный закон №157-ФЗ от 13.10.1995 г. "О государственном регулировании внешнеторговой деятельности"// Официальные сетевые ресурсы президента России. – 1995. URL: http://www.kremlin.ru/acts/bank/8383
15. Федеральный закон №164-ФЗ от 08.12.2003 г. "Об основах государственного регулирования внешнеторговой деятельности" // Официальные сетевые ресурсы президента России – 1999. URL: http://www.kremlin.ru/acts/bank/20277
16. Федеральный закон №183-ФЗ от 18.07.1999 года «Об экспортном контроле» // Официальные сетевые ресурсы президента России – 1999. URL: http://www.kremlin.ru/acts/bank/14157
17. Федеральный закон №190-ФЗ от 11.07.2011 (ред. от 08.12.2020) "Об обращении с радиоактивными отходами и о внесении изменений в отдельные

законодательные акты Российской Федерации" // Официальные сетевые ресурсы президента России. – 2011. URL: http://www.kremlin.ru/acts/bank/17163

18. Федеральный закон № 317-ФЗ от 01.12.2007г. О Государственной корпорации по атомной энергии «Росатом»// Официальные сетевые ресурсы президента России. – 2007. URL: http://www.kremlin.ru/acts/bank/26621

b) Government decrees and official documents

19. Методическое руководство по созданию на предприятии (в организации) внутрифирменной системы экспортного контроля // Федеральная служба по техническому и экспортному контролю. – 1998. URL: https://fstec.ru/eksportnyj-kontrol/vnutrifirmennye-programmy/292-metodicheskoe-rukovodstvo
20. Постановление Правительства РФ №418 от 11.07.2003 г. "О порядке ввоза в Российскую Федерацию облученных тепловыделяющих сборок ядерных реакторов" // Бюллетень по атомной энергии. – 2003 № 10. URL: http://elib.biblioatom.ru/text/byulleten-atomnoy-energii_2003_v10/go,62/
21. Постановление Правительства РФ №574 от 8.05.1996 г. "Об утверждении Положения о порядке экспорта и импорта ядерных материалов, оборудования, специальных неядерных материалов и соответствующих технологий" // Официальный сайт правительства Российской Федерации. – 1996. URL: http://government.ru/docs/all/18545/
22. Постановление Правительства РФ №1132 (ред. от 28.08.2017) от 29.09.1998 "О первоочередных мерах по правовой защите интересов государства в процессе экономического и гражданско-правового оборота результатов научно-исследовательских, опытно-конструкторских и технологических работ военного, специального и двойного назначения" // Официальный сайт правительства Российской Федерации. – 2017. URL: http://government.ru/docs/all/113007/
23. Соглашение между Правительством Российской Федерации и Правительством Турции о сотрудничестве в области использования атомной энергии в мирных целях// Официальный сайт Государственной корпорации Росатом. – 2009. URL: https://www.rosatom.ru/upload/iblock/c08/c0834f6a44d1bef051ca9aa0d1ad00d4.pdf

24. Соглашение между Правительством Российской Федерации и Правительством Южно-Африканской Республики о стратегическом партнерстве и сотрудничестве в области атомной энергетики и промышленности // Официальные сетевые ресурсы президента России. – 2014. URL: http://kremlin.ru/supplement/1428

c) Presidential decrees

25. Указ Президента РФ №36 от 14.01.2003 г. "Об утверждении Списка оборудования и материалов двойного назначения и соответствующих технологий, применяемых в ядерных целях, в отношении которых осуществляется экспортный контроль" // Официальные сетевые ресурсы президента России. – 2003. URL: http://www.kremlin.ru/acts/bank/19050
26. Указ Президента Российской Федерации №96 (ред. от 25.04.2005) от 29.01.2001 "О Комиссии по экспортному контролю Российской Федерации" // Официальные сетевые ресурсы президента России. – 2005. URL: http://www.kremlin.ru/acts/bank/16528
27. Указ Президента Российской Федерации №202 от 14.02.1996 г. “Об утверждении Списка ядерных материалов, оборудования, специальных неядерных материалов и соответствующих технологий, подпадающих под экспортный контроль” // Официальные сетевые ресурсы президента России. – 1996. URL:http://www.kremlin.ru/acts/bank/8899
28. Указ Президента Российской Федерации № 312 от 27.03.1992 г. "О контроле за экспортом из Российской Федерации ядерных материалов, оборудования и технологий" // Официальные сетевые ресурсы президента России – 1992. URL: http://www.kremlin.ru/acts/bank/1100
29. Указ Президента Российской Федерации № 388 от 11.04.1992 г. "О мерах по созданию системы экспортного контроля в Российской Федерации" // Официальные сетевые ресурсы президента России – 1992. URL: http://www.kremlin.ru/acts/bank/1187
30. Указ Президента Российской Федерации № 389 от 20.04.1995 г. “О дополнительных мерах по усилению контроля за выполнением требований экологической безопасности при переработке отработавшего ядерного топлива”

// Официальные сетевые ресурсы президента России. – 1995. URL: http://www.kremlin.ru/acts/bank/7744

31. Указ Президента Российской Федерации № 972 от 02.09.1997 г. // Официальные сетевые ресурсы президента России – 1997. URL: http://www.kremlin.ru/acts/bank/11427
32. Указ Президента Российской Федерации №1085 от 16.08.2004 г. "Вопросы Федеральной службы по техническому и экспортному контролю"// Официальные сетевые ресурсы президента России. – 2004. URL: http://www.kremlin.ru/acts/bank/21312

d) Ministry of Foreign Affairs official messages

33. О мирном ядерном сотрудничестве с Индией // Официальный сайт Министерства Иностранных Дел России. – 2008. URL: https://www.mid.ru/eksportnyj-kontrol/-/asset_publisher/UhKoSvqyDFGv/content/id/326162
34. Сообщение для СМИ о мирном ядерном сотрудничестве с Индией, МИД России // Официальный сайт Министерства Иностранных Дел России – 2008. URL: https://www.mid.ru/eksportnyj-kontrol/-/asset_publisher/UhKoSvqyDFGv/content/id/326162

e) The State Atomic Energy Corporation Rosatom official reports

35. Меморандум о взаимопонимании между Госкорпорацией «Росатом» и Министерством энергетики Республики Гана о сотрудничестве в области использования атомной энергии в мирных целях // Официальный сайт Государственной корпорации Росатом –. 2012. URL: https://www.rosatom.ru/upload/iblock/248/248442a5f88647ae8230799747766510.pdf
36. Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2016 год // Официальный сайт Государственной корпорации Росатом. – 2016. URL: https://www.rosatom.ru/upload/iblock/d9a/d9a7d8a9569667eb38bcfc153a7016fe.pdf

37. Публичный годовой отчет «Итоги деятельности Государственной корпорации по атомной энергии «Росатом» за 2019 год // Официальный сайт Государственной корпорации Росатом. 2019. URL: https://report.rosatom.ru/go/rosatom/go_rosatom_2019/%D0%93%D0%BE%D0%B4%D0%BE%D0%B2%D0%BE%D0%B9_%D0%BE%D1%82%D1%87%D0%B5%D1%82_%D0%A0%D0%BE%D1%81%D0%B0%D1%82%D0%BE%D0%BC_2019.pdf

II. Literature

Monographs

38. Graeme, G. Markwick, D. Russia's Stillborn Democracy? From Gorbachev to Yeltsin / G.Graeme, D. Markwick. – Oxford: Oxford University Press, 2000.
39. Hibbs, M. The Future of the Nuclear Suppliers Group / M. Hibbs. - W.: Carnegie Endowment for International Peace, 2011 – 70 P. URL: https://carnegieendowment.org/files/future_nsg.pdf
40. Малькевич, В. Экспортный контроль: от противостояния к сотрудничеству / В. Малькевич – М.: Общество сохранения литературного наследия, 2012 – 512 С.
41. Проблемы ядерного нераспространения в российско-американских отношениях: история, возможности и перспективы дальнейшего взаимодействия / В.Орлов, Р.Тимербаев, А. Хлопков. – М. : ПИР-Центр полит. исслед., 2001.
42. Сотрудничество во имя глобальной безопасности / Ю. Фёдоров [и др.]; под ред Ю. Фёдорова. - М.:Изд-во «Права человека», 2002. – 125 С. URL: http://www.pircenter.org/media/content/files/9/13464207240.pdf

Research articles

43. Beck, M., Bertsch, G., Khripunov, I. The Development of Nonproliferation Export Control in Russia / M. Beck, G. Bertsch, I. Khripunov // World Affairs. – Vol. 157, №1 – 1994. – P. 3–18. URL: www.jstor.org/stable/20672403
44. Česnakas, G., Justinas, J. Nuclear Geopolitics in the Baltic Sea Region: Exposing Russian Strategic Interests Behind Ostrovets NPP / G. Česnakas, J. Justinas // Atlantic Council – 2017. URL: www.jstor.org/stable/resrep03497

45. Dalton, T. Kassenova, T. Williams, L. Perspectives on the Evolving Nuclear Order /T. Dalton, T. Kassenova, L. Williams. - W.: Carnegie Endowment for International Peace, 2016 – 124 P. URL: https://carnegieendowment.org/2016/06/06/perspectives-on-evolving-nuclear-order-pub-63711
46. Diakov, A. NPT Problems in light of the increased competition in the global market of nuclear materials and technologies / A. Diakov // Russia: Disarmament and international security – 2020. doi: 10.20542/978-5-9535-0578-9
47. Gill, L. Countries move towards low enriched uranium to fuel their research reactors / L. Gill // IAEA Bulletin – 2019. Vol.60 №4. – P. 2-40. URL: https://www.iaea.org/sites/default/files/bull604researchreactorsnov2019corr2.pdf
48. Glaser, A. Hippel N. Global Cleanout: Reducing the Threat of HEU-Fueled Nuclear Terrorism // Arms Control Association. – 2006. URL: https://armscontrol.org/act/2006-01/features/global-cleanout-reducing-threat-heu-fueled-nuclear-terrorism
49. Goldanskii, V. Russia's "red-brown" hawks / V. Goldanskii // Bulletin of the Atomic Scientists. – 1993. №5. – P. 24–37
50. Goldschmidt, P. U.S. - Russia Strategic Partnership against Nuclear Proliferation / P. Goldschmidt // Center for Strategic and International Studies – 2008, URL: https://carnegieendowment.org/files/goldschmidt_usrussiastratpart.pdf
51. Hibbs, M. A More Geopoliticized Nuclear Suppliers Group / M. Hibbs // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/12/14/more-geopoliticized-nuclear-suppliers-group-pub-75027
52. Hibbs, M. Does the U.S. Nuclear Industry Have a Future? / M. Hibbs // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/08/10/does-u.s.-nuclear-industry-have-future-pub-72797
53. Horner, D. NSG Revises Rules on Sensitive Exports / D. Horner // Arms Control Association. – 2011. URL: https://www.armscontrol.org/act/2011-07/nsg-revises-rules-sensitive-exports
54. Kassenova, T. Brazil, Argentina, and the Politics of Global Nonproliferation and Nuclear Safeguards/ T. Kassenova // Carnegie Endowment for International Peace – 2016. URL:

https://carnegieendowment.org/2016/11/29/brazil-argentina-and-politics-of-global-non-proliferation-and-nuclear-safeguards-pub-66286

55. Kerr, P. Iran, Russia reach nuclear agreement / P.Kerr // Arms Control Today – 2005. URL:https://www.armscontrol.org/act/2005-04/iran-nuclear-briefs/iran-russia-reach-nuclear-agreement
56. Kimball, D. The Nuclear Suppliers Group at a Glance / D. Kimball // Arms Control Association Fact Sheet. – 2017. URL: https://www.armscontrol.org/factsheets/NSG
57. Levite, A. Leveling Up the Nuclear Trade Playing Field // Carnegie Endowment for International Peace – 2017. URL: https://carnegieendowment.org/2017/09/07/leveling-up-nuclear-trade-playing-field-pub-73038
58. Litovkin, D. Indian Nuclear Submarine Development Program: Russian Participation / D. Litovkin // Yaderny Kontrol. – 1999. №3(12) – P.29-31
59. McGoldrick F. The Road Ahead for export control: Challenges for the Nuclear Suppliers Group / F. McGoldrick // Arms Control Association – 2011. URL: https://www.armscontrol.org/act/2011-01/road-ahead-export-controls-challenges-nuclear-suppliers-group
60. Orlov, V. Export control in Russia: Policies and practices / V. Orlov // The Nonproliferation Review – Vol.6 №4 – 1999 – P. 139-151, DOI: 10.1080/10736709908436786
61. Orlov, V., Potter, W. The Mystery of the Sunken Gyros / V. Orlov, W. Potter // Bulletin of the Atomic Scientists. – 1998. №54. – P. 35-36.
62. Pomper, M. The Russian Nuclear Industry: Status and Prospects / M. Pomper // Nuclear Energy Futures – 2009. №3 – P. 1-29. URL: www.jstor.org/stable/resrep16171
63. Pomper, M. Toward the Global Norm: Supporting the Minimization of Highly Enriched Uranium in the Civilian Sector / M. Pomper. 2011. URL: http://en.asaninst.org/contents/issue-brief-no-12-toward-the-global-norm-supporting-the-minimization-of-highly-enriched-uranium-in-the-civilian-sector/#10
64. Potter, W. Nuclear Exports From the Former Soviet Union: What's New, What's True / W. Potter // Arms Control Today – Vol. 23, №1. – 1993. P. 3–10. URL: www.jstor.org/stable/23624922
65. Potter, W. The Soviet Union and Nuclear Proliferation / W. Potter // Slavic Review – 1985. Vol. 44. – P. 487. URL: https://doi.org/10.2307/2498015

66. Safranchuk, I. Russian-Iranian Cooperation and export control / I. Safranchuck // PIR Study Papers. – 1998. №8.
67. Schepers, N. Russia’s nuclear energy exports: status, prospects and implications/ N.Schepers// Non-Proliferation and Disarmament Papers. – 2019. №61 – P.1-16. URL: https://www.non-proliferation.eu/wp-content/uploads/2019/03/EUNPDC_no-61_FINAL.pdf
68. Sokova, E. Phasing Out Civilian HEU in Russia: Opportunities and Challenges / E. Sokova // Nonproliferation Review. – 2008. Vol 15 №2. – P.209-236. URL: https://doi.org/10.1080/10736700802117288
69. Thomas, S. Russia's Nuclear Export Programme / S. Thomas // Energy Policy. – 2018. Vol. 121 – P.236-247. URL: https://www.researchgate.net/publication/327992247_Russia's_Nuclear_Export_Programme
70. Viski, A. The revised nuclear suppliers group guidelines: a european union perspective / A.Viski // Non-Proliferation Papers –2012. №15. URL: https://www.non-proliferation.eu//wp-content/uploads/2018/10/andreaviski4fba1277ab8f9.pdf
71. Wehling F. Russian nuclear and missile exports to Iran / F. Wehling // The Nonproliferation Review. – 1999. P.134-143. URL: https://www.non-proliferation.org/wp-content/uploads/npr/wehl62.pdf
72. Weiss, A. Nuclear Enrichment: Russia’s Ill-Fated Influence Campaign in South Africa / A. Wess // // Carnegie Endowment for International Peace – 2019. URL: https://carnegieendowment.org/2019/12/16/nuclear-enrichment-russia-s-ill-fated-influence-campaign-in-south-africa-pub-80597
73. Wolfsthal, J. Nuclear Status Report: Nuclear Weapons, Fissile Material, & Export controls in the Former Soviet Union / J. Wolfsthal // Carnegie Endowment for International Peace – 2011, URL: https://carnegieendowment.org/files/NSRFullTextEnglish.pdf
74. Yablokov, A. Dangerous Consequences of Minatom's Foreign Policy/ A. Yablokov //Yaderny Kontrol Journal. – 1997
75. Zagorski, A. Post-Soviet Nuclear Proliferation Risks / A. Zagorski // Security Dialogue – 1992. №3. – P.27–39. URL: www.jstor.org/stable/44471404

76. Граве А., Петренко А. Экспортный контроль в России и безопасность международных перевозок ядерных материалов / А. Граве, А. Петренко // Индекс безопасности – №2 (85) – 2008 – С. 85-100, URL: http://pircenter.org/media/content/files/0/13412225440.pdf
77. Кириченко Э. Экспортный контроль как инструмент поддержания лидерства США в меняющемся мире. – Полис. Политические исследования. 2020. №1. С. 74-88. https://doi.org/10.17976/jpps/2020.01.06
78. Кравченко, Н., Рыбаченков, В. Российско-Американский проект "Вторая линия защиты"/ Н.Кравченко, В. Рыбаченков // Центр по изучению проблем контроля над вооружениями, энергетики и экологии – 2014. URL: https://dropdoc.ru/doc/306847/vtoraya-liniya-zashhity
79. Орлов, В. Национальная система экспортного контроля россии в ядерной области, Экспортный контроль в России: политика и практика : Сб. статей / ПИР-ЦЕНТР — Центр полит. исслед. в России; [Ред.: Д. Г.. Евстафьев и В. А. Орлов]. — М. : ПИР-Центр, 2000. — 215 с.
80. Рей, А. Критический экспорт и экспортный контроль в России / А. Рей // Научные Записки ПИР-Центра – 1998. URL: http://www.pircenter.org/media/content/files/9/13464242930.pdf
81. Фишер, Д. Почему я поддерживаю российско-иранский контракт. Ответ профессору Яблокову / Д. Фишер // Ядерный контроль. – 1995. №6. – С.20-21. URL: http://pircenter.org/media/content/files/9/13464103580.pdf

Research papers and reports

82. An Effective Export Control Regime for a Global Industry // World Nuclear Association Report. – 2018. URL: https://www.world-nuclear.org/getmedia/cc6d54da-ee87-4642-aee3-99e0231016d9/Export-Controls-Report.pdf.aspx
83. Anthony, I., Ahlstrom. C., Fedchenko, V. Reforming Nuclear export control: The Future of the Nuclear Suppliers Group / I. Anthony, C. Ahlstrom, V. Fedchenko // SIPRI Research Report No. 22 – 2007. URL: https://www.sipri.org/sites/default/files/files/RR/SIPRIRR22.pdf

84. Civilian HEU reduction and elimination resource collection // Nuclear Threat Initiative – 2020. URL: https://www.nti.org/analysis/reports/civilian-heu-reduction-and-elimination/
85. Feiveson, H. Managing Spent Fuel from Nuclear Power Reactors: Experience and Lessons from Around the World / H. Feiveson // International Panel on Fissile Materials. - P.:2011, P.74–75
86. Information on Nuclear Smuggling Incidents / Nuclear non-proliferation: U.S. Efforts to Help Other Countries Combat Nuclear Smuggling Need Strengthened Coordination and Planning. – 2002, URL: https://www.atomicarchive.com/almanac/smuggling/smuggling_details.html
87. Market Competition in the Nuclear Industry / Nuclear Energy Agency report– 2008. URL: https://www.oecd-nea.org/upload/docs/application/pdf/2019-12/6246-market-competition.pdf
88. McGoldrick, F. Nuclear Trade Controls: Minding the Gaps / F.McGoldrick // Center for Strategic and International Studies (CSIS) report – 2013. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/legacy_files/files/publication/130122_McGoldrick_NuclearTradeControls_Web.pdf
89. Nakano J. The Changing Geopolitics of Nuclear Energy, A Look at the United States, Russia, and China / J. Nakano // Center for Energy Security and International Studies – 2020. URL: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf
90. Obergfaell, K. Nuclear Energy Trends: Geopolitics, Export Drivers, Governance Norms / K.Obergfaell // International Institute for Strategic Studies Workshop report. – 2019. URL: https://www.iiss.org/blogs/analysis/2019/03/geopolitics-nuclear-export-workshop
91. Past and Current Civilian HEU Reduction Efforts // Nuclear Threat Initiative. – 2011. URL: www.nti.org/analysis/articles/past-and-current-civilian-heu-reduction-efforts/
92. The James Martin Center for Nonproliferation Studies Global Incidents and Trafficking Analysys // Nuclear Threat Initiative. – 2020. URL: http://www.nti.org/analysis/reports/cns-global-incidents-and-trafficking-database/
93. Varnum, J. Closing the Nuclear Trapdoor in the U.S.-Turkey ‘Model’ Partnership: Opportunities for Civil Nuclear Cooperation / J. Varnum // Turkey Project Policy

Paper. – 2013. №1. – P.1-17. URL: https://www.brookings.edu/wp-content/uploads/2016/06/17-us-turkey-nuclear-partnership-cooperation-varnum.pdf

94. Vessels, K. HEU for Isotope Production in Canada and Russia: Expansion or Phaseout? / K. Vessels // Global HEU Phaseout NPPP Policy Research Project . – 2011.

Publications in newspapers and magazines

95. Rodan, S. Iran Paid $25m for Nuclear Weapons, Documents Show / S.Rodan // Jerusalem Post. – 1998. URL: https://www.jpost.com
96. Бовт, Г. Отношения России и Ирана / Б. Говт // Коммерсантъ. – 1996. №222. – P. 4. URL: https://www.kommersant.ru/doc/245560
97. Ильина, Н. Россия не поедет на саммит по ядерной безопасности / Н. Ильина // Ведомости. – 2016. URL: https://www.vedomosti.ru/politics/articles/2016/03/31/635839-rossii-yadernoi-bezopasnosti
98. Мачаин, А «Граница в свете террора»/ А. Мачанин // BBC News. – 2020. URL: http://news.bbc.co.uk/2/hi/americas/2248487.stm

Internet articles

99. Cohen A. Countering Russian-Iranian Military Cooperation / A. Cohen. URL: https://www.heritage.org/europe/report/countering-Russian-iranian-military-cooperation
100. Dobrev B. Rosatom & Russia’s Nuclear Diplomacy / Dobrev, B. URL: https://www.researchgate.net/publication/306353522_Rosatom_Russia's_Nuclear_Diplomacy
101. Jermalavičius T. Hybrid Atoms: Rosatom’s Projects and Russia’s Geopolitical Strategy /Jermalavičius T. URL: https://icds.ee/en/hybrid-atoms-rosatoms-projects-and-russias-geopolitical-strategy/

Abbreviations

ABACC	Brazilian–Argentine Agency for Accounting and Control of Nuclear Materials
CIS	Commonwealth of Independent States
ENR	Uranium enrichment and plutonium reprocessing
FSTEC	Federal Service for Technical and Export Control
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
LEU	Low Enriched Uranium
NSG	Nuclear Suppliers Group
WMD	Weapons of Mass Destruction