THE "NUNN-LUGAR" COOPERATIVE THREAT REDUCTION PROGRAM: AN EFFECTIVE REGIME TO STEM PROLIFERATION OF WEAPONS OF MASS DESTRUCTION

A Ph.D. Dissertation

by

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The Graduate School of Economics and Social Sciences
of
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I certify that I have read this thesis and have found that it is fully adequate, in scope, and in quality, as a thesis for the degree of Doctor of Philosophy in International Relations.

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Asst. Prof. Özgür ÖZDAMAR

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ABSTRACT

THE "NUNN-LUGAR" COOPERATIVE THREAT REDUCTION PROGRAM: AN EFFECTIVE REGIME TO STEM PROLIFERATION OF WEAPONS OF MASS DESTRUCTION

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This dissertation argues that the Nunn-Lugar Cooperative Threat Reduction (CTR) program, which is designed to curb nuclear proliferation, has become a security regime. Since the end of the Cold War, the Nunn-Lugar CTR program has dismantled nuclear, chemical and biological weapons in the former Soviet Union and the Russian Federation. United State's recurring discord with Russia did not hinder the continuation of this strategic cooperation. CTR was a notable exception because it continued to be renewed every seven years for more than 20 years, even during the Kosovo crisis, Georgian conflict and other tensions between the U.S. and Russian Federation. The United States further expanded the Nunn-Lugar principles, norms and rules to other regions of world. It became a robust security regime by also addressing new types of threats. Nunn-Lugar eliminated bureaucratic and red tape burdens on the Defense Threat Reduction Agency throughout the post-Cold War. The Nunn-Lugar destroyed a chemical weapons stockpile in Albania. It is also given the resources and flexibility to work with countries such as Pakistan and trying to cooperate with North Korea if a future agreement allows it. Nunn-Lugar has expanded so as to provide nuclear security by assisting countries in securing fissile material and nuclear weapons, and supporting countries countering attacks concerning weapons of mass destruction. In 2002, Nunn-Lugar model has been adapted by Global Partnership Against Weapons of Mass Destruction by G-8 countries in Canada. In this context, 23 industrialized countries joined forces to dismantle nuclear submarines and eliminate chemical weapons in Russia. Nunn-Lugar as well as other initiatives such as Global Partnership is still in force and will be renewed for another 10 years.

Keywords: Security Regime, US-Russian Strategic Cooperation, Global Partnership Against Weapons of Mass Destruction, Nuclear Security, Nuclear Non-proliferation.

ÖZET

NUNN-LUGAR PROGRAMI: KİTLE İMHA SİLAHLARININ YAYILMASININ ÖNLENMESİNE İLİŞKİN YAPILANAN GÜVENLİK REJİMİ

AYLİN G. GÜRZEL

DOKTORA TEZİ, ULUSLARARASI İLİŞKİLER BÖLÜMÜ

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Mayıs 2012

Bu tezde Nunn-Lugar Ortak Tehdit Azaltma (CTR) Programının bir güvenlik sistemi haline dönüştüğü ileri sürülmektedir. Soğuk Savaşın bitişinden bu yana Nunn-Lugar CTR programı eski Sovyetler Birliğindeki nükleer, kimyasal ve biyolojik silahları imha etmesine olanak sağlamıştır. Amerika'nın Rusya ile yaşadığı gerginliklere rağmen iki ülke arasındaki stratejik ortaklık yirmi seneden fazla bir süredir hiç kesintiye uğramamıştır. Kosova, Gürcistan uzlaşmazlığında ve diğer gerginliklerde de program devam etmeyi sürdürmüştür. Bu süre zarfında, ABD Nunn-Lugar ilkeleri ve kurallarını dünyanın diğer bölgelerinde de yaygınlaştırmasını sağlamıştır. Bu çerçevede Nunn-Lugar yeni tehditleri de kapsayacak şekilde güçlü bir güvenlik sistemine dönüşmüştür. Nunn-Lugar, Savunma ve Tehdit Azaltma Kurumunun Soğuk Savaş boyunca oluşan kırmızı çizgiler ve uyguladığı resmi formaliteleri ortadan kaldırmıştır. Bunun yanı sıra Nunn-Lugar sayesinde Arnavutluktaki bütün kimyasal silahlar yok edilmiştir. Ayrıca, gelecek dönemlerde yapılacak anlaşmaların izin vermesi kaydıyla, Pakistan gibi ülkelerde tehdit azaltma çalışmaları ve Kuzey Kore ile işbirliği çabaları için gerekli kaynaklar sağlanmıştır. Bu anlaşmanın kapsamı genişletilmiş olup başka ülkelerin de nükleer silahlarını ve nükleer silah yapımında kullanılabilir uranyum ve plütonyum güvenliği artırmıştır. Bu kapsamda Nunn-Lugar modeli örnek alınarak Küresel Ortaklık (Global Partnership) ortak tehdit azaltma anlaşması ilk önce G-8 sanayileşmiş ülkeler tarafından 2002'de Kanada da imzalanmıştır. Daha sonra da toplam 23 ülke, bu çerçevede, Rusya'daki nükleer denizaltı ve kimyasal silahları elimine etme etkinliğine girişmişlerdir. Nunn-Lugar güvenlik rejiminin bir türevi olan Küresel Ortaklık hala yürürlülükte olan iki anlaşmadır.

Anahtar Kelimeler: Güvenlik Rejimi, Amerikan-Rus Stratejik İlişkileri, Kitle İmha Silahları, Nükleer Güvenlik.

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Aylin G. Gürzel

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ABBREVIATIONS

ASM	Air-to-surface missile
BWC	Biological Weapons Convention
CFE	Conventional Forces in Europe
CTR	Cooperative Threat Reduction
CWC	Chemical Weapons Convention
CWC	Chemical Weapons Convention
CWDF	Chemical Weapons Destruction facility
DOD	Department of Defense
DOE	Department of Energy
EC	European Community
EU	European Union
GAN	Gosatomnadzor
GAO	General Accounting Office
HEU	Highly Enriched Uranium
IAEA	International Atomic Energy Agency
ICBM	Intercontinental ballistic missile
IGO	Inter Governmental Organization
IPP	Initiatives for Proliferation Prevention
MC&A	material control and accounting

MINATOM	Russian Ministry of Atomic Energy
MOD	Ministry of Defense
NGO	Non Governmental Organization
NIS	Newly Independent States
NNWS	Non-Nuclear Weapons State
NPT	Non-Proliferation Treaty
NSW	Nuclear Weapons State
ROSATOM	Russian Federal Atomic Energy Agency
SLBM	Submarine launched ballistic missile
SORT	Strategic Offensive Reduction Treaty
SSBN	Nuclear submarine capable of launching ballistic missile
START	Strategic Arms Reduction Treaty
TNA	Transnational Organizations
UN	United Nations
VAT	Value Added Tax
WMD	Weapons of Mass Destruction

CHAPTER I

INTRODUCTION

Over the course of the Cold War, the nuclear arms race between the two superpowers, the United States and Soviet Union, symbolized the main characteristic of the Cold War superpower rivalry. The danger of nuclear weapons had always been a concern either because they feared a nuclear accident, miscalculation or U.S. officials and experts were worried about spread of nuclear weapons to other states that could pose regional threats. Strategic Arms Limitation Talks (SALT) and Strategic Arms Reduction Treaty (START) talks had sprung from these two concerns.

As the command and control structure of the Soviet Union (USSR) collapsed in 1991, the concerns for nuclear security obtained a new dimension. Post-Cold War U.S. foreign policy has ceaselessly focused on Russia and the Former Soviet Republics as a hazardous potential source of a nuclear threat to the U.S. security. The nuclear security problem at the dissolution of the Soviet Union was multi-faceted, ranging from insufficient physical security at nuclear facilities, conversion of the aging nuclear complex, insecure warheads and fissile material such as highly enriched uranium (HEU) and plutonium, high levels of production of weapons grade

material, and risk of "brain drain" of former weapons scientists. Additionally, the risk of nuclear security of these weapons and fissile material as well as the need of employment of former nuclear weapons scientists increased as the Newly Independent States (NIS) namely, Ukraine, Belarus and Kazakhstan became the third, fourth and eighth nuclear power in the world.[1]

These concerns were raised in the U.S. Congress by senators Sam Nunn (Democrat-Georgia) and Richard Lugar (Republican-Indiana). Recognizing the urgent situation, in 1991, the U.S. passed the Nunn-Lugar legislation, so named after its main proponents, Senator Sam Nunn and Richard Lugar, therefore this dissertation will refer to this Program as the "Nunn-Lugar" CTR Program.[2] Under this legislation, the Department of Defense (DOD) began implementing the "Nunn-Lugar" Cooperative Threat Reduction (CTR) program, initially working to not only dismantle but also secure nuclear materials in the former Soviet Republics. The U.S.-led Nunn-Lugar Program was the genesis of many such initiatives, such as Global Threat Reduction Initiative (GTRI) and Global Partnership Against Weapons of Mass Destruction as well as United Nations Security Council Resolution UNSCR 1540. The CTR Program had four key objectives, first to destroy nuclear, chemical and biological weapons, second to transport and secure these weapons to Russia from the NIS, third to set up verifiable safeguards against proliferation of these weapons,

[1] *Treaty on the Non-Proliferation of Nuclear Weapons,* International Atomic Agency Information Circular, INFCIRC/140, 22 April 1970. http://www.iaea.org/Publications/Documents/Infcircs/Others/infcirc140.pdf; See for example Richard A. Davis, *Nuclear Threat Initiative (NTI)*, "Nuclear Offensive Arms Reductions – Past and Present*,"* 2002. http://www.nti.org/e_research/official_docs/dos/702RD.DOS.pdf

[2] Kenneth A. Myers III Senior Professional Staff Member Committee on Foreign Relations United States Senate for Senator Richard Lugar, Interview with the author- telephone interview, 8/7/05.

their components and weapons-usable material, and finally to prevent the diversion of scientist expertise, which may contribute to weapons programs in other countries.[3]

During the early stages, the CTR Program evolved in three stages. The first stage, which started from 1992 to 1993, consisted of negotiations outlining the framework of these efforts. The second stage from 1994 to 1995 was a period when the bilateral Umbrella agreements were actually put in force and implemented. Lastly, the third stage began in 1996 when DOD successfully negotiated agreements with the three nuclear states; Kazakhstan, Ukraine and Belarus to send back their nuclear weapons and fissile material to Russia as well as dismantle related facilities. With the denuclearization goals competed in 1996, cooperation on nuclear, as well as chemical and biological security has continued with these NIS states and most extensively with Russia, whose wide-ranging nuclear, biological and chemical arsenal continued to be a proliferation risk. The Nunn-Lugar Program dismantled all chemical weapons in Albania and extended its scope to other countries.[4]

The September 11 attacks in 2001 on the World Trade Center and the Pentagon as well as the subsequent anthrax attacks, furthermore, raised grounds for concern in the U.S. Congress because now U.S. officials feared a nuclear attack from *"non-state actors"*- is a term used to describe terrorists, by some nuclear non-proliferation experts and academics. Once again, the CTR Program had to evolve in order to address the challenges of the post 9/11. The Nunn-Lugar programs, over more than 20 years, have expanded into three departments: Defense; Energy; and

[3] U.S. Department of Defense. Cooperative Threat Reduction. (Washington, DC. 1995) p. 4, in Amy F. Woolf,, Non-Proliferation and Threat Reduction Assistance: U.S. Programs in Former Soviet Union, *Congressional Research Service* (Washington, DC. 2010). http://fpc.state.gov/documents/organization/138715.pdf

[4] For the details of the development of the CTR program, see Amy F. Woolf, Nunn-Lugar Cooperative Threat Reduction Programs: Issues for Congress (Washington 2003) and Jason D. Ellis, Defense by Other Means: The Politics of US-NIS Threat Reduction and Nuclear Security (Westport 2001).

State. It is, at present, carried out with a yearly budget of approximately a billion dollars. To see the details on the achievements of the Nunn-Lugar Scorecard see Appendix II.[5]

"It took nearly 50 years to build the most dangerous arsenals in history; it has taken less than 20 years to dismantle and store more than 75 percent of the world's nuclear weapons."[6] To date, Nunn-Lugar program has eliminated nuclear warheads in Russia from 30,000 in 1991 to about 12,000 warheads.[7] Additionally, "to match the effort in Russia, the United States has dismantled more than 13,000 warheads since 1990 and destroyed 90 percent of its nonstrategic nuclear weapons, going from 7,600 to 760 warheads- START and New START obligations."[8] Rose Gottemoeller, Assistant Secretary, Bureau of Arms Control, Verification and Compliance, former director of Carnegie Endowment for international Peace Moscow, was influential in convincing both the U.S. administration that was reluctant to pursue an arms control treaty with Russia and she persuaded the Russian government that continuation of a verification mechanism between Russia and the U.S. was necessary.[9]

Since 2002, the Nunn-Lugar CTR Program together with the Global Partnership Against Weapons of Mass Destruction, consist of G-8 member states and industrialized counties, and it has committed 20 billion dollars for 10 years in order to dismantle and secure weapons of mass destruction in Russia. In the Seoul Nuclear Summit, in 2012, industrialized countries that are part of the Global Partnership

[5] *The Nunn-Lugar Scorecard*, (December 2011), http://lugar.senate.gov/nunnlugar/scorecard.html
[6] Kennette Benedict, "Nunn-Lugar: 20 Years of Cooperative Threat Reduction Program, *"The Bulletin of the Atomic Scientists,* (19 December 2011). http://www.thebulletin.org/web-edition/columnists/kennette-benedict/nunn-lugar-20-years-of-cooperative-threat-reduction
[7] Ibid, Kennette Benedict, "Nunn-Lugar: 20 Years of Cooperative Threat Reduction Program.
[8] See, http://www.state.gov/t/avc/rls/164286.htm; http://www.state.gov/documents/organization/154123.pdf
[9]Rose Gottemoeller, Interview with the author, Carnegie Endowment for international Peace Moscow, 8/8/07. She was the chief U.S. negotiator of the New START with the Russian Federation.

announced to extend the mandate of this initiative.[10] The Nunn-Lugar Program breaks new ground and reshapes international norms on weapons of mass destruction security, in which the United States, the Russian Federation and other 22 countries work together.

The endeavor to control the former Soviet nuclear weapons has been a source of great concern; however it has also offered a testing ground and unique opportunity for a novel type of strategic cooperation between countries in the post-cold war milieu, especially in the global cooperation against weapons of mass destruction. Contesting existing approaches that explain strategic cooperation between adversaries; this dissertation argues that the existing frameworks and explanations for strategic cooperation between adversaries as well as between allies happened to be obscure as the Russian Federation no longer fits precisely into either category. In the emerging literature on cooperative security Nunn-Lugar has become the leading example. Ideas and concepts on cooperative security have tended towards the direction of a "framework," and in due course a "security regime"[11] has emerged. The methods of such a framework and its relationship to further cooperative security relationships will be systematically investigated in this dissertation.

Dynamics at play are multifaceted. First, set of factors such as individuals and leadership played a major role. Second, institution level interests as well as government-to-government agreements- bilateral Umbrella Agreements- play a part at working level approaches. Cooperative security approach is one of the approaches that can explain the Nunn-Lugar model. This is a concept developed as more of a

[10]Key Factors on the 2012 Seoul Nuclear Security Summit, *US Department of State*, 28 March 2012. http://www.state.gov/t/isn/rls/fs/187208.htm

[11]Krasner, Stephen D. Structural Causes and Regime Consequences: Regimes as Intervening Variable, in International Regimes, *International Organizations*, 36, (spring 1982), edited by Krasner, Cornell University Press (Ithaca, NY: 1983); Jervis, *International Organization* 36, (spring 1982); See also Charles F. Parkers, *Evaluation Security Regime Significance*, ISA International Convention, (New Orleans: 2002).

policy goal than a theory. In this regard, it is not incompatible with earlier state security cooperation models; rather it is a label that explains a security approach in the post-Cold War era and takes it to a new direction. The defining characteristics of this era are more physically interactive in nature and are related to engaging in cooperation between former adversaries and competing states. In other words, relations between states are not only in government-to-government, but also scientist-to-scientist and lab-to-lab basis.

Alexander George, for instance, divides cooperation agreements into several categories: first lowering costs of competition or of a common danger; second limiting competition; finally avoiding superpower rivalry.[12] The Nunn-Lugar security cooperation case, in the post-Cold War milieu, is possibly a new "type" for Alexander George's case set. As the international dynamic between the nuclear superpowers changed, the Nunn-Lugar security cooperation ascended both former security concerns and arms control frameworks- Strategic Arms Reduction Treaties, START and the New START- a new security concern. This security framework consists of not only conceptual but also implementation level parameters. The illustration of the new security framework and emerging security regime is broken down by activity type, such as nuclear dismantlement, nuclear material security, and employment of nuclear scientist as well as chemical weapons elimination and nuclear submarine dismantlement. Variations can be found in weapons, materials, and scientist areas of cooperation, therefore they do not all have similar explanations.

It will analyze whether dynamics that were used to explain Cold War security relations, the security cooperation model, apply in this post-Cold War case as well. Furthermore, it will explore whether alternate theories, particularly bureaucratic

[12] Alexander L George, Philip J. Farley, Alexander Dallin eds. U.S.- Soviet Security Cooperation: Achievements, Failures, Lessons. (New York: Oxford University Press, 1988) p. 649.

politics models, an emerging cooperative security literature, and particularly security theory suggest additional sets of aspects that may explain variation in the effectiveness as well as the overall success of Nunn-Lugar CTR programs.

Within this framework, it will explain how the Nunn-Lugar Program has expanded and evolved. First and foremost, it expanded in scope and scale. Then it evolved into a Global Partnership Against Weapons of Mass Destruction. The Nunn-Lugar Program has indeed withheld the test of time. It has gone through much political, military and social turmoil. There have been many incidents in which the U.S.-Russian relationship faced difficult times. However, when operations Operation Desert Fox was enforced in Iraq most of the ties between the U.S.-Russia were under strain, and also when NATO offensive operations in Yugoslavia took place, the relationship was stalled, yet the program has survived ups and downs of the relationship. The Russian Federation's full scale military invasion of Georgia, in August 2008, did not interrupt the CTR Program. The bilateral relationship has expanded in scope and scale because there was a political will to deal with bilateral differences no matter how complicated the management of the relationship was at different time periods. Long-term consensus on the benefits of a mutual interest gave this program a chance to transform itself into a security regime. Nunn-Lugar Program has become a security regime that has provided not only Russia but also the NIS with leverage, information and more importantly, financial resources to overcome obstacles. Therefore, this relationship has been taken as a model by many industrialized countries and especially the G-8 countries that decided to sign a similar bilateral Umbrella Agreement with the Russian government.

It is important to mention that an expansion of the Nunn-Lugar program outside the former Soviet Union also may be a way to enhance safety and security in

the world. For instance, Pakistan and North Korea may also benefit from an expanded CTR concept. Since, the best way to prevent nuclear terrorism may be to lock down and secure the stockpiles of nuclear weapons or materials, the Nunn-Lugar approach may be utilized in countries like Pakistan where border security is not fully maintained. Thus, the risk of unauthorized use of nuclear weapons or theft of weapons-usable nuclear material, in Pakistan, may be decreased with some Nunn-Lugar tools and techniques, which were used earlier in the former Soviet Union. It may be used to freeze the nuclear weapons program in North Korea and even to rollback proliferation in such countries. The Nunn-Lugar CTR program at this time period may became a part of the long-term threat reduction and non-proliferation effort.

This research project analyzes the U.S. and Russian nuclear security cooperation in the area of weapons of mass destruction proliferation and aims at finding answers to the following questions:

1. To what extent is the Nunn-Lugar, as a case of post-Cold War cooperative security, a departure from the explanations of earlier model?
2. Has the Nunn-Lugar Program evolved into a security regime that can address the challenges of today's world?
3. What are the possible effects of the Nunn-Lugar CTR Program on global nuclear security and what are expected outcomes of an emerging Nunn-Lugar security regime?
4. Can this cooperation model be applied in Pakistan and North Korea?

This dissertation focuses on international regimes because this theory tries to bridge the gap between international relations schools of thought;[13] in addition, it will use the definition of Stephen D. Krasner.[14] It asserts that the Nunn-Lugar has evolved into a security regime because it fulfills the standards of becoming a security regime. In this regard, in this dissertation security regime criterion will be evaluated an in the end it will be decided whether Nunn-Lugar can satisfy these criteria set by two scholars Robert Jervis of Columbia University[15] and Charles Parker[16] of Uppsala University.

Historically informed process tracing case study is used as a methodology. This research project consists of largely inductive data. In this respect, it has been conducted through individual interviews with former and present officials, experts and scholars.

These efforts have been supplemented by analysis of primary sources:

1. Bilateral agreements;
2. Public statements;
3. The U.S. Congressional Testimonies;
4. The U.S. Congress Reports;

[13] Volker Rittberger contends that, according to the explanatory variables that theories of international regimes emphasized, they can be classified as power-based, interest-based, and knowledge-based approaches respectively. These are the three schools of thought within the study of international regimes; realist focus on power relationship; neoliberal base their analyses on contestation of interests; cognitivism emphasize knowledge dynamics, communication and identities. See Volker Rittberger (1995). (ed.) *Regime Theory and International Relations*, (New York: Clarendon Paperback), p. 361.

[14] See Stephen D. Krasner, (1983). (ed.) International Regimes, Cornell University (Itaca: New York), pp. 1-21.

[15] Robert Jervis' security regime evolution criteria: willingness of establishing a regime; reciprocity; non-expansionist policies. See Robert Jervis, (1982). "Security Regimes" *International Organizations*, International Regimes, 36 (2) ,p.357. See aso Robert Jervis, In Paul T.V., (2003). "Systemic Conditions and Security Cooperation: Explaining the Persistence of Nuclear Non-Proliferation Regime," *Cambridge Review of International Affairs*, 16 (1), p. 135.

[16] Charles Parker's security regime evolution criteria: coverage, compliance, change, counterfactual reasoning, overall regime consequence. See Charles Parker (2002). "Evolution Regime Significance: Lessons from the NBC Control Regimes," ISA Annual International Convention, New Orleans L.A., March 24-27, pp.1-20.

5. Russian Duma's; and
6. Minatom/ Rosatom White papers.

The theoretical foundations and limitations of the regime theory and methodology are abundant. Regime theory in general and security regime theory in particular has its limits as any other international relations theory. The security regime theory has limitations as well as strengths. Its strength comes from its comprehensive approach trying to bridge the gap between international relations theories. In this sense, it offers valuable insights. Notwithstanding its strengths it still remains to be outward looking, state-centric and in this case military-focused.

Previous studies have been conducted on the Nunn-Lugar Program, but this research focuses on the Nunn-Lugar CTR Program's applicability to other countries such as Pakistan and North Korea. Additionally, it analyses how it is emerging into a security regime. Jason D. Ellis, for instance, assesses the first half of the Nunn-Lugar CTR Program, from 1991-1996, focusing on its growth. In this regard, Ellis's work "seeks to determine the causes and implications of varying levels and types of support for strategic cooperation, and it asks whether a mutually accepted approach to contentions issues can be identified so that each side may safeguard core interests and avoid regressions in U.S.-Russian strategic relations." [17] Ellis does indeed elaborate the degree to which positive incentives strategy can achieve non-proliferation objectives, but his work does not in due course generalize and ultimately frame Nunn-Lugar as a security regime. Nevertheless, Ellis' methodology of analyzing a case on base of key explanatory factors offers valuable direction for the method and approach used in this dissertation. Ellis has conducted about hundreds of interviews with U.S. officials and Congressmen, but has not interviewed

[17] Jason D. Ellis, (2001). Defense by Other Means: The Politics of U.S.-NIS Threat Reduction and Nuclear Security Cooperation, (Westport, Connecticut: Praeger).

experts, scholars and officials in Russia or other countries, in which Nunn-Lugar model is tries to be applied. John Shields and William Potters edited book has more insight about Russian and NIS' perspectives on the Nunn-Lugar program.[18] However, this work neither offers a generalizable frame, nor formulates Nunn-Lugar as a strategy nor theory as this dissertation aims to accomplish.

Although, American academics have contributed to this issue and there not only books, but also reports on the subject matter. However, there is no work done by academics outside of the United States. The Center for Policy Studies in Russia (PIR Center) has published some articles and has prepared a guidebook on Nunn-Lugar with a specific focus on the Global Partnership. No other work could be found in Russian.

This dissertation contends that Nunn-Lugar Program has evolved into a security regime that can address the challenges of today's world. The first chapter is an introduction that gives a brief outline of the dissertation. Additionally, this chapter will investigate whether alternate theories, particularly security regime theory, and an emerging cooperative security literature, suggest additional sets of factors which may explain variation in the effectiveness of Nunn-Lugar programs. The second chapter gives a brief account of the formation, expansion and evolution of the Nunn-Lugar Program, with regard to the strategic relationship between the U.S. and the Russian Federation after the end of the Cold War. The third chapter goes into international regime theory and question whether international regimes are significant and worth-while to study. In this regard, this chapter gives an account of the theoretical framework and delves deeper into existing views on types of cooperation, and the

[18] John M. Shields, William C. Potter, Sam Nunn, (1997). Dismantling the Cold War: U.S. and NIS Perspectives on the Nunn-Lugar Cooperative Threat Reduction Program, (Massachusetts: MIT Press).

factors those models offer for the consideration of Nunn-Lugar as a post-Cold War cooperation case study. Moreover, this chapter will analyze the existing suggestions for a yet incomplete cooperative security theory, which often cites Nunn-Lugar as its primary case. Chapter four will apply the security evolution criteria of Robert Jervis and Charles Parker. This chapter elaborates on whether this security regime can be a new approach at hand that can be utilized in other cases to rollback proliferation. Chapter five focus on an unavoidable problem in the analysis of factors contributing to variation between types of Nunn-Lugar programs: the assessment of achievements or problem areas. Chapter six will inquire the applicability of the Nunn-Lugar tools to other countries such as Pakistan and North Korea. Chapter seven will provide the conclusion, focusing particularly on the challenges and opportunities for generalizing the Nunn-Lugar experience into a security regime.

CHAPTER II

HISTORICAL BACKGROUND

2.1. United States-Russian Strategic Relationship: U.S. nuclear policy making

The events, in the late 1980s, revealed that the bipolar international system was coming to an end. In December 1987, the former Soviet Union's leader Mikhail Gorbachev, met with American Business Leader David Rockefeller and asked him to help improve relations between the Soviet Union and the United States, wrote the U.S. Vice President Eric Farnsworth in 1987. The Friends Committee on National Legislation, which is a lobby group in Washington, D.C., also wrote about this meeting in a book entitled *Surviving Together* that was published in 1989.[19] This was actually a sign that ultimately there would be significant change in US-Soviet relations and a new era was emerging. In the early 1990s, scholars and experts extensively researched spread of nuclear weapons and nuclear security. By 1991, Ashton B. Carter and his colleagues at the Center for Sciences and International Affairs, now known as the Belfer Center at Harvard Kennedy School of Government had written a comprehensive book entitled *Soviet Nuclear Fission: Control of the*

[19] Taylor I**.** (1986) *Surviving Together*, Washington DC: Friends Committee on National**.** Legislation and Institute for Soviet-American Relations, pp. 63.

Nuclear Arsenal in a Disintegrating Soviet Union.[20] The danger of nuclear weapons had always been a concern either because they feared a nuclear accident, miscalculation or were worried about spread of nuclear weapons to other states that could pose regional threats. Strategic Arms Limitation Talks (SALT) and Strategic Arms Reduction Treaty (START) talks had sprung from these two concerns.[21] In addition, the same was true for both the Nuclear Non-Proliferation Treaty (NPT) and system of export controls on nuclear technology[22].

On the other hand, according to Jane Wales, who chaired the Carnegie Endowment for International Peace Program on Cooperative Security in the 1990s, there were also think-tanks in the U.S. that were trying to bridge the divide between the US and the Soviet Union. The Washington based Brookings Institute, Catherine T. MacArthur Foundation, and the Carnegie Endowment for International Peace of New York played a significant role in this process. Throughout the 1980s all of these think-tanks tried to support a group of American and Soviet scientists, which served as a so-called 'brain trust' to the Soviet leaders, such as Yuri Andropov, Konstantin

[20] Carter A., Campbell K., Miller S., & Zraket C. *Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union* (Cambridge: Harvard University, 1991).

[21] SALT: The process began with the Strategic Arms Limitation Talks (SALT), which was negotiated between the U.S. and the Soviet Union throughout the 1970s and were aimed at limiting the stockpiling of nuclear arms.
SALT-I, signed in 1972, covered the number of land- and submarine-based missiles and nuclear bombers either side could deploy at the then-existing levels. It also led to the signature of a treaty limiting the use of anti-missile systems, known as the ABM treaty. SALT-II, signed in 1979, covered the number of multiple-headed nuclear missiles either side could hold at 2,250. The U.S. pulled out of SALT-II in 1986, saying that the USSR had breached its terms. START: At the same time, the two superpowers re-launched talks aimed at cutting their nuclear capability.
The Strategic Arms Reduction Treaty (START-I), signed in 1991, committed both sides to reducing their arsenals by some 30 per cent, leaving a maximum of 1,600 missiles with no more than 6,000 warheads. START-I is set to expire on December 5. Strategic Arms Limitation Talks (SALT) was the first negotiated agreement between United States and the Soviet Union that placed limits and restraints on strategic nuclear armaments in 1972. Strategic Arms Reduction Treaty (START I) was signed between United States and the Soviet Union in order to reduce strategic offensive arms to equal levels. START was signed in 1991 and aimed at eliminating missiles, their launchers and bombers. In addition, START established prohibitions on location training and testing and modernization.

[22] Menos D. *Arms Control Fact Book*, (NC: McFarland, 1985), p.86.

Chernenkov and Mikhail Gorbachev, trying to develop new options to arms control and disarmament.[23]

For instance, in 1989, in a grant proposal presented to the Mac-Arthur Foundation, the Brookings Institute's foreign policy staff proposed the development of a framework for a *cooperative approach.* In this recommendation they maintained that both economic and political conditions provided a policy opportunity for the U.S. and the Soviet Union to recuperate the international political climate in turn to shape foreign and defense policies.[24] The MacArthur Foundation pledged $5 million to the Brookings Institute over the next five years for the think-tank to pursue its objectives in cooperative security. The Carnegie Endowment for International Peace also supported the Brookings Institute's plans. From then on, Brookings Institute formed an association and joined forces with the Center for Sciences and International Affairs at the Harvard's Kennedy School of Government and Arms Control Association at Stanford and the Carnegie Endowment for International Peace. In addition, John Steinbruner, director of Brookings' Foreign Policy Studies Program; Ashton Carter at Harvard; and William Perry at Stanford University, collaborated and published *A New Concept of Collaborative Security* in 1992, which laid out the *'collaborative approach'* to the American- Russian cooperative threat reduction.[25]

[23] Nolan J. *Global Engagement: Cooperation and Engagement in the 21st Century,* (Washington, D.C.: Brookings Institute Press, 1994), pp. 3-19.
[24] Kohler S., *Cooperative Security and the Nunn-Lugar Act* (New York: Sanford Duke Publications, 1989), p. 1. http://cspcs.sanford.duke.edu/publications/casesforthefoundation
[25] Carter A., Perry W., Steinbruner J., *A New Concept to Cooperative Security* (Washington, D.C.: Brookings Institution Press, 1992).

Nuclear weapons that are the most destructive among the existing weapons of mass destruction (WMD[26]) represented the main focus of these scholars and experts with an objective to search for the possibilities to curb and if possible even to roll back proliferation of nuclear weapons. International attempts for curbing the proliferation of nuclear weapons have a long history and these initiatives have their roots in the engagement of the United Nations General Assembly that established the Atomic Energy Commission (UNAEC), in 1946, after the first and the last use of nuclear weapons in Hiroshima and Nagasaki, in Japan, at the end of the First World War. By the end of the 1980s, however, scholars and experts were very much concerned in security of nuclear weapons, related fissile material and nuclear know-how, because of the uncertainty that reigned over the Soviet nuclear arsenals future. As the Cold War came to a close, studies conducted, much before the collapse of the Soviet Union, by these foundations, think-tanks and universities played a critical role in laying the groundwork for the Nunn-Lugar Program.

Scholars and experts presented their innovative ideas by briefing certain the U.S. senators Sam Nunn (Democrat of Georgia) and Richard Lugar (Republican of Indiana) among others at the 1991 Aspen Congressional Seminar hosted by Senator Richard Clark (Democrat of Iowa).[27] This seminar especially bestirred Senator Nunn, who from the very start recognized the need and the opportunity of cooperative security between former counterparts. Nunn's concerns about managing nuclear risks went way back decades before the Cold War came to a close. In the early 1970s, Nunn discovered serious of deficiencies in the security of the U.S. tactical nuclear weapons based in Europe. This was an experience that made him examine the

[26] WMD is defined as nuclear, biological, and chemical weapons; ballistic missiles; and, more recently, "dirty bombs," ordinary explosives containing some radioactive material by the Council on Foreign Relations. See http://www.cfr.org/publication/7291/how_to_counter_wmd.html?id=7291

[27] Scott Kohler, *Cooperative Security and The Nunn-Lugar Act* (New York: John D. and Catherine T. MacAuthur Foundation and Carnegie Corporation Press, 1989), p. 2.

safeguards that had or had not been in place to reduce the risks attending the deployment nuclear armaments and the way in which the superpowers dealt with these risks in order to provide nuclear deterrence.[28] Nunn was also disturbed by what he learned from the Strategic Air Command (SAC) about accidental nuclear launch risks that could trigger a nuclear war. This information made him question the ability of both American and Soviet capabilities to hinder such an accidental war. He joined forces with Senator John Warner (Republican–VA) in order to rally for support and established the Nuclear Risk Reduction Centers in Washington, D.C. and Moscow that would facilitate communication and in turn minimize misunderstanding between superpowers.[29]

When in August 1991, a small group of hard-line government and military leaders in Moscow had placed Gorbachev under house arrest in an attempted coup, the failed coup against Gorbachev heightened Nunn's sense of urgency about nuclear security in the Soviet Union. In addition, this event broadened his vision apropos the span of action required to address the challenges of the new era.[30] The political crisis and the destabilization of the Soviet Union led Nunn to worry about the security of its substantial nuclear arsenal that was stored in four of the Soviet republics, namely Ukraine, Belarus and Kazakhstan.[31] After the Soviet President Gorbachev was released from house arrest following the failed coup and was back in power Nunn met with him in Kremlin. According to Nunn, during this meeting he asked

[28] Foreword of former senator Sam Nunn in Shields J. & Potter W. (eds.) *Dismantling the Cold War: U.S. and NIS Perspectives on the Nunn-Lugar Cooperative Threat Reduction Program* (Cambridge, MA: The MIT Press, 1997); see also Bernstein P., Wood J *The Origins of Nunn-Lugar and Cooperative Threat Reduction*, Center for the Study of Weapons of Mass Destruction, (eds.) Larsen J. and Mahan E. (Washington, D.C. National Defense University Press, 2010), p.11.
[29] Carter A., Perry W. *Preventive Defense: A New Security Strategy for America* (Washington, D.C.: Brookings Institute Press, 1999), pp. 70-71.
[30] In Bernstein P., Wood J *The Origins of Nunn-Lugar and Cooperative Threat Reduction*, Center for the Study of Weapons of Mass Destruction, (eds.) Larsen J. and Mahan E. (Washington, D.C. National Defense University Press, 2010), p. 3.
[31] Felton J. *The Nunn-Lugar Vision: 1992–2002* (Washington, DC: The Nuclear Threat Initiative, 2002), p. 5.

Gorbachev whether he held command and control of the Soviet nuclear forces during the coup attempt because he was concerned about the status of nuclear briefcase- the nuclear control device in the personal possession of Gorbachev.

> I had met with Gorbachev on a number of previous occasions, and his answers to these questions did not have the same ring of conviction as his statements during our earlier meetings. It seemed to me that either he was not himself clear about the status of command and control of nuclear weapons during that crucial period, or he was not comfortable discussing the matter candidly with me. [32]

Gorbachev's silence disturbed the Senator and he decided to take action because he thought events that unfolded in the Soviet Union could lead to the emergence of a new threat both to the U.S. and the Soviet Union.[33] From then on, he decided to persuade the U.S. government to assist the Soviet Union leadership to retain control over its nuclear weapons. Les Aspin, Chairman of the U.S. House Armed Services Committee (HASC), had developed a separate proposal to provide humanitarian aid to the Soviet Union at about the same time Nunn called for funds to be authorized to assist the Soviet Union in securing its defense establishment.

Aspin's package added up to nearly $3 billion, which the U.S. President George H.W. Bush had provided to Soviet Union earlier in1991. Aspin proposed redirecting some portion of defense funds to provide food, medicine, and other types of humanitarian assistance to the Soviet Union. To support his case Aspin stated that, "During the Cold War, the threat was deliberate Soviet attack. Now, the bigger threat

[32] From Senator Sam Nunn's speech given at the Monterey Institute for International Studies, 20 August, 1995. These remarks, "Changing Threats in the Post–Cold War World," were included as the foreword in *Dismantling the Cold War: U.S. and NIS Perspectives on the Nunn-Lugar Cooperative Threat Reduction Program*, ed. John M. Shields and William C. Potter (Cambridge, MA: The MIT Press, 1997).

[33] Vladimir Orlov, *Global Partnership against the Spread of Weapons of Mass Destruction: A Guidebook* (ed.) (Moscow: PIR Center, 2006), p. 11.

seems to be chaos in a nation with 30,000 nuclear weapons."[34] However, majority of congressmen disagreed and this package was rejected.

When scholars and experts pointed to the risks of "instability" and "loose nukes" in the Soviet Union at the Aspen Congressional Center Senator Nunn decided to try again and introduce another bill but this time Nunn decided to work across the 'bipartisan aisle' together with the Republican Senator Richard Lugar. Furthermore, this time the bill was more limited and addressed cooperation with the Soviet Union in areas of transport, storage and dismantling of nuclear weapons. This bill focused on preventing nuclear proliferation. This time round Nunn and Lugar reformulated the bill utilizing the knowledge and expertise of the academics and experts. Two senators stated that, pursuing a collaborative approach with Soviet government on dismantling nuclear weapons should not be postponed; therefore the U.S. Congress should authorize a program of cooperation with the Soviet Union and its republics on the destruction of these weapons. In order to stress the importance of the program they argued that, "the benefits of responding are too great, the dangers of inaction too severe." [35]

The *"Soviet Nuclear Threat Reduction Act of 1991"* was promoted to the congressmen as "defense by other means", however, it required a long time for a strong bipartisan consensus to be established regarding the significance of the Cooperative Threat Reduction Program to the U.S. national interest and national

[34] Sam Nunn and Richard G. Lugar "The Nunn-Lugar Initiative: Cooperative Demilitarization in the Former Soviet Union," in Allen E. Goodman (ed.), *The Diplomatic Record 1992–1993* (Boulder, CO: Westview Press, 1995), p. 140. See also, Don Oberdofer, "First Aid for Moscow: The Senate's Foreign Policy Rescue," *Washington Post,* December 1, 1991, p.C2. Aspin was quoted in Adam Clymer, "Soviet Turmoil: U.S. Sword into Plowshares for Soviets?," *New York Times,* August 29, 1991, A22.

[35] Sam Nunn and Richard G. Lugar, "Dismantling the Soviet Arsenal: We've Got to Get Involved," *The Washington Post,* November 22, 1991, A25.

security.[36] When cooperative approach was discussed in the U.S. Congress the second time round congressmen still had doubts. First and foremost, these hesitant congressmen questioned whether such a cooperative threat reduction aid was actually justifiable by the U.S. national security or whether it would fall into the category of foreign assistance, thus less vital for the U.S. national interest.[37] Second, there were congressmen who perceived giving aid to the Soviet Union as an optional approach that was not at all urgent or, worse some thought this aid could even be counterproductive.[38] Third, some suggested that aid should be given in return for concessions from the Soviet Union and later Russia. Graham Allison and Robert Blackwill recommended a "grand bargain" in which U.S. assistance could be given in case Russia agreed to pursue market reforms and democratize.[39] Fourth, others argued that the U.S. should follow a "wait and see" approach. They maintained that such security assistance would in turn strengthen Russian leaders position at home and would "work against reform" rather than bring democracy and market economy to Russia.[40] Fifth, some perceived that the U.S. assistance "would free the Soviet to spend their own money on new weapons."[41] Sixth, another distress of some congressmen was that they thought monetary assistance unaccompanied by other forms of support or aid would only lead to waste of money.[42] Last but not least, some pointed out that money should be spent solving problems in the U.S. not elsewhere.

[36] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," *The Nonproliferation Review*, 16 (2) 2009, pp. 211-235.
[37] Ibid., pp. 217-218.
[38] Ibid., p.218.
[39] Graham Allison& Robert Blackwill, "America's Stake in Soviet Future," *Foreign Affairs*, Summer, 1991, pp. 77-97.
[40] US Congress, Congressional Record, 102nd Cong., 1st sess., vol. 137, no. 90, H4356; Congressional Research Service, "The Future of Arms Control: New Opportunities," report proposed for the House Committee on Foreign Affairs, 102nd Cong., 2nd sess., April, 1992, p. 85.
[41] US Congress Senate Committee on Foreign Relations, Soviet Crisis and the US Interest: Future of Soviet Economy, 102nd Congress, 1st sess., June 6, 19, 1991.
[42] Richard Wolf& Jessica Lee "Lawmakers Use Military Funds for Aid," *USA Today*, August 29, 1991, p. 4A.

In this context, putting "America first" was the slogan used and this specific argument proved quite persuasive and won the eager acceptance from congressmen. [43]

Nevertheless, this time the Nunn-Lugar legislation was passed. This amendment had been 24 cosponsors and was adopted in the Senate by a majority vote of 86–8 in November 1991.[44] The Nunn-Lugar legislation was approved, however, as stated above it was difficult to reach this point because the U.S. Congress members were skeptical of giving assistance to such a security program that would help their former adversary. Consequently, it took quite some time to persuade these men in power to accept this new notion of '*defense by other means'*.[45] In other words, concept of *'preventive defense'* was not easily understood by the U.S. congressmen since Cold War legacy dominated their threat perception.

Lugar played a significant role in changing congressmen's perceptions of the U.S. national interest. He convinced them that challenges of the new era needed to be addressed with a new approach. "Lugar was a senior Republican on the Senate Foreign Relations Committee and thereby in a position to provide bipartisan

[43] House Committee on Armed Services, Potential Threats to American Security in Post-Cold War Era, 102nd Cong., 1st sess., December 10, 11, 13, 1991, p. 92.

[44] The Nunn-Lugar program shall be limited to cooperation among the United States, the Soviet Union, its republics, and any successor entities to (1) to destroy nuclear weapons, chemical weapons, and other weapons, (2) transport, store, disable, and safeguard weapons in connection with their destruction, and (3) establish verifiable safeguards against the proliferation of such weapons, stated, PL 102–228, Section 212, "Authority for Program to Facilitate Soviet Weapons Destruction." There was a quite debated issue that was included in the legislation that was the "transfer authority", which can be found in Section 221 of PL 102–228. According to this law the President could transfer to the appropriate defense accounts from amounts appropriated to the Department of Defense not to exceed $400,000,000 for use in reducing the Soviet military threat. Department of Defense was not in favor of redirecting defense funds particularly for a program whose value they thought was questionable, in Bernstein P., Wood J., (*The Origins of Nunn-Lugar and Cooperative Threat Reduction*, Center for the Study of Weapons of Mass Destruction, (eds.) Larsen J. and Mahan E. (Washington, D.C.: National Defense University Press).

[45] Jason D. Ellis, *Defense by Other Means: The Politics of U.S.-NIS Threat Reduction and Nuclear Security Cooperation* (Westport, CT: Praeger, 2001), p. 78.

leadership on the question of giving financial assistance to Moscow".[46] In addition, it should be noted that, the creation and passage of the Nunn-Lugar legislation occurred quickly over a period of weeks after the Cold War ended, but the concerns about managing nuclear risks extended far back and it came to reality with the collaboration of many experts and scholar.

The "Harvard Report" indirectly influenced the creation of the Nunn-Lugar Act because these scholars had analyzed the Soviet nuclear threat much earlier and briefed many in power about the future challenges. According to Carter:

> The study predicted that the breakup of the Soviet Union posed the biggest proliferation threat of the Atomic Age and outlined a new form of 'arms control' to stop it: joint action by the two former Cold War opponents against the common danger.[47]

Scholars documented future challenges the collapse of the Soviet Union would bring, by pointing out to the fact that the so-called "inheritors" of Soviet nuclear weapons, namely Kazakhstan, Ukraine and Belarus, would lack nuclear capacity to provide necessary security, safety, and command and control over the weapons that was deployed in their territories.

Indeed, the Soviet Union dissolved in 1991 as anticipated. The deteriorating political and socioeconomic conditions gave rise to the need for cooperation in the security field necessary. In this context, the book published by Harvard scholars entitled *Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union* supported Nunn and Lugar's case, by providing empirical and analytic weight to the arguments they put forth in the U.S. Congress. In this regard, the

[46] Bernstein & Wood, p. 15.
[47] Ashton B. Carter, William J. Perry, *Preventive Defense: A New Security Strategy for America*, (Washington: Brookings Institution Press, 1999), p. 71. Perry would become Deputy Secretary and later Secretary of Defense in the Clinton administration and Carter would serve also serve in a governmental role as Assistant Secretary of Defense for International Security Policy.

studies conducted by these scholars gave in-depth background information on the Soviet Union's nuclear weapons enterprise, as well as the nuclear command and control system. Some scholars travelled abroad in order to inform other officials about the dangers of the new era. For instance, Harvard scholar "Steve Miller traveled throughout continental Europe and London to brief Western officials while others like Carter was briefing officials in the Capitol Hill about the new threats and challenges posed by the Soviet nuclear weapons."[48] This was how they tried to create awareness of the proliferation risks emanating from the disintegrating Soviet state. It was the non-proliferation community in the U.S. that set the stage for raising concerns about nuclear and related fissile material safeguards before and after the collapse of the Soviet Union.[49] They created a new norm and a novel approach with the purpose of curbing nuclear proliferation.

As the Nunn-Lugar case illustrates, the U.S. strategic plans were made by scholars and experts long before they gained voice in the U.S. Senate. Furthermore, think-tanks and universities played a significant role in finding and bringing right people together and briefing these officials when necessary. As Carter and Perry wrote in their book titled *Preventive Defense: A New Security for America* that David Hamburg, who was then the president of the Carnegie Endowment for International Peace of New York "had a knack for bringing the right people together at the right time to work on the right problems."[50] Hamburg was one of these experts who could

[48] Miller S., Spotlight: Steve E. Miller, (Cambridge: Belfer Center Kennedy School of Government, Harvard University, 2007).
http://belfercenter.ksg.harvard.edu/publication/17637/spotlight.html?breadcrumb=%2Fexperts%2F150%2Fsteven_e_miller

[49] See Bernstein P., Wood J. (2010) *The Origins of Nunn-Lugar and Cooperative Threat Reduction*, Center for the Study of Weapons of Mass Destruction, (eds.) Larsen J. and Mahan E. (Washington D.C. National Defense University Press).

[50] Ashton B. Carter, William J. Perry, *Preventive Defense: A New Security Strategy for America*, pp. 72-76.

organize meetings that could be quite influential in bringing up new policy options that could address the challenges.

Thus, the Nunn-Lugar Act was justified as serving U.S. interests but, it also coincided with interests of the international community. In this respect, not only the interests of Russian's were served, moreover, the interests of other countries in the world were also served. Furthermore, this initiative strengthened the Nuclear Non-Proliferation Treaty (NPT), the nuclear non-proliferation regime since Ukraine, Kazakhstan and Belarus was denuclearized. In addition, it further led to other successful security initiatives such as the Global Partnership against Weapons of Mass Destruction that will be explored in detail in the fourth chapter.

U.S. *preventive defense* strategy evolved quickly afterwards and the Nunn-Lugar programs expanded from engaging in extensive government-to government/ military-to-military contacts to lab-to-lab and scientist-to-scientist contacts. The Nunn-Lugar Program first worked to eliminate nuclear weapons and fissile material in Ukraine, later, it was applied in the other newly independent states (NIS) that deployed nuclear arsenals in their territories to avoid the risk of 'loose nukes' Moreover, the Nunn-Lugar programs addressed other challenges. For instance, special projects such as the Project Sapphire, which removed weapons, grade plutonium and enriched uranium from Kazakhstan.[51] As Nunn-Lugar Program approaches its twentieth year it can demonstrate some impressive results: progress has been made in reducing both number of weapons- previously aimed at the U.S.- and the threats such as the "loose nukes" and weapons of mass destruction proliferation; the process of negotiating on a regular basis and implementing Nunn-Lugar projects, the U.S. and Russia have engaged in dialogued that assisted both

[51]Ashton B. Carter, William J. Perry, *Preventive Defense: A New Security Strategy for America*, p. 67.

countries to trust and cooperate with each other in order to reach common goals.[52] The success of the Nunn-Lugar Program will be analyzed later in the third chapter.

In due course, during the Clinton administration Nunn-Lugar Act turned into a new law titled the "*Cooperative Threat Reduction Act"* and in this law specific area of cooperation was described in detail. It was designed to "identify, destroy and dispose nuclear and chemical weapons."[53] During the Clinton administration, Carter and Perry played a significant role in the evolution of the Nunn-Lugar programs. In hindsight, when they were in the academia they contributed greatly to efforts in building-up "proliferation knowledge."[54] Later, when they were in office they advanced it much further and even turned it to a new law with wider scope and scale.

The Nunn-Lugar implementations needed a new mind-set. Threat perceptions of congressmen were not easily changed and there are still those whom are doubtful about the use of this program. In addition to congressional barriers there were other obstacles such as interagency coordination problems in the U.S. and also with Soviet officials and ministries such as the nuclear scientists working at the Russian Ministry for Atomic Energy (MINATOM).[55] These two key figures, Perry and Carter, along with senator Nunn and Lugar immensely influenced Washington's policy making process. They also founded alternative solutions to overcome obstacles faced by Nunn-Lugar Cooperative Threat Reduction (CTR) programs ever since Nunn-Lugar came into being.

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[52] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," p. 211.
[53] Reaves J., "The Nunn-Lugar Act: Old Fears New Era", *Time*, 1 October 2001. *http://www.time.com/time/nation/article/0,8599,177183,00.html*
[54] Carter A., "Origins of the Nunn-Lugar Program, Presentation to the Presidential Conference on William Jefferson Clinton: The "New Democrat" from Hope Hofstra University, 2005, p. 27.
[55]Ashton B. Carter, William J. Perry, *Preventive Defense: A New Security Strategy for America*, p. 80; Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction, pp. 211-235.

In sum, there was an effective leadership from all levels including the U.S. Congress, defense secretary, think-tanks, and universities after the "*Cooperative Threat Reduction Act"* was passed during the Clinton administration. It should be stressed that the timing of the Nunn-Lugar initiative was of course a unique opportunity that was noticed by scholars in academia before the Cold War came to a close. Nevertheless, this window of opportunity could have been missed if strategic planning was not done adequately by scholars, experts, strategists and senators in the United States.

The genesis for many such preventive defense programs was the pioneering and innovative Nunn-Lugar Program, in which the United States, Russia, and other countries cooperated after the collapse of the USSR. Nunn-Lugar is the most important case of emerging concepts of Cooperative Security. To further define Nunn-Lugar as example of cooperative security, this dissertation elaborates on how Nunn-Lugar had evolved into a Cooperative Security through CTR, Global Threat Reduction Initiative and the Global Partnership.[56] The international community recognizes that some problems entail instantaneous action that goes beyond what is possible within the standard and regular framework of global partnership and multilateral cooperation.

An efficient security regime entails the development of decision-making procedures such as institutions that will grant states with technical assistance and advice as well as facilitate the exchange of information and best practices. In this regard, the international community has founded the basis a set of international arrangements that assist to build and uphold the security regime in general and

[56] Kenneth A. Myers III, former Senior Professional Staff Member Committee on Foreign Relations United States Senate for Senator Richard Lugar, interview with the author, telephone interview, Ankara, 2006.

nuclear security regime in particular. In this context, the legal instruments with the intention to comprise the core of the nuclear security regime are UN Security Council resolutions 1373 and 1540, the International Convention for the Suppression of Acts of Nuclear Terrorism, and the Global Initiative to Combat Nuclear Terrorism. The most important international programs that work on securing nuclear facilities and fissile material are those managed by the US-led programs such as the CTR program and the Global Threat Reduction Initiative as well as the international programs such as the Global Partnership Against Weapons of Mass Destruction.

The advancement of Nunn-Lugar into an international nuclear security regime, which counts on legally binding instruments, offer a framework for common standards, accountability, as well as regulatory legislative and technical assistance, has proven to be the most accountable long-term strategy of addressing the challenges of the dangers associated with weapons usable nuclear as well as other radioactive materials.

The overwhelming structural changes continuing in the former Soviet Union immediately after the Cold War caused three kinds of danger to international peace and security as well as nuclear safety and stability.

As stipulated in the Soviet Nuclear Threat Reduction Act of 1991:

(A) Ultimate disposition of nuclear weapons among the Soviet Union, its republics, and any successor entities that is not conducive\ contributing to weapons safety or to international stability;

(B) Seizure, theft, sale, or use of nuclear weapons or components; and

(C) Transfers of weapons, weapons components, or weapons know-how outside of the territory of the Soviet Union, its republics, and any successor entities, that contribute to worldwide proliferation.[57]

Such cooperation involved assistance not only in planning but also in resolving technical problems related to weapons destruction and proliferation as well as funding of critical short-term requirements associated with weapons destruction at all levels ranging from state-to-state, military-to-military, lab-to-lab, scientist-to-scientist, to finally business-to-business.

The Nunn-Lugar (CTR) Program is still in force after 20 years. December 12 2012 was the 20th anniversary of the Nunn-Lugar legislation initiated by the U.S. Senators Sam Nunn and Richard Lugar to aid Russia in eliminating its nuclear weapons and converting Soviet military nuclear weapons facilities to non-military nuclear weapons facilities as well as assisting the transition of nuclear scientists after the end of the Cold War. "The program created by that initial legislation is the most significant and successful postwar effort since the German Marshall Plan helped Europe recover from World War II."[58]

Guy B. Roberts, the Deputy Assistant Secretary General for Weapons of Mass Destruction Policy and Director at NATO, has been involved in Nunn-Lugar preventive defense programs negotiation process and later in the verification process in Russia as well as in North Korea. He experience gives insight into what has been accomplished by Nunn-Lugar programs. He has first-hand information about the situation on ground. He explains that Russian did not even have a computer system

[57]See, *The Soviet Nuclear Threat Reduction Act of 1991* at www.fas.org/nuke/control/ctr/docs/hr3807.html

[58] Kennett Benedict, "Nunn-Lugar: 20 years of Cooperative Threat Reduction," *Bulletin of the Atomic Scientist*, 19 December 2011. http://www.thebulletin.org/web-edition/columnists/kennette-benedict/nunn-lugar-20-years-of-cooperative-threat-reduction

to track how many nuclear weapons and fissile material they had in their facilities. In order to solve this problem the U.S. provided Russians with the *National Material Protection Control and Accounting System (MC& A).*[59] Robert Einhorn, the U.S. Department's Special Advisor for Nonproliferation and Arms Control, contend that "U.S. experts are actually making some quick fixes like bars on windows, blast proof doors, fences followed by more sophisticated security measures such as sensors, cameras, and personnel access measures in some other nuclear countries as well."[60] Emeritus Professor Peter D. Zimmerman of King's College London also agrees that Nunn-Lugar Program is a success story and the international community and particularly the U.S. policy makers would like to see replications of such programs in the world.[61] Additionally, the Russian perspective is in line with the U.S. perspective. All interviewees, namely Russian experts and scholars, agree that this program has been successful, and it will continue as long as the US Congress is willing to give support to this program.[62]

The Nunn-Lugar program has eliminated nuclear arms in Russia "from 30,000 in 1991 to about 12,000 warheads today. To match the effort in Russia, the United States has dismantled more than 13,000 warheads since 1990 and destroyed 90 percent of its nonstrategic nuclear weapons, going from 7,600 to 760 warheads-START / NEW START obligations." As suggested by the *Bulliten of the Atomic Scientist,* one of the leading journals in the nuclear non-proliferation field, "it took

[59] Guy B. Roberts, former Deputy Secretary General of Weapons of Mass Destruction of NATO, interview with the author, 16/04/08.
[60] Robert J. Einhorn, the U.S. Department's Special Advisor for Nonproliferation and Arms Control, interview with the author, 04/04/08.
[61] Peter D. Zimmerman, Department of War Studies, *King's College London,* discussant at COE-DAT workshop, in his closing speech commented on the author's dissertation, Ankara, 31/01/12.
[62] Daniil Kabyakov, Expert, The Center for Policy Studies in Russia, (PIR Center), interview with the author 06/06; Anton V. Khlopkov, Executive Director, PIR Center, interview with the author, 06/07; Peter Topychkanov, Carnegie Endowment for International Peace, fellow, Moscow, interview with the author, 06/07; Dr. Alexander Sotnichenko, Associate Professor, St. Petersburg University, interview with the author, 04/11.

nearly 50 years to build the most dangerous arsenals in history; it has taken less than 20 years to dismantle and store more than 75 percent of the world's nuclear weapons." With only at about $500 million annually the U.S. Budget.[63] That is why leading non-proliferation experts who have been working in this area for many years such as Rose Gottemoeller, Assistant Secretary, Bureau of Arms Control, Verification and Compliance, former director of Carnegie Endowment for International Peace, Moscow give devoted themselves to the continuation of such preventive defense projects like Nunn-Lugar and verification and monitoring mechanisms such as the New START. [64]

In 2005, President Putin and President Bush agreed to strengthen the nuclear security component of the CTR Program by signing a document known as the Bratislava Nuclear Security Initiative.[65] Key cooperation areas were: emergency response cooperation; sharing best practices; enhancing nuclear security culture; and research reactor conversion. These are defined as follows:

1. Emergency Response Cooperation

(A) The U.S. is assisting Russia with training for nuclear emergency response personnel;

(B) the U.S. and Russia have extended for five years Agreement on the Exchange of Technical Information in the Field of Nuclear Warhead Safety and Security, and

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[63]Kennette Benedict, "Nunn-Lugar: 20 years of Cooperative Threat Reduction," *The Bulletin of the Atomic Scientist*, 19 December, 2011. http://www.thebulletin.org/web-edition/columnists/kennette-benedict/nunn-lugar-20-years-of-cooperative-threat-reduction

[64] Rose Gottemoeller, Assistant Secretary, Bureau of Arms Control, Verification and Compliance, former director of Carnegie Endowment for International Peace, Moscow, interview with the author, 06/07. See also, http://www.state.gov/t/avc/rls/164286.htm; http://www.state.gov/documents/organization/154123.pdf

[65]http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/counteringnuclearterrorismtrafficking/presidentialinitiatives

(C) the U.S. is assisting Russia to secure all radio-isotopic thermoelectric generators in Russia by 2015.[66]

2. Sharing Best Practices:

The United States and Russian experts congregated, together with experts from other nations that engaged in advanced nuclear programs, in order to open up a dialogue on best practices with other nuclear experts, and share information on improving security at nuclear facilities. The CTR Program is also working on instituting regional *Centers of Excellence for Nuclear Security*, which will operate together with the security programs in the region, offer training and function as focal points, so-called hubs, for "the sharing of best practices."[67]

3. Enhancing Nuclear Security Culture:

The Joint Nuclear Security Culture Enhancement Program has built up various strategies, including "the use of nuclear security culture evaluation criteria at two Russian sites and two U.S. sites."[68] These sorts of attempts to internalize best practices in the nuclear security field are in progress. Russian and American experts have, in due course, developed and expanded this program to numerous nuclear sites in Russia.

[66] U.S. National Nuclear Security Administration, "U.S. And Russia Complete Nuclear Security Upgrades Under Bratislava Initiative", *press release,* 23 December 2008. See also *Presidential Initiatives, National Nuclear Security Administration.* http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/counteringnuclearterrorismtrafficking/presidentialinitiatives

[67] Defense Threat Reduction Agency, *Fiscal Year 2011 Budget Estimate, Cooperative Threat Reduction Program*, 2010.

[68] *Presidential Initiatives, National Nuclear Security Administration,* http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/counteringnuclearterrorismtrafficking/presidentialinitiatives

4. Research Reactor Conversion:

Both the U.S. Department of Energy (DOE) and Russian Rosatom offered low-enriched uranium (LEU) fuel for peaceful purposes- electricity production- "in any of the U.S. and Russian-designed research reactors in countries now using high-enriched uranium (HEU) fuel, and are returning fresh and spent HEU fuel to its country of origin- nuclear fuel bank." [69] The U.S. Senators Richard Lugar (Republicanand-Indiana) and Evan Bayh (Democrat-Indiana) have also initiated the innovative project of a nuclear fuel bank. They suggested that "a new international non-proliferation standard that prevents countries from using the guise of nuclear energy to develop nuclear weapons" was needed, in an op-ed published in the Chicago Tribune.[70] The advocates of nuclear fuel bank contend that this was crucial because "the coming surge in demand for nuclear power will lead more and more nations to seek their own enrichment facilities," [71] and jointly called for the establishment of an International Nuclear Fuel Bank, controlled by the International Atomic Energy Agency. For instance, Charles Ferguson, President of the Federation of American Scientists, also maintain that "the major challenge will be to convince countries in the developing world that international fuel cycle development is a means to deal with these states' concern that they do not have to be too dependent on the major powers for nuclear fuel." He also recommends that "a multinational fuel facility be built in a Middle Eastern country or some country in the developing world in order to show that these states have access to the fuel cycle in that part of the

[69] Ibid, *Presidential Initiatives*, http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/counteringnuclearterrorismtrafficking/presidentialinitiatives

[70]Richard Lugar and Evan Bayh, "A nuclear fuel bank advocated," *Chicago Tribune*, 22 October 2006. http://archives.chicagotribune.com/2006/oct/22/news/chi-0610220347oct22

[71] Ibid, "A nuclear fuel bank advocated," *Chicago Tribune*,

world."[72] Also, Siegfried S. Hecker of Stanford University, agree that in the long-run building international fuel centers[73] in different parts of the world, by making use of the ones that are already built, which will be under the control of the IAEA officials and run buy IAEA staff would be a feasible solution. He states that he "believes the world will have to move in this direction to limit the number of fuel cycle facilities and increase their transparency."[74] The issue of a centralized international handling of nuclear fuel and waste has been dealt from the technical as well as the economical aspects, always with an eye to the nonproliferation aspect, but never implemented on a global scale. It is most reasonable to raise it again in this context.

Global Threat Reduction Initiative, the so-called GTRI, is an additional significant U.S. program that manages issues of nuclear security. This initiative was created in 2004 to merge the global non-proliferation endeavors of the U.S. Department of Energy with the U.S. Department of Defense. The fundamental objective of these efforts is to assist to "prevent the acquisition of nuclear and radiological materials for use in weapons of mass destruction and other acts of terrorism."[75] First and foremost, the program is committed to decreasing the amount of HEU by converting research reactors, which make use of HEU fuel to LEU fuel. To accomplish this goal, the United States works directly with those states and organizations that operate research reactors, offer financial and technical assistance

[72] Charles Ferguson, interview with the author, President of the Federation of American Scientist, Washington D.C. 05/07/11.
[73] The U.S. Nuclear Regulatory Commission (NRC) regulates uranium recovery facilities that mill uranium. Fuel cycle facilities, in turn, that enrich, fabricate and convert it into nuclear fuel for use in nuclear reactors for production of electricity. Additionally, these projects are aimed at de-conversion of facilities, which process the exhausted, in other words, depleted uranium hexafluoride for disposal. See *The U.S. Nuclear Regulatory Commission*, *U.S. NRC,* website, http://www.nrc.gov/materials/fuel-cycle-fac.html
[74] Siegfried S Hecker, interview with the author, Stanford University, San Francisco, California, 03/04/11.
[75]"Office of Global Threat Reduction" http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/programoffices/officeglobalthreatreduction.

for the conversion process. On or after 2011, GTRI had converted 22 research reactors all over the world. Additionally, it has supported the process of shutting down a supplementary 12 reactors.[76] In the Bratislava Initiative, the Russian Federation and the United States pledged to begin the process of converting research reactors in Russia as well.

Negotiations of an agreement began in 2010, and according to this agreement conversion of the first six reactors in Russia began.[77] The second aspect of GTRI is an effort to remove nuclear material, mostly contained in not only fresh but also spent fuel of research reactors, from facilities around the world. This program also attempt to recovering and disposing of excess and abandoned radiological sources in both the United States and abroad. This work is done in close cooperation with the IAEA, which provides safeguards for the repatriated material. Since 2004, the program has sent approximately 600kg of HEU to the United States and 1,500kg of HEU to Russia.[78] Third, GTRI endeavors to provide safe and secure long-term storage and security upgrades for those facilities that posses these materials in order to protect both radiological and nuclear- fissile material, for which not an enduring disposal solution have been found. As part of this activity, GTRI assist Kazakhstan to securely store spent fuel of a shut-down fast reactor that contains plutonium and HEU. It also "provided security upgrades at facilities in more than 40 countries hosting more than 960 radiological sources."[79]

[76] "GTRI: Reducing Nuclear Threats" at http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats
[77] Pavel Podvig, "Rosatom and DoE to study conversion of Russian reactors", International Panel on Fissile Materials, 9 November 2010, http://www.fissilematerials.org/blog/2010/11/rosatom_and_doe_to_study_.html
[78] "GTRI: Reducing Nuclear Threats" at http://nnsa.energy.gov/mediaroom/factsheets/reducingthreats
[79] Pavel Podvig, *Global Nuclear Security Building Greater Accountability and Cooperation*, United Nations Institute for Disarmament Research, Geneva, Switzerland, UNIDIR/2011/9, September 2011. http://www.unidir.org/pdf/ouvrages/pdf-1-92-9045-011-M-en.pdf

The U.S. Department of Energy (DOE) carries out another project that is directed at removing HEU from research facilities- the *Material Conversion and Consolidation Project.* In this project the United States offers assistance to Russian research institutes that work with HEU to remove their material from their territory and to blend it down to LEU at one of the two Russian facilities. The program is expected to reach the goal of blending down 17 tones of HEU by the end of 2015.[80] As announced by the U.S. President Obama, activities of both the CTR and GTRI assist the objective of "securing all vulnerable nuclear materials."[81] To date, these U.S. led programs has made an extensive contribution towards this aim. More importantly, they have the experience and infrastructure that permits them to expedite/ speed up their efforts.

Expansion of the *CTR model* resulted in foundation of a *multilateral effort* to secure not only nuclear but other WMD materials. The summit meeting of the G8 in Kananaskis, Canada, established the *G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.*[82] The G8 states plead to raising $20 billion over 10 years to assist cooperation projects that would "address nonproliferation, disarmament, counter-terrorism and nuclear safety issues."[83] At the outset, activities of the Global Partnership Against Weapons of Mass Destruction was focused on Russia, however the program was also planned to allow its expansion to other countries. The outlined precedence, in the announcements of these

[80] Pavel Podvig, "U.S. assistance in securing fissile materials in Russia", International Panel on Fissile Materials, 5 February 2010, at http://www.fissilematerials.org/blog/2010/02/us_assistance_in_securing.html

[81] "Remarks by President Barack Obama", The White House, 5 April 2009, http://www.whitehouse.gov/the_press_office/Remarks-By-President-Barack-Obama-In-Prague-As-Delivered

[82] "The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction", Statement by the G8 Leaders, Kananaskis, 27 June 2002.

[83] The U.S. Senate Hearings, the U.S. Government Printing Office via GPO Access, *A PROGRESS REPORT ON 10 + 10 OVER 10*, DOCID: f:83464.wais, (9 October 2002). ftp://bulk.resource.org/gpo.gov/hearings/107s/83464.txt

participating countries, was: the destruction of chemical weapons; dismantlement of decommissioned nuclear submarines; the disposition of fissile materials; and the employment of former weapons scientists. These priorities were set according to the needs of the Russian government.

In the area of nuclear security, specific projects included in the program were the development of a nuclear material control and accounting system, improving physical safeguarding of both nuclear facilities and fissile material, and disposal of nuclear material that is declared excess to national security needs. In due course, the Global Partnership membership was expanded further, both European Union members and non-European Union countries such as Sweden, Germany, Norway, Canada, and the Republic of Korea pledge to contribute to the program as well.[84]

In May 2011, the G8 extended the Global Partnership program beyond 2012 with the understanding that the program will focus on "nuclear and radiological security, bio-security, scientist engagement, and facilitation of the implementation of [resolution] 1540."[85] In this context, the security resolution stipulates that "all states have three primary obligations under UNSCR 1540 relating to such items:

1. to prohibit support to non-State actors seeking such items;
2. to adopt and enforce effective laws prohibiting the proliferation of such items to non-State actors, and prohibiting assisting or financing such proliferation;

[84] "Report on the G8 Global Partnership", 2010 G8 Muskoka Summit.
[85] "Deauville G8 Declaration. Renewed Commitment for Freedom and Democracy", 28 May 2011. See http://www.state.gov/t/isn/c18943.htm

3. and to take and enforce effective measures to control these items, in order to prevent their proliferation, as well as to control the provision of funds and services that contribute to proliferation."[86]

The resolution also stipulated that "if implemented successfully, each state's actions will significantly strengthen the international standards." [87]In this sense, it would enhance non-proliferation and safeguard the export of sensitive items. Additionally, it would assist non-proliferation proliferators- halt financing. In turn it would also "ensure that non-state actors, including terrorist and black-market networks, do not gain access to chemical, nuclear or biological weapons, their means of delivery or related materials."[88]

From the point of view of legal arrangements, the basis for the activity of the *CTR* and *GTRI* or of the *Global Partnership* is provided by bilateral agreements that regulate all legal issues that states could encounter in the course of the implementation of specific projects. Various preventive defense projects may necessitate a multilateral agreement as well. However, the most significant organizational principle lingers on to be in line with the same bilateral agreements. In this respect, there is still no legal arrangement or single multilateral treaty, which would regulate the projects and preventive defense efforts of the participating countries in their partnership endeavors. These agreements could cover a range of activities or a single project or area of cooperation. In this sense, "some projects might require a multilateral agreement as well, but the key organizational principle remains the same- there is no single multilateral treaty or other legal arrangement

[86] *United Nations Security Council Resolution 1540*, See the document at the U.S. Department of State, http://www.state.gov/t/isn/c18943.htm
[87] *United Nations Security Council Resolution 1540*, See the document at the U.S. Department of State, http://www.state.gov/t/isn/c18943.htm
[88] Ibid *United Nations Security Council Resolution 1540*.

that regulates the activities of participants of the partnership activities."[89] These agreements formulate the principles and rules of these projects could cover a range of activities, a single project or area of security cooperation. The legal framework as well as the funding of the Nunn-Lugar preventive defense program will be inquired into in the subsequent section.

2.2. Nunn-Lugar Cooperative Threat Reduction Program Applications and Evolution: Major the U.S. Non-proliferation Assistance Programs to Russia, Ukraine, Belarus and Kazakhstan

2.2.1. Legal Framework of Nunn-Lugar (CTR) Program

Nunn-Lugar Program was regulated by the "Umbrella Agreements" (bilateral agreements) between the United States and the Russian Federation.[90] Additionally, the United States signed a bilateral agreement with each and every NIS that deployed nuclear weapons on their soil after the break-up of the Soviet Union. On June 17, 1992, an "Umbrella Agreement" between the U.S. and the Russian Federation concerning the Safe and Secure Transportation, Storage and Destruction of Weapons and the Prevention of Weapons Proliferation was signed.[91] The agreement has a term of seven years; therefore it had to be extended every seven years. The Nunn-Lugar agreement with Russian Federation is still in force. In addition, the Nunn-Lugar umbrella agreement is significant in the sense that it accelerated the implementation

[89] Pavel Podvig, *Global Nuclear Security Building Greater Accountability and Cooperation.*
[90] Richard G. Lugar, "The Next Steps in U.S. Nonproliferation Policy," *Arms Control Today* (December 2002) http://www.armscontrol.org/act/2002_12/lugar_dec02
[91] See Appendix 1, The Umbrella Agreement between the United States of America and the Russian Federation Concerning the Safe and Secure Transportation, Storage and destruction of Weapons and the Prevention of Weapons Proliferation. See, The Russian Center for Policy Studies (PIR Center), *Global Partnership Glossary*, http://pircenter.org/index.php?id=202

of the disarmament treaties such as Strategic Arms Reduction Treaty (START).[92] In 1991, both sides the U.S. and the Russian Federation under the START had agreed to dismantle some of their strategic nuclear forces. This legislation was introduced to accelerate the timetable for destruction of strategic nuclear weapons. Moreover, it was intended to accelerate the return of all strategic and tactical nuclear weapons to Russia from territories of newly independent states. Furthermore, this *Soviet Nuclear Threat Reduction Act* later was renamed as the *Cooperative Threat Reduction Act* and areas of cooperation were described in detail in this document. In this respect, the CTR Program was intended to "ensure the safe and secure storage of these fissile materials" as well.[93]

The agreement that was signed in June 1992 and was worked out by four agencies. First, the Russia's Ministry of Atomic Agency (MINATOM) that was restructured and renamed as the Federal Atomic Energy Agency (ROSATOM) on May 20, 2004; second, the Ministry of Foreign Affairs; third, the Ministry of Defense; and the Ministry of Security. All four agencies were involved in the process. According to Viktor Mikhailov of Russian Federation's Minister of Atom Energy "this agreement is unprecedented in international practice." [94] Paul I. Bernstein and Jason D. Wood also state that the Nunn-Lugar legislation was the first time the U.S. and the Russian Federation tried to negotiate an agreement in safety and security of nuclear weapons and related fissile material and work together on the Russian territory.

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[92] Vladimir Orlov, *Global Partnership Against the Spread of Weapons of Mass Destruction*, p. 9.
[93] Sam Nunn's foreword in *Dismantling the Cold War: U.S. and NIS Perspectives on the Nunn-Lugar Cooperative Threat Reduction Program*, ed. John M. Shields and William C. Potter (Cambridge, MA: The MIT Press, 1997) pp. 4-5.
[94] Vladimir Orlov, *Global Partnership against the Spread of Weapons of Mass Destruction: A Guidebook* (ed.), p.14.

> Out of these investigations emerged the initial Nunn-Lugar legislation and the broader Cooperative Threat Reduction program—an unprecedented effort to reduce nuclear dangers by securing or eliminating Russian weapons systems and related materials and capabilities using aid from the U.S. Government.[95]

In this sense, we can argue that the Nunn-Lugar CTR Program has been a milestone in nuclear non-proliferation. It has hindered the proliferation of nuclear weapons by securing and dismantling these nuclear weapons and related fissile material and know-how using the U.S. government's assistance when the Russian Federation needed financial and technological assistance in transporting nuclear weapons and related fissile material from the NIS that possessed Soviet nuclear weapons on their territory. Additionally, it is argued by scholars such as Peter Archer, Kennette Benedict, Ken Booth, Stephen Chan, Neil Cooper, Chris Cramer and many more in the SOAS paper on *Disarmament and Globalization Project* that "Nunn-Lugar programme demonstrated the effectiveness of legislature driven initiatives and has become a foundation of nuclear security."[96]

2.2.2. Funding of the Nunn-Lugar Cooperative Threat Reduction (CTR) Program

The Soviet Nuclear Threat Reduction Act entered into force on December 12, 1991, in the U.S. and this Act provided in total $400 million annually to recipient countries

[95] Bernstein P., Wood J., (2010). *The Origins of Nunn-Lugar and Cooperative Threat Reduction*, Center for the Study of Weapons of Mass Destruction, (eds.) Larsen J. and Mahan E. (Washington D.C. National Defense University Press).

[96] *Disarmament and Globalization Project*, The Center for International Studies and Diplomacy at SOAS, 2011, p.10. This paper is co-authored by Alyson Bailes (University of Iceland and SOAS), Poul-Erik Christiansen (CISD, SOAS), Dan Plesch (CISD, SOAS) and Brian Wood (Amnesty International). It is supported by Peter Archer, Kennette Benedict, Ken Booth, Stephen Chan, Neil Cooper, Chris Cramer, Jayantha Dhanapala, Andy Haines, Brendon Hammer, David Hannay, Frank von Hippel, David Mutimer, Alexander Nikitin, David Ramsbotham, Rebecca Peters, Richard Smith, Ron Smith, Jeff Waage, Gert Weisskirchen, and Shirley Williams.
http://www.cisd.soas.ac.uk/Editor/assets/d&g%20full%20proposal_nov09.pdf

through Nunn-Lugar Program.[97] In 1993, the financing was included in the U.S. federal budget for fiscal year 1994 under the name of CTR.[98] New law provided a more detailed framework of assistance program. Further, it authorized cooperation in the field of chemical weapons.[99] The U.S. Congress authorized the Defense Department (DOD) to establish CTR programs to assist Russia to eliminate nuclear, biological, chemical, and other weapons; transport and store these weapons, hence it intended to prevent their proliferation.[100] Later, in 1999, the U.S. President Bill Clinton introduced an initiative to expand Nunn-Lugar CTR programs.[101] This expanded program intended to intensify work in areas such as nuclear security. It provided financing for nuclear storage facilities that would keep fissile material that were obtained after nuclear weapons were dismantled. Thereby, the U.S. government intended to secure storage of fissile material so that it was not stolen by non-state actors such as criminals or terrorists.

In addition, this expanded program aimed to give assistance to employment programs for former Soviet nuclear scientists. This initiative deemed necessary at the time because there was a financial crisis in Russia since the collapse of the Soviet Union. During Russian President Boris Yeltsin's government, another Russian financial crisis hit Russia on 17 August 1998. This crisis was triggered by the Asian financial crisis. Russia heavily depended on the export of raw materials such as petroleum, natural gas, metals and timber to Asian countries was harshly hit by the

[97] Hermann C. (1994) *American Defense Annual*, Lexington, Mass: Lexington Books. See also, The Soviet Nuclear Threat Reduction Act entered into force on December 12, 1991, in Council on Foreign Relations http://www.fas.org/nuke/control/ctr/docs/hr3807.html

[98] Powaski, R., *Return to Armageddon: The United States and the Nuclear Arms Race* (Oxford: Oxford University press, 2003) 138.

[99] Vladimir Orlov, *Global Partnership against the Spread of Weapons of Mass Destruction: A Guidebook* (ed.), p.18.

[100] See Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," pp. 217. See also Government Accounting Office (GAO), published in 1994.

[101] Woolf A., *Nunn-Lugar Cooperative Threat Reduction Programs: issue for Congress* (New York: Nova Publishers, 2003), p. 12

crisis in Asia.[102] After this financial crisis it was not much more difficult for Russia to fund any of these cooperative threat reduction programs Russia could not pay its nuclear scientists on regular basis nor could they pay them.

Unfortunately, the Bush administration reduced the budget from $873.8 million to $ 773.7 million although the Clinton administration had planned to increase the request to $1.2 billion for Fiscal Year (FY) FY2002. There was greater opposition to these programs and some U.S. officials wanted to condition the continuation of the Nunn-Lugar CTR programs on the termination of military and nuclear power plant cooperation with Iran and a number of other countries.[103] Thus, President Bush proposed substantial cuts in his budget once again for FY2005. He requested cutting the Defense Department's CTR programs by more than $41 million compared to the FY2004. However, he proposed to reduce more of the U.S. government's own stockpiles of nuclear material. This attempt was also very significant, but it did not directly contribute to securing vulnerable stockpiles abroad.[104]

In FY 2005, the U.S. Department of Defense, Energy and State led a set of threat reduction programs. These weapons specifically intended to assist foreign countries in security, destroying and curb proliferation of stockpiles of weapons of mass destruction. "The Bush administration asked for $1.059 billion for funding this international threat reduction effort in FY2005 budget request."[105] Surprisingly this

[102] Remarks by John C. Gannon Chairman, National Intelligence Council to the World Affairs Council Washington, D.C. "Intelligence Challenges for the Next Generation", https://www.cia.gov/newsinformation/speeches-testimony/1998/nic_speech_060598.html

[103] Vladimir Orlov, *Global Partnership against the Spread of Weapons of Mass Destruction: A Guidebook* (ed.), p. 18.

[104] Matthew Bunn & Anthony Weir.& Holdren, *Controlling Nuclear Warheads and Materials: A Report Card and Action Plan* (Washington, D.C.: Nuclear Threat Initiative and the Project on Managing the Atom, Harvard University, 2003), p. 189.

[105] Anthony Wier, William Hoehn, and Matthew Bunn, *Threat Reduction Funding in the Bush Administration: Claims and Counterclaims in the First Presidential Debate,* Managing the Atom

time round, Bush wanted to increase the amount about $169 million, or rather 19 percent, higher than the appropriated for these efforts for FY2001 of Clinton administration.[106] However, in 2005 budget request to the U.S. Congress, Bush did not increase funding for these programs and actually wished–for more cuts, especially for the Department of Defense projects. Rather, he suggested increasing spending of other programs executed under the Department of Energy and State.[107]

Walker points out that it seems as if Defense Department under the Bush administration judged other more "directly battlefield-related projects" of higher priority than *preventive defense.*[108]"Compared to real terms to the early years of the Nunn-Lugar appropriations, the CTR received less than half the funds it used to receive."[109] Thereby, the FY2007 remains more than $40 million below the fiscal year 2006 appropriation. This figure was less than the $426 million Congress appropriated for the current fiscal year, "but still higher than Bush's $348 million request," *Arms Control Today* reported."[110] According to these figures, it would not be wrong to suggest that the Bush administration did not give enough credit to *preventive defense strategy* that was backed by the Clinton administration. Although this program is a bipartisan project it got more support from the democrats.

Project Harvard University, and Russian-American Nuclear Security Advisory Council, (October, 2004), p.1. http://belfercenter.ksg.harvard.edu/files/funding_debate_100604.pdf

[106] Ibid, Matthew Bunn & Anthony Weir.& Holdren, *Controlling Nuclear Warheads and Materials: A Report Card and Action Plan*, p. 189.

[107] Pomper M., "Bush Stresses Importance of Nunn-Lugar Programs but Cuts Funds in 2005 Budget Request", *Arms Control Today, 2004. http://www.armscontrol.org/act/2004_03/NunnLugarFunding*

[108] Partnership for Global Security, *RANSAC Nuclear News*, (May 2005) http://www.partnershipforglobalsecurity.org/Projects%20and%20Publications/News/Nuclear%20News/2006/552006110004AM.html

[109] Walker P., "Nunn-Lugar at 15: No Time to Relax Global Threat Reduction Efforts, *Arms Control Today,* 2006 http://www.armscontrol.org/act/2006_05/NunnLugar15

[110] Daniel Arnaudo, "Bush request Less for Threat Reduction Program," *Arms Control Today*, (March 2008). http://www.armscontrol.org/act/2008_03/ThreatReduction See also, Diggers C., Bush administration budget for Nunn-Lugar falls by $12 million, *Bellona News, 2008*. http://www.bellona.org/articles/articles_2008/Bush_ctr ; As one can also observe from the chart in the Appendix 2 the Nunn-Lugar Program Fiscal Year Funding the budget for the programs have decreased since 2004. See Hellman C., The FY2009 Pentagon (DOD) Defense Budget Spending Request, Center for Arms Control and Non-Proliferation.

Another democrat, for instance, current U.S. President Barack Obama has shown great interest in this approach because since 2005. Senator Obama and Lugar have been working together in securing nuclear weapons and fissile material.[111] In 2005, Lugar and Obama visited not only Russia, but also Ukraine and Azerbaijan to inspect nuclear facilities to monitor the progress of the Nunn-Lugar programs. Furthermore, in July 2007 President Bush "signed the into law the Lugar-Obama Proliferation and Threat Initiative,"[112] which was furthering Lugar's work with Nunn in deactivating weapons in the former Soviet Union. In addition, the Lugar-Obama program also focuses on terrorists and their use of multiple types of weapons such as small arms and light weapons.

From FY 1992 through 2008 the U.S. funded more than $3.7 billion in supporting dismantlement and destruction of WMD-related weapons and facilities in the former Soviet Union.[113] Additionally, through FY 2008 the U.S. budgeted over $2 billion for dismantlement of WMD.[114] Dismantlement also covered former Soviet chemical and biological weapon facilities. So far, however dismantlement efforts focused on weapons rather than facilities. Thus, only a handful of facilities were dismantled and the U.S. government allocated $1.7 billion for these efforts.[115] Moreover, fissile material reduction has received some $12 billion for Highly Enriched Uranium (HEU) from 20,000 dismantled warheads. According to this deal, Russia agreed to convert HEU to low enriched uranium (LEU) before selling it to the

[111] Evans G., *Eliminating Nuclear Threats*, IPI (International Peace Institute) Speaker Series, 25 January 2010. http://www.icnnd.org/transcripts/100125_evans_ipi.html
[112] Stephen Okin, "Nonproliferation a Cornerstone of Obama's Foreign Policy," *Beyond Nuclear Non-Proliferation*, Number 4, (July 2009).
http://www.nuclearabolition.net/documents/Newsletter_BEYOND_NUCLEAR_NON-PROLIFERATION_Number_04.pdf
[113] Nuclear Threat Initiative (NTI), "Interactive Threat Reduction Database," 2009, www.nti.org/e_research/cnwm/charts/cnm_funding_interative.asp
[114] Ibid.
[115] Ibid. This figure includes efforts aimed at the security and storage of biological and chemical weapons.

U.S. for use of electricity. [116] Furthermore, security concerns about nuclear warheads led to allocate funds up to approximately $1 billion in order to transport and store these weapons in the former Soviet Union. [117] Through FY 2008 the Material Protection, Control and Accounting (MPC&A) program was allocated an estimated $2.9 billion.[118] Also, $900 million was spent on weapons expertise programs, which is intended to provide research contracts to former Soviet WMD experts.[119]

2.2.3. Targets of the Nunn-Lugar CTR program

The Nunn-Lugar CTR program was twofold. Both safety and security of the nuclear weapons and related fissile materials were intended to be provided. The programs had five main goals: first, secure storage and transportation of nuclear weapons and related fissile material-secure storage and transportation for nuclear weapons; second, environmentally sound elimination of weapons of mass destruction (WMD) - assistance in construction of facilities for the elimination of missiles, solid and liquid missile fuel, chemical weapons nuclear ballistic missile submarines (SSBNs) as well as dismantlement of nuclear warheads; third reduction of fissile material -military fissile material such as highly enriched uranium (HEU) and plutonium that were

[116] Unites States Enrichment Corporation (USEC), "Megatons to Megawatts," April 7 , 2009, www.usec.com/megatonstomegawatts.htm In early 1993, the U.S. agreed to purchase from Russia 500 metric tons of HEU from dismantled nuclear weapons in order to use it as electricity in the U.S. Russia agreed to convert HEU to low enriched uranium (LEU) that would be bought by USEC that was established by the U.S. government in the early 1990s in order to manage domestic enrichment services operations and negotiate on the purchase agreement. It would also be responsible for the sale of the uranium fuel to nuclear power plants in the U.S. for use of electricity by American citizens.

[117] Nuclear Threat Initiative (NTI) "Historical Budgets for Warhead Security," July 8, 2008, www.nti.org/e_research/cnwm/charts/cnm_funding_graph/asp?chart_id=9. This does not include in the funding for biological and chemical weapons security that is included in the budgets for chemical and biological weapons demilitarization.

[118] Ibid.

[119] The main programs are: two Science Centers- in Moscow and Kiev; Initiative for Proliferation Prevention (IPP); and the Nuclear Cities Imitative. Nuclear Threat Initiative (NTI) "Interactive Threat Reduction Database" www.nti.org/e_research/cnwm/charts/cnm_funding_interative.asp

obtained after the nuclear weapons were dismantled; fourth, material control and accounting- new computer based systems were developed in Russia for the purpose of accounting WMD materials, the program was titled MC&A material control and accounting system that was established by Defense Department (DOD); fifth, to provide shot-term research contacts to WMD experts or in order to train these experts to work in nuclear energy facilities rather than weapons complexes.[120] Export controls on dual-use technology- technology that can both be used for military or civil purposes- was implemented as part of Nunn-Lugar efforts in order to strengthen export controls on dual-use technology- material, equipment and know-how that could be used to produce WMD, In this respect, export controls was other related efforts that Nunn-Lugar program, which tried to accomplish, but have received comparably less attention until United Nations Security Resolution 1540 was put into force in 2004.[121]

2.2.3.1. Secure Storage and Transportation of Nuclear Weapons and Fissile Material

One of the most important tasks Nunn-Lugar program aimed at achieving was to give assistance to Russia, in order to safely transport the nuclear weapons in the newly independent states that possessed former Soviet nuclear weapons on their territory. Cooperation with the Soviet Union was offered on September 27, 1991 by the U.S. President George Bush to the Soviet leader Gorbachev in order to secure storage and

[120] Ellis J., "Nunn-Lugar's Unfinished Agenda", *Arms Control Today, 27(7), 1997;* "Advancing international cooperation and assistance in national implementation of UNSCR 1540/1977," UNSCR 1540/1977 *implementation support, 66 UNGA First Committee side-event organized by Poland, 19 October 2011.*

[121] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," pp. 212.

transportation of the weapons in Ukraine, Kazakhstan and Belarus so as to fulfill conditions of the START. "The weapons' status and security came into serious question after the breakup of the Soviet Union."[122] After some resistance from Ukraine all the three newly independent states, namely Ukraine, Kazakhstan and Belarus, that possessed former Soviet nuclear weapons and facilities agreed to sign the 1992 Lisbon Protocol.[123]

After the collapse of the Soviet Union it was necessary to transport these weapons as fast as possible, however, Russia was having difficulties transporting these weapons because according to Yevgeny Maslin, Russian nuclear weapons specialists, the Russians "were becoming somewhat discouraged by the increasing number of challenges: it was necessary to transport nuclear weapons-by rail and by truck- all over Russia."[124] Maslin stressed that the breakup of the Soviet Union left the newly independent states with vast number of nuclear weapons and it was difficult for Russia to transport all of them in a short period of time. About 1,500 nuclear tactical weapons were located in Ukraine; in addition, Kazakhstan had about 1,300 tactical nuclear weapons and Belarus about 80.[125] The Russian government faced difficulties because there was not enough equipment, such as containers that were used for transporting these weapons. Additionally, there was not enough safety or security equipment. In such a situation the Nunn-Lugar program aimed to assist

[122] James E. Goodby, Daniel L. Burghart, Cheryl E. Loeb, and Charles L. Thornton**,** Cooperative Threat Reduction for a New Era, Center for Technology and National Security Policy, (National Defense University, September 2004).

[123] Lisbon Protocol of 1992 led the way to denuclearization of the NIS because they agreed to become non-nuclear states. The NIS was nuclear free four years later in 1996. Remaining, however, were estimated 400 delivery systems as well as several former Soviet facilities, which were involved in nuclear weapons testing. See GAO, "Weapons of Mass Destruction: Status of CTR Program," GAO/NSIAD-96-222, September, 1996, p.13.

[124] Yevgeny Maslin, the Head of the 12th Main Directorate (GUMO) of the Russian Ministry of Defense, 1992-1997. Vladimir Orlov, *Global Partnership against the Spread of Weapons of Mass Destruction: A Guidebook* (ed.), p. 10.

[125] See "The Former Soviet Union: Russia, Ukraine, Kazakhstan and Belarus," in Federation of American Scientists, www.fas.org/irp/threat/profile96/fsc.html.

Russia and other post-Soviet states which possessed nuclear weapons. Thereby, the U.S. government offered personnel, equipment to these countries and later built storage facilities in Russia in order to safely store fissile material. In this manner, the nuclear non-proliferation regime could be strengthened because the newly independent states could be denuclearized, in other words they could be nuclear weapons free. The Nunn-Lugar program attempted to transport all these weapons back to Russia, and thus helped Russia deactivate some of these weapons.

2.2.3.2. Dismantlement and Destruction

The Nunn-Lugar program also planned to assist Russia in the process of dismantlement of former Soviet nuclear weapons. Russia had approximately 35,000 nuclear warheads from the Soviet Union and about 2,100 delivery systems.[126] In addition to the START, later in 2002 under the Strategic Offensive Reduction Treaty (SORT) - also known as the Moscow Treaty- the U.S. and Russia reached an agreement to reduce between 1,700 and 2,200 strategic warheads that were deployed in their territories by 2012.[127] Beginning from 1992, both the U.S. and Russian agencies are involved in trying to speed up nuclear dismantlement efforts to meet the deadline that Russia committed in arms reduction treaties.

In this context, one of the Nunn-Lugar program's primary task also included assisting Russia to fulfill its commitments that required further arms cuts. Therefore, dismantlement of Soviet nuclear weapons was the "backbone" of the Nunn-Lugar

[126]General Accounting Office (GAO), "Weapons of Mass Destruction: Observations on U.S. Threat Reduction and Nonproliferation Programs in Russia," GAO-03-526T, March 4, 2003, pp.2-3; and Natural Resources Defense Council, Index of Nuclear Data, "Table of USSR/ Russian Nuclear Warheads," December 6, 2008, www.nrdc.org/nuclear/nudb/datab10/asp.

[127] See Hans Kristensen, "U.S. Reaches Moscow Treaty Limit Early," Federation of American Scientists, Strategic Security Blog, February 9, 2009, www.fas.org/blog/ssp/2009/02/sort.php.

program.[128] In this regard, the U.S. assisted Russia while eliminating former Soviet nuclear weapons; nuclear weapons launched vehicles- ballistic missiles, submarines, bombers- as well as infrastructure. In addition, chemical weapons agents, chemical and biological weapons production facilities were also targeted to be eliminated much later as the Nunn-Lugar program expanded to other areas.[129] Although the Nunn-Lugar's early efforts concentrated on the dismantlement of former Soviet nuclear weapons, it later included the elimination of other types of WMD such as biological and chemical weapons in the former Soviet Union.[130]

2.2.3.3. Reduction in Stockpiles of Fissile Material

Another significant goal Nunn-Lugar programs targeted to achieve is ending the production of new fissile material as well as reducing excess stockpiles that former Soviet Union and Russia had produced and stored. Although the U.S. and Russia shared common interests in reducing stockpiles of fissile material, however, they have always had different priorities. For example, the U.S. priority is to ensure that terrorists do not get hold of neither HEU nor plutonium that is stored in different facilities, scattered around Russia, in order to make a bomb. Russia, on the other hand, has been more concerned about coping with internal sabotage by terrorist

[128] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," pp. 212.

[129] The Russians had approximately 40,000 metric tons of chemical agents and some twenty four facilities for production, research and testing these chemical weapons. In order to eliminate the dangers of biological and chemical weapons, Nunn, Lugar, and fellow Senator Pete Domenici (Republican of New Mexico) moved in 1996 to expand the nonproliferation goals and agency roles of the Nunn-Lugar program. For further information see "The Nunn-Lugar Vision 1992-2002", Nuclear Threat Initiative (NTI), http://www.nti.org/e_research/nunn-lugar_history.pdf, see also GAO, "Weapons of Mass Destruction: Observations," p.2; Jonathan B. Tucker and Kathleen M. Vogel, "Preventing the Proliferation of Chemical and Biological Weapon Material and Know-How," Nonproliferation Review 6 (Spring 2000), p.88; and Amy E. Smithson, Toxic Archipelago: Soviet Chemical and Biological Weapons Complexes (Washington, DC: Henry L. Smithson Centre, 1999), pp. 10-11.

[130] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," p. 213.

groups. The different approaches between the two countries lead to different sets of security upgrades.[131] Nevertheless, both parties agree that fissile material in Russia needs to be secured. The so-called supply side prevention required "interdiction and consequence mitigation together form the essential elements of a "layered defense" strategy designed to meet the challenges inherent in the "loose nukes" problem."[132]

In this regard, shutting down plutonium production reactors was one of the efforts the Nunn-Lugar program tried to achieve. Additionally, "disposition of excess weapons plutonium" was another effort this program attempted to realize.[133] For instance, construction of a storage facility for keeping plutonium out of reach was one of the aims of the Nunn-Lugar. There are efforts to secure or convert plutonium. Another central goal was to purchase excess HEU from Russian. In line with this policy, the U.S. government agreed to buy HEU from Russia those excess HEU that was gained after dismantlement of nuclear weapons.[134]

[131] Vladimir Orlov, *Global Partnership Against the Spread of Weapons of Mass Destruction: A Guidebook*, pp. 11-15. See also Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," p. 224.
[132] Jason Ellis & Todd Perry, "Nunn-Lugar's Unfinished Agenda," *Arms Control Today*, 27 (7), 1997, pp.14-22
http://belfercenter.ksg.harvard.edu/publication/172/nunn_lugars_unfinished_agenda.html
[133] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," p. 214.
[134] In 1993 the US negotiated the HEU Purchase Agreement in order to purchase from Russia 500 metric tons of HEU from dismantled nuclear weapons. The negotiation was agreed to be over a span of 20 years that will end in 2013 if Russia does not agree to renegotiate a similar deal with the U.S. According to the HEU Purchase Agreement, Russia agreed to convert this HEU to LEU that would be purchased by the U.S. Enrichment Corporation (USEC) that was founded during the 1990s by the U.S. administration to manage domestic enrichment services and negotiate purchase agreement. USEC was also responsible to sell the uranium as fuel for use in nuclear power plants that would produce electricity to civilians. See USEC, "Megatons to Megawatts," April 7, 2009, www.usec.com/megatonstomegawatts.htm.

2.2.3.4. The Security of Weapons Related Material

There was also a need to control and account for the former Soviet Union's WMD.[135] First and foremost, physical protection was intended to provide alarms, sensors and other barriers. It was envisioned to deter, delay and defend against both intruders and insiders trying to take away protected material. Second, this sort of material control was projected to provide locked vaults for nuclear material in order to prevent insiders to take away nuclear material outside of the facility for nuclear material storage as well as portal monitors equipped to detect related fissile material. Continuous monitoring of storage sites with cameras, seals and alarms was projected in order to prevent theft of these fissile materials. Also, personnel were to be required to enter facilities containing fissile materials in pairs.[136]

Last but not last, material accounting was planned to provide a regular update and measured inventory of nuclear weapons usable material. These were to be based on routine measurements of material. In addition, personnel reliability was another issue that was intended to be advanced by systematic background checks, training as well as regular and well paid salaries for personnel. Moreover, external oversight that would be regulatory and inspection agency with enforcement powers was assumed to enhance MPC&A and reach control and accounting targets that were understood to be necessary for fissile material security.[137]

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[135]Lawrence Gershwin, a senior CIA official, testified in 1992 that the Soviet system underemphasized material protection due to its focus on external threats. See Jason Ellis & Todd Perry, "Nunn-Lugar's Unfinished Agenda," pp. 14-22.

[136] The efforts intended to secure fissile material, for instance, in one of the most dramatic Nunn-Lugar programs called Project Sapphire, 600 kilograms of mostly unprotected weapons-grade uranium was removed from a remote site in Kazakhstan so that it no longer posed a threat. See "The Nunn-Lugar Vision 1992-2002", Nuclear Threat Initiative (NTI), http://www.nti.org/e_research/nunn-lugar_history.pdf

[137] The Nunn-Lugar-Domenici Act established the Material Protection, Control, and Accounting (MPC&A) program, which successfully upgraded security at dozens of nuclear storage facilities in the

2.2.3.5. Stopping the Proliferation by Assisting WMD Scientists and Experts

Nunn-Lugar also aimed at assisting especially nuclear scientists as well as other WMD experts of the former Soviet Union by giving them employment in programs such as Initiatives for Proliferation Prevention (IPP), Nuclear Cities Initiative and Science Centers.[138] These programs were to provide both short-term research opportunities for these scientists and income to former WMD scientists. The human dimension as a threat to be contained was one of the main goals of the Nunn-Lugar Program. Thus, it was "incorporated as part of the strategy to address the demand-side of the equation."[139] Another more demanding project planned to redirect former Soviet WMD scientists to civilian nuclear plants and even to commercial ventures.[140] Former Soviet scientists were intended to be re-oriented to non-military work.[141] It was significant to engage former Soviet weapons scientists "to coordinate peaceful

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former Soviet Union. See "The Nunn-Lugar Vision 1992-2002", Nuclear Threat Initiative (NTI), http://www.nti.org/e_research/nunn-lugar_history.pdf, see also Jason Ellis & Todd Perry, "Nunn-Lugar's Unfinished Agenda," pp. 14-22.

[138] The economy of the former Soviet Union fell as the former superpower collapsed. Thus, salaries of the WMD scientists declined. Wages of these scientists were delayed, or as some secret nuclear weapons cities terminated some scientists even lost their jobs. Thousands of former Soviet weapons scientists have been given meaningful work–much of it in non-weapons fields, in order to discourage them from selling their skills to nations or terrorist groups attempting to acquire WMD. Number of WMD experts varied. It was said to be around 60,000. See Senate Committee on Government Affairs, Global Proliferation of WMD, Part II, 104th Cong., 2nd sess., March 13, 20, and 22, 1996, p. 53. For higher estimates, see U.S. Congress Senate, Committee on Government Affairs, Proliferation Threats of the 1990s, 103rd Cong., 1st sess., February 24, 1993, p.11. As of 2007 the three programs IPP, Nuclear Cities Initiative, Science Centers collectively worked with 110,000 experts. Matthew Bunn& Antony Weir, *Securing the Bomb 2005, The New Global Imperatives* (Cambridge, MA: Project on Managing the Atom, Harvard University, May 2005), p. 55. "The Nunn-Lugar Vision 1992-2002", Nuclear Threat Initiative (NTI), http://www.nti.org/e_research/nunn-lugar_history.pdf

[139] Elizabeth Turpen, "The Human Dimension is Key to Controlling Proliferation of WMD," *APS News*, 16 (4), April 2007. http://www.stimson.org/pub.cfm?id=418

[140] John M. Shields, Report: Conference Findings of the Nunn-Lugar Cooperative Threat Reduction Program: Donner and Recipient Country Perspectives, 1995, http://cns.miis.edu/npr/pdfs/shield31.pdf

[141] International Science and Technology Center, http://www.istc.ru/;Science and Technology Center Fact Sheet, http://www.istc.ru/ISTC/sc.nsf/html/public-info-fact-sheet.htm.

science collaborations."[142] Nunn-Lugar Program intended to give jobs to scientists by using US funded grants. Thus, projected to engage these WMD experts to work on short-term civilian projects, later they were to be re-employed in another project after the short-term contract expired.[143] US support was intended to be offered to these scientists through the Energy Department's Initiative, and Nunn-Lugar programs.[144] Help was planned to be provided to the scientists as well as engineers behind the Russian nuclear and WMD complexes to find other ways and means to find new jobs in other fields.[145] In sum, employment was intended to be provided for thousands of Russian nuclear scientists.[146] Hence, re-directing former Soviet weapons scientists to new employment opportunities, especially in civilian projects, is one of the most significant targets of the Nunn-Lugar programs.

2. 3. Expansion of the Nunn-Lugar CTR Program

Nunn-Lugar CTR Program made a significant contribution to resolving the implementation of the international disarmament obligations of Ukraine, Belarus and

[142] At the International Science and Technology Center (ISTC) that are related to global security that channel the research and expertise of former weapons scientists in Russia and the NIS towards fields such as security and safety, and destruction and conversion of CBRN materials, and new counter-terrorism technologies. See http://www.istc.ru/istc/istc.nsf/fa_MainPageMultiLang?OpenForm&lang=Eng

[143] Brian D. Finlay and Elizabeth Turpen, *Cooperative Nonproliferation: Getting Further, Faster* (Washington, D.C.: Henry L. Stimson Center, 2007), pp. 80-83.

[144] Jobs these programs provided are often short-lived, and did not halt proliferation risk because higher wages were offered by those countries wishing to acquire nuclear programs. See Charles Digges, November 19, 2002, "Reports Say U.S. Russian Threat Reduction Effort Lacks Coordination, Political Will and Cass," http://www.bellona.org/english_import_area/international/russia/nuke-weapons/nonproliferation/27301

[145] Joseph Cirincione, Repairing the Regime: Stopping the Spread of WMD, (Washington, D.C.: Carnegie Endowment for International Peace, 2005), p.6. http://carnegieendowment.org/files/Repairing_01.pdf

[146] See Senator Lugar's website http://lugar.senate.gov/bio/doctrine/ Global Partnership Against Spread of WMD has also aimed at providing new opportunities to former Soviet WMD scientists. See also Richard Weitz, "WMD and the G-8," *The National Interest* , June 25, 2010, http://nationalinterest.org/commentary/wmds-and-the-g8-3585

Kazakhstan where several thousands of Soviet nuclear weapons were deployed. It facilitated the reductions called by the START.[147] Russia was indeed trying to accomplish to meet START's obligations. It had already started transferring nuclear weapons from newly independent states and trying to secure its own nuclear weapons and weapons usable material-related fissile material- to Russia well before potential proliferators took advantage of any existing deficiencies. Yevgeny Maslin, the former Head of Main Directorates of the Russian Ministry of Defense, called this "the cheetah antelope dilemma" faced by nuclear non-proliferation. The essence of the dilemma he argued "was not enough for the antelope (i.e., the Russians) to run fast, it was also crucial that the antelope ran faster than the cheetah (i.e. the states that have nuclear ambition)."[148]

Furthermore, the ongoing instability and economic problems in Russia raised the question of the safety and security of the Russian nuclear arsenal. This was another significant security issue in the post-Cold War era. Graham Allison addressed this problem in his book, titled *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material.*[149] In this edited book Allison analyzes an important dimension of nuclear proliferation. He explores the consequence of such nuclear leakage for both United States' national security and the international security. He argues that this should rank among the highest priorities of the nation's foreign and security policies because if such an event were to take place, it would be very dangerous for both the United States and international

[147] Vladimir Orlov, *Global Partnership Against the Spread of Weapons of Mass Destruction: A Guidebook*, p. 9.
[148] Ibid., p. 10.
[149] Allison G., *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material*, (London, New York: Times Books Henry Holt and Company, 1996).

security. Thus, he has repeated over and over again in every occasion that this danger must be understood before it's too late.[150]

On the other hand, related fissile materials could have fallen into the hands of anyone who would be willing to pay the black market price. Steven Miller and others launched a so-called 'blitzkrieg' to get the work done that was written in detail in Allison's book in 1996.[151] In this context, the first priority was to lock down all weapons and fissile material beyond reach of thieves and criminals.[152] In 1996, the transfer of nuclear warheads from three former nuclear Soviet republics (i.e., Ukraine, Kazakhstan, and Belarus) to the Russian Federation was completed. Thereby, the Nunn-Lugar CTR Program had fulfilled its number one goal. However, the need for the Nunn-Lugar CTR Program continued and this was accepted both by the U.S. and the Russian Federation. In 1997, Lugar and Nunn together with Senator Pete Domenici (Republican-New Mexico) introduced the "Defense Against Weapons of Mass Destruction Act", which expanded the Nunn-Lugar authorities in the former Soviet Union and provided WMD expertise.[153]

The 9/11 attacks on Pentagon and the World Trade Towers was a surprise attack that transformed American Grand Strategy. [154] America had suffered such a surprise attack at Pearl Harbor during the Second World War; however, this was an attack by a major power. The US and the international community were faced with a

[150] Graham Allison interviewed by Big Think, 11 March 2010, "Graham Allison on nuclear threat to cities", http://bigthink.com/ideas/18972, Graham Allison interviewed with Trudy Rubin , 11 September, 2008, "Graham Allison: I am More Worried about a Nuclear Attack Today than I was on 9/11", http://blog.aapss.org/index.cfm?commentID=72, Graham Allison interviewed with Nova, "Dirty Bomb: Preparing for Terrorism", Nova Science Programming on Air http://www.pbs.org/wgbh/nova/dirtybomb/allison.html

[151] Allison G., *Avoiding Nuclear Anarchy: Containing the Threat of Loose Russian Nuclear Weapons and Fissile Material.*

[152] Allison G., "Small Steps toward Nuclear Control", Belfer Center Programs: International Security, Op-Ed. *Defense News, 2005.*

[153] Falkenrath R., Newman R., *America's Achilles Heel: Nuclear, Chemical and Biological Weapons*, (Cambridge, London: MIT Press, 1998)

[154] Biddle S., *American Grand Strategy After 9/11: An Assessment*, (Darby: Diane Publishing, 1995).

much different security challenge this time. In this period, there was a need to ensure that nuclear weapons and weapons-usable nuclear material were not stolen or used by non-state actors, such as terrorists and criminals.[155] During these years the Nunn-Lugar CTR Program was needed to address the new security challenges and thereby the Nunn-Lugar assistance continued to increase. Hence, both the US and the Russian governments went on supporting the Nunn-Lugar CTR Program. According to Carter, May and Perry indicated in their article it was vital to take necessary precautions so that nuclear weapons would not fall into the hands of non-state actors who would pose a threat to international peace and security.[156] The non-state terrorist actors such as Al-Qaeda had pledged to carry out an "American Hiroshima" of a significantly greater magnitude than the attacks perpetuated against the U.S. on September 11, 2001.[157]

Global nuclear security challenges may be studied in three phases: first, the Cold War Period, second, the Post-Cold War period, and third, the Post 9/11 period. During the Cold War years two main issues dominated the global nuclear security agenda: first, the issue of nuclear proliferation. During this period, national security strategies of states could be calculated.[158] In today's world deterrence seems to have lost its power against non-state actors because they have no borders since they operate cross borders.[159] It is important to keep in mind that deterrence is achieved not through the ability to defend states' national security but through the ability to punish the counterpart. Allison, in his book, contends that deterrence may be explained by the rational actor model. The theory assumes that governments are

[155] Bunn, M.& Wier A., *Securing the Bomb2006,* (Cambridge, Mass., and Washington, D.C.: Project on Managing the Atom, Harvard University and Nuclear Threat Initiative, July 2006), pp. 1-8.
[156] Perry W., Ashton C.& May M. "After the Bomb", *New York Times*, June 12, 2007, A-24.
[157] Kristof N., "An American Hiroshima", *New York Times*, August 11, 2004, A-25.
[158] Allison G., *Essence of Decision: Explaining the Cuban Missile Crisis*, (London: Longman, 1971).
[159] Shanty F., *Organized Crime: from trafficking to terrorism*, (Santa Barbara: ABC-CLIO, 2008), p.360.

primary actors and the government examines a set of goals, evaluates them according to their utility. Thus, decision-makers pick the one that has the highest payoffs. In other words, governments make cost and benefit analysis and decide on the most efficient decision-making alternative.

In addition, threats during Cold War period were considered to be of high-consequence and low probability nuclear conflicts.[160] Put differently, the chances that a nuclear war would erupt were low; however, if a war was to erupt, then the war would take place in a broad theater, with many countries involved. On the other hand, as Senator Lugar has pointed out in a speech in the Carnegie Endowment that after the Cold War the strategic environment was characterized by low risk but high probability environment with respect to ballistic missile exchanges.[161] The consequences of a nuclear conflict would only be in a small region or area. Literally, if Lugar's anticipations turned out true, it would be a nuclear 9/11.

The third phase came into being after the 9/11 attacks. Apparently, the US was out expecting such an attack. This in turn demonstrated that it was important to take precautions before being exposed to such a deadly attack. This event illustrated that terrorists were willing and able to sacrifice their lives in an attempt to cause widespread death and destruction to gain more public attention. Hence, this particular attack raised new nuclear security awareness because it showed the world what terrorists are capable of doing. Terrorist wide network has proved that they have become sophisticated enough and chances that they may steal and use nuclear

[160] Taniguchi T.& Nilsson A., "Strengthening the Nuclear Security in a Changing World," *IAEA Bulletin* (46)1, 2004, pp. 57-58.
[161] Lugar R., "Nunn-Lugar--A Tool for the New U.S.-Russian Strategic Relationship", Carnegie Nonproliferation Conference, *Mediterranean Quarterly*, (12) 4, 2001, pp. 1-12.

weapons and related fissile material have increased.[162] Detailed analyses of the US nuclear experts have "demonstrated the sophistication and careful planning and intelligence gathering of which Al Qaeda is capable."[163]

Nuclear theft and terror are not only dangerous threat for the US but also an international security problem because no one knows who is next on the list. It could be Tokyo, Paris London, Istanbul that are next since these cities are capitalist and democratic states' and significant international capitals. In this context, a nuclear attack on only one of these cities would have a devastating effect on the capitalist system. Therefore, strategists in the post-9/11 era may need to consider the potential of: the theft of a complete nuclear weapon; second, the theft of nuclear material for the purpose of constructing crude nuclear explosive device either with or without the active involvement of a state; third, the theft of nuclear or radioactive materials to construct a dirty bomb or Radiological Dispersal Device (RDD); fourth, attacks and sabotage directed against a power reactor, a fuel cycle facility, a research reactor or nuclear transport. All of these may be challenges of the post 9/11 era.[164]

In this context, Allison presented the evidence for two provocative but compelling conclusions in his book entitled *Nuclear Terrorism: The Ultimate Preventable Catastrophe.*[165] First, he claims that if; "policy makers in Washington" keep on pursuing the same security and foreign policies about the nuclear threat, and then a nuclear terrorist attack on America is likely to occur because not enough precautions are taken in order to avoid such an attack. Hence, if one lengthens the time frame, he adds, "a nuclear strike is inevitable". Second, he posits that the

[162] Richard R., *The Making of the Atomic Bomb* (New York, NY: Simon & Schuster Touchstone, 1986), p. 417. See also, Bunn M. Wier A., *Securing the Bomb 2006*, pp.1-8.
[163] See J. Carson Mark et al., "Can terrorists Build Nuclear Weapons" in Paul Leventhal, and Yonah Alexander, *Preventing Nuclear Terrorism* (Lexington, MA: Lexington Books 1987).
[164] Ibid. Bunn M,, Wier A., pp.1-8.
[165] Allison G., *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, (London: Times Books Henry Holt Company, 2004).

surprising and largely unrecognized good news with respect to nuclear terrorism is that it is in fact, preventable. He offers an ambitious but feasible blueprint for eliminating the possibility of nuclear terrorist attacks. He models his argument in his book on the successful the Nunn-Lugar CTR Program.[166]

Even during this era, the Nunn-Lugar CTR Program may still be regarded as a significant program in coping with nuclear and related fissile materials security.[167] In addition, Ellis and Perry claimed that the Nunn-Lugar has "brought a degree of order and accountability to demoralized and impoverished nuclear institutions."[168] Nevertheless, there remain to be some disagreement in security policies of Moscow and Washington D.C., however, this is overcome because both sides understand that the two countries have common interests in nuclear stability and non-proliferation of nuclear weapons and accept the need for the continuation of such programs.

The Nunn-Lugar Program has been both a novel approach for nuclear non-proliferation, and multi-dimensional. Most importantly, the Nunn-Lugar CTR Program has been able to expand in scope and scale according to the needs of the era. For instance, it has further expanded to include the elimination of chemical and biological weapons. Creating the infrastructure for environmentally sound elimination of WMD was included as another target that the Nunn-Lugar CTR Program aimed to reach.

On December 11, 2006 it expanded further and the US Congress approved the Nunn-Lugar & Barack Obama (Democrat-Illinois) proliferation and threat reduction initiative. Obama was then one of the leading senators in the Democrat

[166] Ibid, pp. 176-202.
[167] Evans, G. & Kavaguchi Y. (eds.), *Eliminating Nuclear Threats: A Practical Agenda for Global Policymaking, International Commission on Nuclear Non-Proliferation and Disarmament (ICNND) Report 2010. http://www.icnnd.org/reference/reports/ent/notes.html*
[168] Ellis J. & Perry T. "Nunn-Lugar's Unfinished Agenda" *Arms Control Today,* (27)7, pp. 14-22.

Party who became President of the US. This initiative, in turn, expanded and improved the State Departments ability to detect and interdict weapons and materials of mass destruction. In addition, it will assist other nations to find and eliminate conventional weapons that have been used against US's soldiers in Iraq. Thereby, Lugar-Obama Act expanded the cooperative threat reduction concept to conventional weapons. Obama stated that "The Nunn-Lugar Program has effectively disposed thousands of weapons of mass destruction, but we must do far more to keep deadly conventional weapons like anti-aircraft missiles out of the hands of the terrorists." [169]

However, this dissertation will not focus only on WMD and not on conventional weapons. All the other foundations of the Nunn-Lugar CTR Program have been listed here in this chapter so as to demonstrate the Program's wide scope and multiple dimensions. It is written in this manner, in order to give the reader a better understanding of the Program's accomplishments and future aims and goals. This chapter has listed all the progress made by the Nunn-Lugar CTR Program in each and every field. Hence, all of these aspects are covered in order to make further analyses possible.

2.4. Evolution of the Nunn-Lugar CTR Program: A Global Partnership

The evolution of the Global Partnership started much earlier. As explained in detail in the first part of the first chapter on November 27, 1991 the US Congress adopted the Soviet Nuclear Threat Reduction Act launching the Nunn-Lugar Program. Later, on June 17, 1992 the legal framework was established when the Umbrella Agreement

[169] Press Release of Senator Lugar, Lugar Obama Signed into Law, 11 January, 2007. http://lugar.senate.gov/news/record.cfm?id=267485&&

was signed between the US and the Russian Federation. First, this agreement was intended to provide safe and secure transportation, storage and destruction of weapons and prevention of weapons proliferation, but later evolved in scope and scale. The Umbrella Agreement had a seven year term and provided the legal basis for bilateral U.S.-Russian threat reduction activities.

By 1996, Kazakhstan, Belarus and Ukraine were denuclearized, meaning all the Soviet nuclear weapons deployed on their territory was either transported from NIS or dismantled in these states. When these countries were free of nuclear weapons the primary objective of the Nunn-Lugar CTR Program was accomplished, however, the agreement did not come to an end because leaders of both the Russian Federation and the US were interested in the continuation of the program. In the Nuclear Security Summit in Moscow, in 1996, a series of nuclear security initiatives were realized and other issues such as strengthening physical protection of nuclear materials, disposing of surplus nuclear material and establishing a program for preventing and combating illicit nuclear trafficking were also taken up as concerns that were needed to be addressed.[170]

In addition, in Ljubljana, in June 2001 Summit, Russian and American security cooperation intensified and Russian President Putin decided to intensify security cooperation with President W. Bush of United States. The same year on September 11, 2001 terrorist attacks on the U.S. signaled the possibility of a new threat. This, in other words, demonstrated that mass causality terrorism was indeed possible. This tragic event also illustrated the need to keep WMD out of the hands of

[170] G-8 Information Centre, University of Toronto, "Programme for Preventing and Combating Illicit Trafficking in Nuclear Material," Group of Eight Nations Nuclear Safety and Security Summit, Moscow, Russia, April 20, 1996.

terrorists. The fear of a nuclear 9/11 raised concerns and other countries a year later decided to address challenges of the new era together.

On June 27, 2002 G-8 Global Partnership Against Weapons of Mass Destruction was established in the G-8 Summit in Kananaski, Canada. [171] The Nunn-Lugar Umbrella Agreement was taken as a model and other countries also decided to sign a bilateral agreement with the Russian Federation in order to curb nuclear proliferation. The G-8 countries pledged to fund the program over 10 years and give $10 billion over this time period. The U.S. government also pledged to give $10 billion, thus programs in this area would be eligible for funding from the $20 billion over 10 years. Germany committed to give $1.5 billion; United Kingdom (UK) $750 million; France $750 million; Japan $200 million; Italy $1 billion; Canada 1 billion Canadian dollars. In addition, the European Union (EU) pledged to give 1 billion and the Russian Federation $2 billion to support the Partnership projects.[172]

G-8 leaders added that "the attacks of the September 11 demonstrated that terrorists are prepared to use any means to cause terror and inflict appalling casualties on innocent people." [173] They, therefore, called on other countries to join them in committing to six principles of the Global Partnership: develop and maintain effective border controls; law enforcement efforts and international cooperation to detect; deter and interdict in cases of illicit trafficking in such items; for example through installation of detection systems; training of customs and law enforcement personnel and cooperation in tracking these items; provide assistance to states

[171] See Appendix 3, the Global Partnership Protocol.
[172] Butler K., "G-8 10 Plus 10 Over 10," *NTI Newswire*, December, 2002. http://www.nti.org/e_research/e3_21a.html
[173] For the full document see also, G-8 Information Centre, University of Toronto, "Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction," Kananaskis, Canada, June 27, 2002.

lacking sufficient expertise or resources to strengthen their capacity to detect; deter and interdict in cases of illicit trafficking in these items.[174]

The first principle called for promoting the adoption, universalization, full implementation of these programs. In addition, this principle also required strengthening multilateral treaties and other international instruments when necessary. The second principled called for developing and maintaining appropriate effective measures to account for and secure these items in: first, production; second, use; third, storage at both domestic and international transport. Moreover, it found essential to provide assistance to states lacking sufficient resources to account for and secure WMD and related items. The third principle, mentioned the need to develop and maintain feasible and effective measures to facilities that housed WMD and related items. And, if necessary the G-8 countries pledged to provide assistance to those countries lacking sufficient resources to protect these dangerous weapons. The fourth principle, also accounted for the need for developing and maintaining effective border controls in order to deter illicit trafficking. For instance, through installation of detection systems, training of customs and law enforcement required to provide assistance to states lacking these expertise or resources to strengthen their capacity to detect, deter and interdict in cases of illicit trafficking of WMD and related items. The fifth principle indicated the need to develop, review and maintain effective national export and transshipment controls over WMD and related items. The sixth principle stated the need to adopt and strengthen efforts in order to manage and dispose stocks of fissile materials no longer required for defense purposes, in

[174] Ibid, G-8 Information Centre, University of Toronto, "Statement by G8 Leaders: The G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction," Kananaskis, Canada, June 27, 2002.

other words, designated as waste. To eliminate chemical weapons and minimize biological pathogens and toxins, in order to reduce the risk of terrorist acquisition.[175]

Principles, norms and rules of the G-8 Global Partnership were stated in this document. It was decided that cooperation projects under this initiative would be implemented, taking into account also international obligations and domestic laws of participating countries, within appropriate bilateral and multilateral legal frameworks, meaning decision-making procedures. The Nunn-Lugar CTR Program was a model for the Global Partnership since all principles, norms and rules as well as decision-making procedures were more or less the same. In this regard, other states had seen the need to form a global security regime in line with the Nunn-Lugar model. They now saw the need to and wanted to share the burden with the US since G-8 countries understood that there were new challenges that needed to be addressed and it was time to lend a helping hand to support US efforts.

In 2003, Multilateral Nuclear Environmental Program in the Russian Federation (MNEPR) Agreement was signed in Stockholm by more European countries. At the signing ceremony Swedish Minister of Foreign Affairs Anna Lindh stated that "this agreement would be an important step forward in international cooperation between Russia and its neighbors." [176] The Partnership was now extended by 10 more powerful industrialized states such as Sweden, Switzerland, Norway, Finland, Netherlands and Poland. Months later, in June 2003, in the G-8

[175] See Appendix 3, Global Partnership Protocol.

[176] Anna Lindh, Minister of the Swedish Foreign Affairs, speech at the Signing of the MNEPR, Stockholm, May 21, 2003, http://www.regeringen.se/galactica/service=irnews/owner=sys/action=obj_show?c_obj_id=51842
See also, Tronstad E.& Chuen, "Multilateral Nuclear Environmental Program in the Russian Federation (MNEPR) Agreement," *James Martin Center for Non-Proliferation Studies, Global Partnership Source Page,* June 5, 2005. http://cns.miis.edu/global_partnership/030604.htm

Summit in Evian, France new Global Partnership documents were adopted.[177] In this Summit Senior Official Group, the coordinating body of the Global Partnership presented their Annual Report on the progress of the G-8 Global Partnership. The Global Partnership was extended for the first time in history and new members such as Finland, the Netherlands, Norway, Poland, Switzerland and Sweden was also included into this partnership. In 2004, G-8 Summit was in Sea Island, in the United States. In this Summit other documents were signed.[178] The partnership was extended for a second time and this time countries such as Australia, Belgium, the Czech Republic, Denmark, Ireland, New Zealand and South Korea was included in this partnership. A Joint Statement by Putin and Bush was issued February 2005 in Bratislava, Slovakia where the US-Russian Summit was held. In the G-8 Summit that was held in Gleneagles, in Scotland (UK) additional documents were adopted.[179]

On June 6-8, 2007 the G-8 Summit was held this time in Helligendamm, Germany. This marked five since the Global Partnership was first announced in Kananaskis, Canada on June 27, 2002. The Global partnership Group met on 27-28 February, 2007, to evaluate the main achievements of the partnership. The Working Group released a report at the summit, which first detailed accomplishments of the Global Partnership, second set priorities for future action, and finally reaffirmed the member state's commitment. Future priorities of the partnership did not change. Work in submarine dismantlement, chemical weapons destruction, and reduction of former weapons scientists was once again emphasized.

[177] See Appendix 4, The G-8 Declaration on Non-Proliferation of Weapons of Mass Destruction; the Declaration for Global Partnership Against the Spread of Weapons of Mass Destruction; G-8 Statement on Non-Proliferation of Weapons of Mass Destruction Securing Radioactive Sources; G-8 Action Plan for Non-Proliferation of Weapons of Mass Destruction, Securing Radioactive Sources.
[178] See Appendix 5, The Senior Group G-8 Global partnership Annual Report; the G-8Non-Proliferation Act Plan.
[179] See Appendix 6, the Senior Group G-8 Global Partnership Annual Report and a G-8 Statement on Non-Proliferation.

In sum, the Global Partnership demonstrated how the Nunn-Lugar Program evolved into a novel security approach, which has later become a model to the G-8 members and other countries. In fact, after ten years this bilateral Umbrella Agreement has started to be adopted also by other countries that understood the need to curb nuclear proliferation. The G-8 leaders and other countries included into the partnership aimed at cooperating in various areas such as destruction of chemical weapons, dismantlement of decommissioned submarines, elimination of fissile material and employment of former weapons scientists. All these cooperative projects have been addressed by the Nunn-Lugar CTR Program and other countries had decided to assist U.S. in its efforts to curb nuclear proliferation.

Nevertheless, Russian experts such as Anton Khlopkov of Center for Policy Studies in Russia (PIR Center) stated that

> Both the Nunn-Lugar Program and Global Partnership will come to an end in 2012 and in 2013 respectively because Russia will no longer need foreign assistance and it will be able to provide safe and secure storage to its own WMD. Hence, they will no longer lack sufficient resources to protect their facilities by then.[180]

Moreover, Alexie Arbatov of Carnegie Center in Moscow has also indicated that "The Russians do not need further assistance because they have the resources to protect their own facilities effectively."[181] Nadezhda Arbatova a professor of Institute of World Economy and International Relations (IMEMO), in Moscow, also indicated that the Russian's and the U.S. has different priorities.[182] She added that the nuclear security and disarmament issue was not the number one priority of the Russian

[180] Interview with Anton Khlopkow Deputy Director of Center for Policy Studies in Russia (PIR Center) by Aylin G. Gurzel, Moscow, July 2007.
[181] Interview with Alexie G, Arbatov Deputy Chair, Defense Committee, State Duma of Russian Federation, Carnegie Moscow Center by Aylin G. Gurzel, *in the International School of Disarmament and Research on International Conflicts (ISODARCO),* Andalo, Italy, January 2009.
[182] These views were expressed at lecture session by Nadezhda Arbatova, at *International School of Disarmament and Research on International Conflicts (ISODARCO), Andalo, Italy,* January, 2009.

government. Moreover, Sergey Ozonobishzhev from the Institute for Strategic Assessment, Moscow Public Science Foundation in Moscow claimed that there were much more significant issues to be concerned about than the Nunn-Lugar CTR Program and the Global Partnership Against Spread of Weapons of Mass Destruction. On the contrary, Rosa Gottemoeller who was the director of the Carnegie Endowment of International Peace in Moscow is an optimist and an advocate of the Nunn-Lugar CTR Program she claimed that:

> This is not at all the case and she thinks that the Nunn-Lugar Program will continue in the future because it has proven to be successful and effective in Russia. Thus, the Russians will go on collaborating with U.S. in non-proliferation efforts. [183]

Charles D. Ferguson who is now the president of the Federation of American Scientist and the former senior fellow and his research associate Michelle M. Smith from the Council on Foreign Relations adhered to Rose Gotemoeller's argument and pointed to the need for the continuation of the Nunn-Lugar CTR and associate programs in order to provide nuclear security and curb nuclear proliferation.[184] Ferguson also adds that:

> Preventing nuclear terrorism is also closely connected to stopping the spread of nuclear weapons to other countries by reducing the number of countries with nuclear weapons or weapons-usable nuclear materials, terrorists will have fewer places to buy or steal these critical components of nuclear terrorism.[185]

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[183] Interview with Rosa Gottemoeller, the former director of the Carnegie Endowment for International Peace, Moscow, by Aylin G. Gurzel, July 2007.

[184] Interview with Charles D. Ferguson the former senior researcher of the Council on Foreign Relations and the current President of th Federation of American Scientists, by Aylin G. Gurzel at Bilken University, April, 2008, Ankara, Turkey. Interview with Michelle Smith former research associate on Nuclear Policy, at the Council on Foreign Relations by Aylin G. Gurzel at the Center of Excellence Workshop, January 2010 Ankara Turkey.

[185] Charles D. Ferguson, "The Probability of Nuclear Attack has Increased Warns Council Report" *Council on Foreign Relations Press,* March 28 2006.
http://www.cfr.org/publication/10266/probability_of_a_nuclear_attack_by_terrorists_has_increased_warns_council_report.html

Both David Holloway of Stanford University, Stanford, California and Bruce Larkin, University of California at Santa Cruz, has also expressed the importance of the continuation Russian-U.S. strategic cooperation in the field of nuclear security and disarmament of nuclear weapons.[186] David Holloway who is a Professor of International History specialized on the international history of nuclear weapons, on science and technology in the Soviet Union and on the relationship between US-Russia also has been writing memos for the Henry Kissenger's meetings with Vladimir Putin and Dimity Medvedev, thus follows the US-Russian relations and the particularly nuclear security issue closely. Holloway stated that:

> Since 2006, Kissinger unofficially met Putin and tried to find means and ways to improve US-Russian relations. Kissinger is well aware of the divisions between the U.S. and Russia and that the two countries have different interests and different priorities, however, these differences are tried to be accommodated. Kissinger is, therefore, meeting Putin and Medvedev regularly to improve relations and cooperate in fields such as nuclear security, under programs as the Nunn-Lugar CTR Program.[187]

In addition, Matthew Evangelista of Cornell University, Ithaca also emphasized the importance of understanding Russians needs and expectations, thereby, addressing the nuclear security issue accordingly, in order not to harm the good working relationship with the Russians.[188]

This dissertation asserts that the Nunn-Lugar CTR Program is a successful security regime. It questions whether the Nunn-Lugar CTR Program and associate programs will be able to address the new challenges of this era and successfully fight

[186] Interview with David Holloway of Stanford University and Bruce Larkin University of California at Santa Cruz , *at the International School of Disarmament and Research on International Conflicts (ISODARCO), Andalo, Italy*, by Aylin G. Gurzel January, 2009.
[187] Interview with David Holloway by Aylin G. Gurzel, January 2009.
[188] These views were expressed in a discussion with Alexie Arbatov during the question and answer session at *International School of Disarmament and Research on International Conflicts (ISODARCO), Andalo, Italy*, January, 2009.

against terrorism which is one of the most important problems of today. In order to comment more on historical patterns of *preventive defense* it is necessary to develop a conceptual framework in the next chapter. This will deliver a fairly systematic and rigorous method for understanding and explaining how security regimes are formed. The central question to be addressed here is: whether programs similar to the Nunn-Lugar CTR program can be established elsewhere. For instance, can Pakistan and North Korea be future partners in Nunn-Lugar-style threat reduction efforts. In the following chapter some background information on international regime theory and norm construction will be given. The second chapter will illustrate how regimes come into being, how they are preserved and under what conditions they tend to dissolve. In this manner this dissertation will try to anticipate whether the Nunn-Lugar CTR Program and Global Partnership will stand the course of time and linger on and be applied elsewhere in the world.

CHAPTER III

THEORETICAL FRAMEWORK

This third chapter will inquire into existing analysis on variety of cooperation types, and it will reflect on the dynamics those models present and offer for Nunn-Lugar as a post-Cold War cooperation case study. Inaugurating Nunn-Lugar as a case study is challenging, in the sense that, there are not only similarities to existing security cooperation models, but also it is perceived as the prime example of cooperative security and "Preventive Defense at its best," [189] Nunn-Lugar is tied to the specific conditions of a post-Cold War world. However, it is precisely this spanning of frameworks that makes Nunn-Lugar an especially valuable case for analysis. The ways in which the Nunn-Lugar case challenges the security cooperation framework, in fact, reveals the specific elements have come to define an emerging security framework today. In this regard, western models of commercialization in general and firm formation in particular are in turn assisting Russian scientists' transition

[189]Preventive defense is described as providing national and international security with the aim of preventing possible threats from becoming actual threats. See Charles L. Thornton, The Nunn-Lugar Weapons Protection, Control, and Accounting Program: Securing Russia's Nuclear Warheads, Presented at the 43rd Annual Meeting of the Institute for Nuclear Materials Management, (Orlando, Florida, 26 June 2002), p. 3. http://www.cissm.umd.edu/documents/thornton.pdf; Mathew Bunn, "Nuclear Warhead Security Upgrades" http://www.nti.org/e_research/cnwm/securing/warhead.asp, in Jane Vaynman, *Nunn-Lugar Programs: Post-Cold War Security Cooperation and an Emerging Security Framework*, p.52.

into non-weapons activities both with the U.S. incentive and also with Russian government's support.

This dissertation focuses on security regime theory and the Nunn-Lugar CTR Program as an emerging security regime, but explanations other than security regime theory can also be utilized to describe the post-Cold War security cooperation. Jane Vaynman's thesis,[190] for instance, make use of both the bureaucratic politics and the security cooperation models. Her thesis is founded on organizational level interests and working level relationships between American and Russian businessmen, scientists and experts. Individuals and organizations, with stakeholders now on both sides, have more concern in safeguarding their projects. During the Cold War, state-to-state relations were significant and top-down conception of security that was military-focused was directed outwards. The U.S. and Russian leaders privileged the maintenance of preventive security today.[191] There is, for instance, more focus on non-military projects such as converting high enriched uranium from former Soviet nuclear weapons to low enriched uranium for use of electricity. In addition, the U.S. and Russian governments' assistance to help Russian scientists' transition into non-weapons fields and activities are some of the projects that are non-military focused

[190] Jane Vaynman, *Nunn-Lugar Programs: Post-Cold War Security Cooperation and an Emerging Security Framework.*

[191] The Preventive Defense Project (PDP) is a research collaboration of Stanford University and Harvard University's Kennedy School of Government, co-directed by William J. Perry and Ashton B. Carter. The Project focuses on key problems of national and international security with the aim of preventing possible threats from becoming actual threats. The Preventive Defense Project is a multi-year effort supported by the Carnegie Corporation of New York, the John D. and Catherine T. MacArthur Foundation, the Herbert S. Winokur, Jr. Public Policy Fund, the Richard Lounsbery Foundation and private sources. The Preventive Defense Project would also like to acknowledge the generous contributions of the Packard Foundation, the W. Alton Jones Foundation, the Nuclear Threat Initiative, and the Compton Foundation, Inc. http://preventivedefenseproject.org/ See also in Jane Vaynman's thesis.

projects. This approach, in turn, serves one of the NPT's three pillars-disarmament.[192]

Nevertheless, it would be unessential to characterize the cooperation as institutionalized. "The sensitivity of the programs to other factors, such as disagreements on transparency and access terms, suggests that implementation is well established but far from routine."[193] Therefore, a much better depiction is that the cooperation has become more specialized in nature and professional than diplomatic, as it was in the past. Scientist-to-scientist, lab-to-lab and business to business relations improved immensely with the Nunn-Lugar Program. The main obstacle in the post-Cold War era is not in enhancing security cooperation, but rather improving accessible fields. A Russian nonproliferation journal *Yaderny Kontrol* made a very insightful reflection on this point. "Within the set of fissile materials related activities, four positive factors can be identified: presence of security interests (on U.S. and Russian side), the partner/recipient organization's explicit interests in the project, presence of a combined working level and government level approach, and the presence of metrics."[194] But, the security interest aspect still remains to signify out of the state security cooperation framework. Although the implementation of these projects is contributions of bureaucratic politics models and organizational interests play a role we cannot rule out the state-to-state security

[192] The Nuclear Proliferation Treaty consists of a preamble and eleven articles. The treaty is interpreted as a *three-pillar* system: non-proliferation; disarmament; and the right to peaceful use of technology.

[193] Jane Vaynman, *Nunn-Lugar Programs: Post-Cold War Security Cooperation and an Emerging Security Framework.*

[194] *Yaderny Kontrol* is weekly news bulletin offering a selection of materials on non-proliferation issues from the Russian media sources. Produced only in Russian, the bulletin features articles on international assistance to Russia's efforts to reduce the threat of WMD proliferation, WMD terrorism, export control, nuclear power, military and technical cooperation. The bulletin also publishes opinions of renowned politicians and leading Russian experts on foreign policy and international security issues. Yevgeny Maslin, "The CTR Program and Russia's National Security Interests," *Yaderny Kontrol (Nuclear Control) Digest*, Volume 5, no.1 (Winter 2002); Ivan Safranchuk, "ESOA Program in Russia: Results and Problems of Implementation." *Yaderny Kontrol Digest*, Vol. 5 no. 2 (Spring 2000), pp. 45- 46. http://www.pircenter.org/index.php?id=26

cooperation between the U.S. and the Russian Federation. The last aspect, mentioned in the article in *Yaderny Kontrol* journal, metrics can be related to bureaucratic politics concepts and ideas, however plays a more significant role in the Nunn-Lugar case than may well be anticipated by the earlier cooperative security models and theoretical frameworks.

Additionally, while the existence of some dynamics can clarify the success of a given program, a somewhat different array of aspects is necessary to comprehend the perseverance of program stalls, failures, and other implementation difficulties. The clarifications for negative outcomes represent partially from the security cooperation models, however bureaucratic politics aspects applicable especially to implementation hurdles. Anticipated aspects such as justifiable and legitimate security concerns with respect to sensitive materials- fissile materials- facilities are greater than ever before and most probably, as Vaynman suggest "are overwhelmed by the role of institutional practices and problems with cultural and personal relationships."[195]

The Russian control and command structure functioned from the top down. Like most non-democratic countries in the world it functioned with strict rules, orders and plans. Ideas were directed only by Russian leadership. In the U.S. economic models, on the other hand, initiatives and ideas, in general, are initiated from the bottom. Working groups, academics, experts or inventors promoting and develop their projects. Russians were unfamiliar with this approach.[196] It has been challenging to apply U.S. commercialization models in Russia. It has been challenging to transform groups of Russian scientists to non-military activities, for

[195] Jane Vaynman, *Nunn-Lugar Programs: Post-Cold War Security Cooperation and an Emerging Security Framework.*
[196] Jane Vaynman's interview with Gloria Duffy, San Francisco, CA, 4/21/04

example, Russians have been short of business development and proposal writing skills. More significantly, transforming Russians mentality has been most challenging. "Experience suggests that Russian scientists might not be motivated to take risks to expand small ventures after some stability is reached."[197] A continuing non-proliferation effort in order to downsize the former Soviet nuclear complex requires the development and growth of non-military industries for Russian scientists to work in non-military activities. The U.S. industry and businessmen sometimes take for granted the cultural obstacles to implement commercialization.[198]

The assessment of various outstanding Nunn-Lugar programs acknowledged and recognized cases of programs that were successful in addressing post-Cold War threats. Additionally, some programs were identified to be slow in progress, produced limited results, and stalling frequently on a range of difficulties in implementation of the projects. Jane Vaynman by using the bureaucratic politics models and the security cooperation proposes a new framework and applies it as a basis for testing a range of impeding explanatory aspects.

[197] Ibid, Jane Vaynman.
[198] These efforts are likely to linger as projects like IPP, NCI and the commercial elements of ISTC fight to find commercial potential.

Factor	Weapons	Materials	Scientists
Security Interests	Highly relevant, mutual interests based on security a likely requirement.	Necessary on U.S. side, nature of interest on Russian side unclear	Necessary on U.S. side, not a key factor on Russian side
Reciprocity	Partially relevant with established treaties, and informal measures	Not relevant in tit-for-tat form, rather a nature of relationship	Not relevant in tit-for-tat form, highly important as a relationship characteristic
High Level Leadership	Highly relevant, also on individual convictions level	Relevant, not for ongoing tasks but in breaking logjams	Relevant, lack of it limits program funding support
Metrics	Highly relevant, activity highly countable	Highly relevant, activity countable but with some limits in sustainability	Highly relevant, lack of metrics is a cause for poor political and financial support.
Organizations (interests, practices, biases)	Highly relevant, key differences between MOD and Minatom on organization culture and bias	Highly relevant, key differences b/w Minatom and Russian Navy on organizational interest	Not fully clear, residual secrecy practices in nuclear complex important

Level of Cooperation (lab-to-lab, govt-to-govt)	Somewhat relevant, military-to-military cooperation helpful, large treaties very significant.	Highly relevant, lab-to-lab cooperation effective at start, govt-to-govt more difficult but necessary for larger cooperation	Highly relevant, lab-to-lab highly effective, but govt-to-govt and commercial necessary for long-term success.
U.S.- Russia Relationship	Initially relevant, but now increasingly not so	Initially somewhat relevant as part of early agreements, now largely immune	Not relevant, sensitive much more to domestic and economic rather than relationship-based political fluctuations

Source: Jane Vaynman, *Nunn-Lugar Programs: Post-Cold War Security Cooperation and an Emerging Security Framework,* 2004.

This preliminary framework is defined by a combination of interests-based arguments and also constructed from relevant parts of the other theories. She maintains that these theories explain incentives for cooperation. In turn, primarily organizational arguments also account for the tribulations of implementing cooperation. In the Nunn-Lugar case, the cooperative activities are a constantly evolving set of programs, so incentives for cooperation and the cooperation implementation are intermingled throughout the process of Nunn-Lugar engagement.

3.1. International Regime Theory

International regimes theory has managed to bridge the gap between experts in international security and scholars in international politics by providing a common concept. Notwithstanding the fact that there have been several basic paradigmatic debates among the international relations scholars and a theoretical divide about the characteristic of international relations that conveyed basic causal factors in regime formation, "regime perspective" set theoretical propositions to guide scholars' analysis.[199]

Different schools of thought in international relations have defined international regimes using similar terms such as "common interests," "common goals," or "convergence of interests," international relations scholars also refer to sets of principles, norms, rules and procedures that lie at the heart of international regimes, which illustrates that there is a similar understanding of the concept of international regimes. For instance, Keohane and Nye define regimes as "sets of governing arrangements", which contain "networks of rules, norms, and procedures that regulate behavior and control its effects."[200] In this respect, Keohane highlights the difference between *ad hoc* agreements and regimes. According to Keohane, the aim of the regime is to "facilitate agreements" with the intention of providing consecutive relations. Likewise, Robert Jervis maintains that the notion of regimes "implies not only norms and expectations that facilitate cooperation, but a form of

[199] Volker Rittberger& Peter Mayer (eds.), *Regime Theory in International Relations,* New York: Oxford University Press, 1995.
[200] Joseph Nye, Robert Koehane, *Power and Interdependence: World Politics in Transition*, Boston: Little and Brown, 1977, p.19, in Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations*, New York: Taylor& Francis, 2009, p.113.

cooperation that is more than the following of short-run self-interests."[201] Jervis stresses that interest and power should not change behavior, in other words, short-term calculations of a new government should not change standards of behavior. Since regimes incorporate principles and norms the utility function must include some sense of common obligations. In this context, reciprocity becomes one such principle that is accentuated in Jervis's analysis of security regimes.[202] Consequently, mutual benefit becomes the most significant element of regime formation. Ernest Haas, by the same token, contends that a regime comprises of a reciprocally comprehendible set of procedures, rules and norms.[203] Hedley Bull, on the other hand, utilizing to a certain degree different terminology, brings up the significance of rules and institutions in international society where rules denotes as "general imperative principles which require or authorize prescribed classes of persons or groups to behave in prescribed ways."[204] Bull emphasizes the role of institutions in formulating, communicating, administering, enforcing, interpreting, legitimating and adopting them into rules in order to secure obedience in world politics.

Alternatively, Etel Solingen has defined international regimes as mutual policy adjustments by all participating states in order to improve the position of all sides generally through assistance of an institutional foundation of principles, rules and decision-making procedures.[205] Comparably, according to Stephen Krasner, who is widely cited by international relations scholars, international regimes are "implicit

[201]Robert Jervis's contribution to, Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations,* New York: Taylor& Francis, 2009, p.173.
[202]Ibid, Jervis, "Security Regimes", p. 173. See also Robert Jervis**, "**Security Regimes**,"** *International Organization,* (36) 2, 1982, 358-60.
[203]Ernst Haas, "Technological Self-Reliance for Latin America: the OAS Contribution," *International Organization,* (34) 4, 1980, p.553, in Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations,* New York: Taylor& Francis, 2009, p.113.
[204] Hedley Bull, *The Anarchic Society: A Study of Order in World Politics,* New York: Columbia University Press, 1977, p.54, in Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations,* New York: Taylor& Francis, 2009, p.113.
[205]Etel Solingen, "The Domestic Sources of Regional Regimes: The Evolution of Nuclear Ambiguity in the Middle East," *International Studies Quarterly,* (38) 2, pp.305-337.

or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given issue area in international relations."[206] In line with this argument, principles are beliefs of facts, causations that what is "common good" and "common interest" is rectitude- morality. Norms defined in terms of rights and obligations- standards of accepted behavior. Rules are prescribed ways of action principles of action. Decision-making procedures are patterned behavior or prevailing practices for making and implementing collective choice with the assistance of agreements or institutions.[207] This definition is consistent with other articulations of regime conceptions. Therefore, Krasner's definition of international regimes will be utilized in this dissertation, while analyzing the Nunn-Lugar CTR security regime.

3.2. Basic Causal Factors and International Regimes

A wide range of basic causal variables have been presented to explain the formation of international regimes. Krasner argues that "regimes have been conceptualized as intervening variables, standing between basic causal factors and related outcomes and behavior."[208] In empirical research, the independent variable is characteristically presumed to affect a dependent variable. When the independent variable changes, for instance, power, interests or values varies, and then the dependent variable is affected by this variation. The dependent variable is considered to be, in this case, changes in

[206]Stephen D. Krasner ed., *International Regimes*, New York: Cornell University Press, 1983, p. 2. See also Krasner, "Structural Causes and Regime Consequences: Regime as Intervening Variables," *International Organizations*, (36)2, pp. 185-205.
[207] Ibid, Krasner, *International Regimes*, pp.1-21.
[208] Krasner, "Structural Causes and Regime Consequences: Regimes as intervening Variables", *International Organizations*, (36)2, pp. 185-205.

presence and absence of cooperation. The intervening variable is utilized to explain relationships between independent and dependent variables. In this regard, international regimes have been conceptualized as *intervening variables,* which stand between *basic causal factors,* for example, power of states- and outcomes and related behavior of states-cooperation or conflict. Relationship between causal factors and international regimes is an essential question asked by international relations scholars. The most prominent factors can be summarized as: interest, power, and values. According to Krasner, habits, customs and knowledge may also be reckoned as causal factors by some scholars.[209] Focus on power and self-interest is criticized by some contemporary scholars because they are considered to be insufficient to account for the regime's formation and maintenance. These scholars point out to the insufficiencies of both the hegemonic stability and functional theories. Prominence of another independent variable is stressed to require primary consideration in regime analysis, namely knowledge and learning. [210]

In addition, Stein, Keohane, Jervis, Ruggie, Lipson and Cohen do go beyond conventional realist orientation. For instance, these scholars discard a limited structural analysis that suggests a direct relationship between change in basic causal variables and shift in state behavior and outcomes.[211] But, these scholars fundamental analytical assumptions are alike, therefore, it can be claimed that perspectives that regard regimes as intervening variables and consider state interest and state power as basic causal variables fall definitely into the structural realist paradigm. Thus, the

[209]Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations*, New York: Taylor& Francis, 2009, p.120.
[210]Roger K. Smith, "Explaining the non-proliferation regime: anomalies for contemporary international relations theory", *International Organization*, 41: 253-281. Smith posited that the system of cooperation on non-proliferation has often been termed an international "regime," however there has not been any empirical research or systematic effort to determine if this is accurate. The view motivated Smith to attempt to resolve the emergence and maintenance of this system of cooperation – regime- with international relations theory.
[211]Ibid, Krasner, *Power, the state and sovereignty: essays on international relations*, p.127.

main causal variables that lead to the formation of regimes are power and interest and the basic actors are states.

3.2.1. Basic Causal Factors as Intervening Variables: Self-interest

First and foremost, it is extensively argued that international regime formation and continuance can be elucidated as self-interest of the actors in world politics. In this sense, Krasner refers to the desire to maximize one's own "utility function"-benefit. It needs to be noted that, this does not take into account the utility of the other party or parties.[212] Furthermore, all contractual political theories are based on egoistic self-interest, from Thomas Hobbes and to John Rawls have emphasized the role of self-interest in individual behavior. According to Hobbes, the first principle of human behavior was egoism, in other words, self-interest of individuals motivate their behavior.[213]

Robert Keohane and particularly Arthur Stein expand on interest oriented perspective.[214] Stein puts forth that the casual forces as calculated self-interest, which lies at the core of the anarchic international system. Self-interest also set the basis for international regimes, in turn, shapes the structure of international order. In line with Stein's argument, the similar forces that motivate individuals also lead states to cooperate. Simply put, there are some times when states prefer mutual

[212]Ibid, Krasner, *Power, the state and sovereignty: essays on international relation*, p. 11.
[213]Ibid, Krasner, *Power, the state and sovereignty: essays on international relations*, p.120.
[214]To Stein, there are two conditions when unconstrained individual choice lead to incentives for cooperation: Pareto-suboptimal outcomes as they are presented in the game theoretical approaches and specifically in Prisoners dilemma game and the establishment of collective good. Refers to it as the "dilemma of common interest"; Game of Chicken can be presented as an example here where mutually undesired outcomes may also lead to cooperation, when the choice of an actor may be contingent on the choice made by another actor. This is referred as the "dilemma of common aversion." See ibid, Krasner, p.121.

decision-making in favor of independent decision-making because of self-interested calculation.[215] In addition, Keohane is concerned with the demand for regimes.[216] Keohane uphold that regimes can make agreements easier if they provide necessary frameworks for founding first, legal liability, second, advance the quantity and quality of information accessible to parties, third decrease transaction expenses. Keohane also indicates the significance of the regimes in providing well founded negotiating frameworks.[217]

Self-interest is noted as an important determinant of regimes by Oran Young. According to Young, international regimes are those belonging to activities of interest to members of the international system. Young compares other social institutions with international regimes and argues that regimes like social institutions evolve over time. Thereby, it is noteworthy to reflect on the development patterns of regimes. Besides it is significant to account for the formation of any given regime, and to identify what aspects determine whether a regime will remain in effect over time. Thus, Young posits that, there are mainly three paths to regime emergence.[218] Consequently, regimes can either be created "spontaneously"[219] develop from the

[215]Arthur A. Stein, "Coordination and Collaboration: Regimes in an Anarchic World", in Krasner ed., ibid, p. 115 - 140.

[216] Keohane, "The Demand for International Regimes", in Stephen D. Krasner ed. *International Regimes*, New York: Cornell University Press, 1983, pp. 141- 171. See also Stephen D. Krasner, *Power, the state and sovereignty: essays on international relations*, New York: Taylor& Francis, 2009, p.120. The original idea for the paper germinated in discussions at a National Science Foundation sponsored conference on International Politics and International Economics held in Minneapolis, Minnesota, in June 1978.

[217]Ibid, Keohane, "The Demand for International Regimes," *International Organizations*, 36(2), 1982, pp. 325-355. Analysis of the demand for international regimes helps understand gaps between structural change and regime change. In addition, it assesses the importance of trans-governmental networks. Several assertions of structural theory seem problematic according to Keohane. In this context, hegemony may not be an indispensible prerequisite for international regimes to foster. In line with this argument, past patterns of institutionalized cooperation may be able to compensate, to some degree, for aggregate fragmentation of power.

[218]Oran Young, "Regime Dynamics: the Rise and Fall of International Regimes", in Krasner ed., ibid, pp. 93 - 115.

[219]Social institutions that are mentioned by Oran Young are distinguished by the fact that they do not involve conscious coordination among members. In this sense, these institutions do not require explicit consent by subjects or prospective subjects. In addition, these institutions are unaffected by

converging expectations of states, or can be "negotiated"[220] and formed, founded on explicit agreements, or, can be primarily forced upon, and externally "imposed"[221] by some dominant powers or actors in the international system.

From the nuclear non-proliferation perspective, the notion of interest can be reflected as one of the main causal variables -independent variable, while the non-proliferation regime as the dependent variable.[222] Bearing the arguments of Krasner and Stein in mind, some states sought in the past and still are trying to maximize their own benefits -utility function- in the field of nuclear energy irrespective of the utility of other states. Thereby, the anarchic international system, namely disordered international structure and unruliness of state relations, especially in the 1960s, led many states, as discussed by Keohane, to make various agreements for forming frameworks in the purpose of establishing legal liability in the nuclear field. The outcome of this initiative was the Nuclear Non-Proliferation Treaty (NPT) that from then onwards set up the core of the nuclear non-proliferation regime. The establishment of the non-proliferation regime was undeniably the outcome of, on the one hand, the undergoing negotiation processes over the years in numerous international gatherings, such as conferences and workshops, the product of imposition of the powerful states on the other, namely the past two hegemonic

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social engineering. In reality, there are various cases in which subjects' expectations converge to a notable degree in the absence of conscious awareness. Young suggests this is a suitable interpretation of various balance of power situations at the international level. See, Oran Young, ibid, p. 98.

[220] Negotiated orders are moderately common at the international level. Young, therefore, argues that there is some tendency to be too much focused on negotiated regimes that it is easy to neglect that other types of regimes are also noticeable in the international system. See, Young, ibid.

[221]Imposed regimes differ from spontaneous orders in the sense that they are formed intentionally by dominant powers or consortia of dominant actors. To Young, such regimes do not involve explicit consent by the actors, and they function effectively even in the absence of any formal expression. There are two types of imposed orders: overt hegemony; *de facto* imposition. The latter refers to circumstances in which the dominant power is able to provide incentives in order to endorse institutional arrangements favorable to itself through numerous types of leadership models and the exploitation of incentives. See, Young, ibid.

[222]Mustafa Kibaroglu, *The Nuclear Non-Proliferation Regime at the Crossroads: Strengthening and Uncertainty*, Dissertation, Ankara: Bilkent University, July 1996, pp.27-35.

powers, namely the United States and the Soviet Union. Accordingly, both the outcomes of the negotiations, and the impositions of superpowers have had an impact on shaping the nuclear non-proliferation regime and its three pillars.

3.2.2. Basic Causal Factors as Intervening Variables: Political Power

Political power is another basic causal variable utilized to explain regime formation. In this context, power can both be applied to enhance values and adopted to change specific actors behaviors within the international system or it can be used to fortify ideal outcomes for the system all together.[223] Thereby, specific goals are attempted to reach using power as an instrument. This objective can either be individualistic or a collectivist instrument.[224] In line with the first argument, the aim of the state intervention is to create an environment where individual calculation of self-interest can provide collective good. The second line of argument, suggests that power can be in the service of certain interest groups or the hegemon. Structural realist scholars that focus on power maintain that under specific conditions the interests of the hegemon, lead to an incentive to form regimes. Hence, the establishment of these regimes is a function of distribution of power according to these scholars.

Keohane, in his article entitled, "Theory of Hegemonic Stability", pointed out to the role hegemons play in supplying the collective goods that are necessary for regimes to operate successfully. Nevertheless, hegemons do not provide these collective goods because they are concerned about the well-being of the system or other states. According to Keohane, regimes are suggested to improve the

[223] See, Krasner, *Power, the state and sovereignty: essays on international relations*, p.121.
[224] Ibid, Krasner, p.122.

hegemons' own national interest and also its value.[225] In line with this argument, individualistic power explains the likelihood of changing the strategies of weaker actors by the powerful actor or actors in the international system. In such possibilities, the power notion becomes much more a significant basic causal factor. For instance, the nuclear non-proliferation regime came into being because of the power of the two hegemons, the United States and Soviet Union in particular, and the corresponding powers of some other influential states such as Britain, France, Germany, Sweden and Canada in general, succeeded as determining causal factor in the formation of the norms, rules, and decision-making procedures of the regime. "There was almost unanimous agreement on the non-proliferation principle".[226]

Moreover, without successful leadership principles, norms, rules and decision-making procedures cannot be maintained. For other states to follow suit and accept the principles, norms, rules, and decision-making procedures, collective goods needs to be provided by the hegemon(s), otherwise the regime will not function effectively. On the contrary, there are some scholars such as Stein who propose that as hegemon declines and fail to provide these collective goods then there will be even greater incentives for cooperation and even collaboration among other influential states in order to preserve the regime. According to Stein, "hegemonic decline can lead to stronger regimes."[227]

According to the second line of argument, suggest that powerful actors can indeed "alter the pay-offs."[228]In other words, these powerful states may influence the strategies of other states. In this context, power assumes a much more central role. Young, for instance, argued that powerful states may utilize both sanctions and

[225] See, Keohane, "The Theory of Hegemonic Stability and Changes in International Economic Regimes, 1967-77", in Ole R. Holsti *et al*., *Changes in the International System*, Boulder, Colorado: Westview press, 1980.
[226] Ibid, Kibaroglu, *The Nuclear Non-Proliferation Regime at the Crossroads*, pp. 27-35.
[227] See Krasner, *Power, the state and sovereignty: essays on international relations*, p.123.
[228]Ibid, Krasner, *Power, the state and sovereignty: essays on international relations*, pp.123-124.

incentives to force other states to behave in line with the regime's principles, norms, rules and decision-making procedures. In this sense dominant actors in the international system may thereby "secure de facto compliances by manipulating opportunity sets so that weaker actors are compelled to behave in a desired way."[229] The example of the NPT and the nuclear non-proliferation regime fits both hegemonic stability theory of Keohane and Young's notion of imposed regimes.

Young maintains that imposed regimes are likely to fall apart when there are major shifts in distribution of power. According to young, systemic shifts underlying state's power capabilities will have a direct impact on the regimes continuance or dissolution. On the other hand, Hopkins and Puchala propose that "regimes that are highly politicized diffuse and biased in their distribution of values that are likely to undergo radical transformation when power distribution change."[230]

3.2.3. Basic Causal Factors as Intervening Variables: Norms and Principles

Norms and principles are treated as "critical defining characteristic of any given regime."[231] Values entrenched in the principles and norms of a regime that are critical in explaining the characteristics of any given regime. Values effect a regime in a specific field, may not be directly related to that issue-area, however they can be considered as explanations for the formation, continuation, and dissolution of regimes. Diffuse principles and norms in the societies may influence international behavior. For instance, in international relations, the most diffuse principle is

[229] See, Krasner, *Power, the state and sovereignty: essays on international relations*, p.124.
[230] Ibid, Krasner, p.124.
[231] Ibid, Krasner, pp.123-124.

sovereignty. Nevertheless, sovereignty is not an analytic assumption of international relations' theories. However, it is a principle that affects the behavior of states. "The principle of sovereignty has been a major issue of concern during the multilateral negotiation process of controlling the world-wide proliferation of atomic energy."[232]

Internalization of norms by states is significant in the process of international regime formation. But, how are norms created? Norms are standards of behavior defined in terms of rights and obligations. "Nuclear non-proliferation regime's norm and principles render an important constraint against nuclear acquisition by their neighbor and a powerful normative restraint against use by the nuclear weapons states."[233] Why and how have nuclear non-proliferation regime remained to be sustained despite the unequal status of its member states, where there are different rights and obligations for nuclear weapons states (NWS) and non-nuclear weapons states (NNWS). The persistence of the regime may be explained by unique combination of both interests of the states and norms, which are the two sides of the coin.

Why do most states comply with the nuclear non-proliferation norm? Why nuclear weapons are considered dangerous? How is it possible for the international community to persuade most states to sign the Nuclear Non-Proliferation Treaty? First and foremost, it has to do with the distribution of power in the international community. The power distribution is almost directly reflected in the content of a norm. Why? The distribution of power leads to norm creation because states that have resources and capabilities are generally able and willing to influence the norms

[232] Ibid, Kibaroglu, *The Nuclear Non-Proliferation Regime at the Crossroads*, pp. 27-35.
[233]Paul T., "Explaining the Persistence of the Nuclear Non-Proliferation Regime," *Cambridge Review of International Affairs*, (16), 2003, p. 31.

of the international society. Norms serve as "power maintenance role."[234] The nuclear non-proliferation regime is a prominent example in this context. After China joining the nuclear weapons' club the United States and the Soviet Union have understood that further nuclear proliferation is dangerous for the stability and peace. Nuclear arms race among many states may lead further risks of deliberate misuse or accidental wars. The two superpowers initiative to take precautions in order to prevent further proliferation of nuclear weapons lead to the formation of the nuclear non-proliferation regime.

Second, not all norms in the international community directly reflect the interest of powerful states. Paul also points out that they may also "exist because the mutual principles underlying them are so compelling."[235] In addition, it could have been reflecting the great power interests in the past but may no longer doing so with either the development of technology or shift in power among states or other changes that have taken place in the world. The norms, according to Paul, heavily depend on precedent and patterns of reciprocal adherence.

On the other hand, the national interest concept of states has been studied by most international relations scholars. However, the normative aspect of the coin will be studied further to have a better understanding of the regime persistence. Harald Muller argues that "norms in an international regime prevail over unilateral motivation."[236] Keohane has also developed the notion of reflective and rational choice approaches. This "reflective approach" stresses that human reflection is significant for the nature of norm building and ultimately human nature reflects also the character of institutions and world politics. According to Law, "rational choice

[234] Ibid, Paul, "Explaining the Persistence of the Nuclear Non-Proliferation Regime," p.33.
[235] Ibid, p.34.
[236] Harald Muller, In Volker Rittberger ed. *Regime Theory and International Relations,* New York: Clarendon Paperbacks, 1993, p.361.

approaches, international norms are understood as instruments of international cooperation."[237] It is important to understand how leaders think and how their ideas are affected by others. In this respect, the Inter-governmental Organizations (IGOs) play a significant role as instrument of norm-setting. Together with IGO s there are other norm entrepreneurs in the international relations arena, such as states, non-governmental organizations (NGOs) and the media. These actors also play an important role in the norm creation processes.[238]

Kenneth Waltz has argued that it is the distribution of state's capabilities that is the most significant determinant of international political outcomes. Notwithstanding the fact that material capabilities are very important determinant of state behavior, according to Muller "degrees to which states internalize new understandings regarding legitimate forms of interaction are also quite significant."[239] This is because states attach meaning to material capabilities through their mutual understanding.[240]In other words, material capabilities that a state possesses in the eyes of the other are an outcome of how much meaning your counterpart attaches to your material capabilities.

As legitimate forms of interaction in internalized by states together with respect for sovereignty and territorial integrity and non-interference principles, then consensus building and peaceful resolution of disputes through formation of security

[237] Law, D. *Intergovernmental Organizations and Security Sector*, ed., Wien & Zurich: Llt. Verlag GmbH& Co KG, 2007, p.26.
[238] Ibid, Law, *Intergovernmental Organizations and Security Sector*, 2007, p. 27.
[239] Ibid, Muller, In Volker Rittberger ed. *Regime Theory and International Relations*, p. 361.
[240] Beeson M., *Reconfiguring East Asia: Regional Institutions and Organizations After the Crisis*, New York: Routledge, 2002, p.164.

regimes are possible. In this manner, there may be a shift from "anarchy of enemies" to "anarchy of friends."[241]

Finnemore and Sikkink have also argued that "the influence of transnational advocacy networks has always been greatest during agenda-setting or 'norm emergence' phase of a 'norms life setting' or 'norm life cycle'".[242] There are a few comparative studies that have been done to demonstrate how and when TANs may have an influence on multilateral negotiations. The available evidence points out that there are three potential ways in which they may be influential in these negotiations. First, TANs may exploit mechanisms that enable them to change state preferences through lobbying activities in the domestic arena of powerful states such as United States or Russia. Second, TANs may also build coalitions with international organizations and thereby may pressure states "from below" and 'from above". Third, TANs may also choose to build coalitions with smaller states providing them know-how.[243]

Structural and classical realists argue that same elements of norm construction cannot be utilized in the realm of security studies. They posit that same approach used in economic and environmental issues cannot be used in the security field and analysts should be aware of these differences. So, they suggest that the norm creation literature can be applicable to security issues as they are applied to economic and environmental issues. They claim that only under restrictive conditions international norms and in turn security regime formation may have a significant impact even on

[241]Collins C., In Beeson, *Reconfiguring East Asia: Regional Institutions and Organizations After the Crisis,* New York: Routledge, 2002, p.164.
[242]Finnemore & Sikking, In Walter Carlsnaes, Thomas Risse Kappen, Belt A. Simmons, *Handbook of International Relations,* New York: Sage, 2002, p.264.
[243] Ibid, Finnemore & Sikking In Walter Carlsnaes, Thomas Risse Kappen, Belt A. Simmons, *Handbook of International Relations*, p. 265.

an anarchical world. When the Nunn-Lugar CTR case is studied its success in Russia may lead to think it may be applicable in other counties in order to curb proliferation.

3.2.4. Basic Causal Factors as Intervening Variables: Usage and Custom

Usage here refers to "regular patterns of behavior" and customs are considered to be established practices that are "long-lasting".[244] The significance of repetitive behavior or "routinized behavior" is mentioned by Hopkins & Puchala.[245] According to these scholars, "patterned behavior accomplished by shared expectations is likely to become infused with normative significance: action based on instrumental calculations can come to be regarded as rule-like or principle-like behavior."[246]

Also, in Young's argument on "imposed regimes," habit and usage play an important role.[247] Nevertheless, the literature that he refers to such as Lewis and Hayek is focused on self-interest. Patterns of behavior come into being because they actually endorse self-interest of the parties. Once such practices are established then they are "reinforced by the growth of the regime."[248] For instance, the nuclear non-proliferation regime has grown into an established and widely recognized regime. Except Israel, Pakistan and India all states have recognized the regime and this has become a widely shared norm. The successfully imposed orders may also become

[244]Krasner, *Power, the state and sovereignty: essays on international relations*, p. 125.
[245]Hopkins & Puchala 1982; Young 1982, in Krasner, *Power, the state and sovereignty: essays on international relations*, p. 125.
[246]Practices in commercial law for instance became custom and usage because of self-interest of the parties involved in the transaction. Thereby, ad hoc private trade relations later became official commercial law. Trakman 1980; Berman & Kaufman 1978, in, Krasner, *Power, the state and sovereignty: essays on international relations*, p. 125.
[247]Young 1982 in Krasner, *Power, the state and sovereignty: essays on international relations*, pp. 125-126.
[248]Ibid, Krasner, *Power, the state and sovereignty: essays on international relations*, p. 126.

habits. In this sense, usage leads to shared expectations. These in the long-run "become infused with principles and norms."[249] In the Nunn-Lugar case a growth trend can be observed because it first started being practiced by the Russians and then it was applied to Albania in order to eliminate chemical weapons.

3.2.5. Basic Causal Factors as Intervening Variables: Knowledge

Knowledge is also treated as an intervening variable in order to explain the formation of regimes. Ernst Haas referred to knowledge as "the sum of technological information and of theories about information which commands sufficient consensus at a given time among interested actors to serve a guide to public policy designed to achieve social goals."[250] Haas refers to "cognitive evolutionism" that highlights the significance of generating knowledge.[251] Forming new knowledge is not that easy it needs dedication. Hopkins and Puchala makes a difference between evolutionary and revolutionary change, where "evolutionary change" requires changing rules and procedures within the principles and norms and "revolutionary change" generates new sets of principles and norms, which is related to shift in power.[252]

Jervis maintains that in the past security arena the probability that an arms control regime to be established depends on whether United States and Soviet Union

[249] Haas 1980 pp. 367-68, in Krasner, *Power, the state and sovereignty: essays on international relations*, p. 126.
[250] Ibid, Krasner, *Power, the state and sovereignty: essays on international relations*, pp. 126-127.
[251] Haas 1982, in Krasner, *Power, the state and sovereignty: essays on international relations*, p. 127.
[252] Bretton Woods system that was a fixed exchange rate system had come about from the interwar experiences of the countries that fought for many years. The current knowledge about monetary institutions increased and thereby a floating exchange rate regime could be accepted. Thus, the Bretton Woods system came to an end. See Cohen 19823; Hopkins and Puchala, in Krasner, *Power, the state and sovereignty: essays on international relations*, p. 127.

perceive strategy the same way.[253] In this sense, it was important to brief both countries policy-makers about the situation on ground and the actions needed to be taken in order to preserve peace and stability. The Nunn-Lugar initiators, namely scholars and experts spread non-proliferation principles and norms much earlier than the Nunn-Lugar Act was passed in the congress in United States and the bilateral Nunn-Lugar Umbrella Agreement was signed between the United States and Russia. The nuclear non-proliferation community was active in spreading the non-proliferation knowledge and forming a consensus to develop a regime. In this regard, knowledge founds a basis for cooperation and offers a common ground for parties to work together. It is significant to note that for knowledge to have some influence on the international system it must be accepted by policy-makers. The Nunn-Lugar CTR regime was also established by scholars and experts briefing senators and public policy decision makers on the importance of initiating a Threat Reduction Act.

3.3. Relations between Regimes and State Behavior

International regimes are assumed to be intervening variables between basic causal factors and related outcomes and behaviors of states in international world politics as specified in the beginning. Thus, in the first part of the third chapter the relationships between basic causal factors and international regimes were explained. The relationship between regimes and their outcomes on state behavior will be accounted for in the second part of this chapter. There are three different approaches in

[253] Mutual acceptance of Mutual Assured Destruction (MAD) came to become the basis to create an arms control regime. See Jervis 1982, in Krasner, *Power, the state and sovereignty: essays on international relations,* p. 127.

international relations that perceive the relationship between regimes and state behavior relatively differently.

There are some scholars who point out that regimes affect state behavior and thus they are inextricably linked. For example, Oran Young, Donald Puchala and Raymond Hopkins, international regimes and behaviors of states are inextricably linked. All three scholars contended that, regimes are universal phenomenon of world politics. In addition, they assert that no patterned state behavior can withstand for a long time without generating a compatible regime. In this regard, Puchala and Hopkins argue that regimes are present and can be found in all areas of international relations. They can even come into being when there is major power rivalry between states. They further debate that, decision-makers always perceive themselves as being constrained by principles, norms, and rules that prescribe some behavior and thus acknowledge these behaviors as justified and legitimate.

Hence, according to Puchala and Hopkins the concept of regime moves beyond a realist perspective, which is considered to be limited for elucidating an increasingly complex world. They maintain that this concept is only applicable to areas where one might expect "communalities of interest," and thus to ones where rivalry would generally be presumed. They also contend that, once these subjective dimension- morals and ethics- of international relations are incorporated, explanations of state behavior can be pushed beyond factors such as goals, interest, and power.[254] According to these scholars, causal variables such as knowledge thus become an important variable. Oran Young also argues that "patterned behavior" predictably generates common expectations and interests, wherein disapproval form deviating practices will in turn lead to "conventionalized behavior". In short, patterns of

[254] Ibid, Raymond Hopkins & Donald Puchala, p. 86.

behavior that persist over extended periods, such as principles and norms will infuse normative significance because that will influenced the way decision makers perceive the reality out there. These factors in turn tend to lead to the creation of regimes.

There are also those who consider regimes as a misleading concept. A few scholars such as Susan Strange assert that regime is "a misleading concept" that opaque the basic economic and power relationships. She also denies that principles, norms, rules, and decision-making procedures have important parts in state behavior. Strange raises a more fundamental question and inquires whether the concept of regime is really beneficial in explaining international political economy or world politics. She challenges the validity of the regime concept on five separate counts.[255] This school of thought maintains that if regimes can be validated to exist, then they may have little or even no impact. They are said to be "epiphenomenal" because these form of behavior that is labeled to be regimes can simply be dissolved when balance of power or perception of national interest changes among states that are involved in these regimes.[256] Thus, according to this approach, international regimes are preferred to be let out completely, however if they are to be included then their impact on state behavior is considered as trivial.

There are also other scholars who argue that regimes coordinate behavior in order to achieve "desired outcomes." This third approach argues that, in the international system, regimes arise from voluntary agreements among legally equal actors.[257] According to the realist perspective, sovereign states seek to maximize their own national interest and power. Therefore, they utilize regimes so as to

[255] See, "Susan Strange, Cave! Hic Dragones: A Critique of Regime Analysis", in Krasner (ed.), ibid., p. 337.
[256] Strange, ibid., p. 345.
[257] Keohane, ibid., p. 146.

achieve desired outcomes in different areas. In this regard, such coordination according to Keohane and Stein is attractive under several conditions. For instance, if "pareto-optimal" outcomes cannot be achieved by pursuing unilateral policies then they are more likely to be formed. Hence, in this third approach, regimes are seen as emerging and having an important impact, however only under some restricted conditions.[258]

3.4. Conditions for Security Regime Formation, Continuance and Dissolution

Robert Jervis has identified several systemic conditions which are necessary ingredients for a security regime to come into being. First, he argues that it is necessary for major powers to be willing to establish a regime. Second, states must also believe that other states share same intention. In other words, they should also desire a mutual security and cooperation. Third, no state should believe that security is best provided by expansionist policies. Finally, war and individualist action of security should be seen as costly and unnecessary.[259]

Robert Jervis has studied the field of security regimes but very little follow-up has been done up till now. In the third part of the third chapter, there will be a follow-up work in this area, and a specific case such as Nunn-Lugar CTR programs, will be explored. In this manner, this dissertation will illustrate how Nunn-Lugar CTR programs and Global Partnership that was established after the 2002 G-8

[258]Krasner, ibid., pp: 7 - 8.
[259] Robert Jervis, in Paul T.V., "Security Conditions and Security Cooperation: Explaining the Persistence of the Nuclear Non-Proliferation Regime," *Cambridge Review of International Affairs*, 16(1), 2003, p.135.

Summit, and which has evolved from the Nunn-Lugar CTR programs, has satisfied the conditions set by Robert Jervis as a security regime.

Most of the American scholars in the regime theory literature adapt to the second approach, which accept the basic analytical assumptions of the structural realist approaches. These scholars assume that states' distribution of power, interest and expectation not only are the conditions for regime structures but also accepted that there may be variations across different periods of time during a regime's life cycle. For example, distribution of power may be more significant during the process of regime creation, it may be less important during regime continuance when the regime has formed its principles, norms, rules and decision-making procedures and has shown some progress in establishing cooperation in the specific issue areas.

But, before starting to elucidate how and why Nunn-Lugar CTR programs have turned into a security regime, this dissertation will explain how and why international security regimes are formed and how they linger on and when regimes dissolve. Before understanding security regimes it is worthless to dwell upon whether Nunn-Lugar is a security regime.

3.4.1. Security Regime Formation

According to Robert Jervis, there are several factors that may explain the transformation from a balance of power system to a security regime. Firstly, he states that there may be changes in offensive and defensive strategies of states. For instance, if a given state believes that the adversary has a second strike capacity, then

it may avoid a confrontation and may be more willing to cooperate.[260] Secondly, he suggests that there could be changes in payoffs that may change state behavior. First, the costs of non-cooperation could increase and because the costs of war or an arms race is too high states may, in turn, decide to avoid unnecessary completion. Second, costs of anarchy, uncertainty and revolution may have increased. In other words, it is said that wars may be caused by "anarchy in general and by economic rivalry in particular."[261]

In this respect, great powers must want to form such a regime. In addition, they must also be reasonably satisfied with the status quo too in order to cooperate and implement a security regime.[262] This rise of costs in rivalry may one day be too high for the state to go on competing. Third, if there is a strong belief that all parties will increase their gains from cooperation then this belief may also lead to higher postwar payoffs for cooperation. In this sense, 'common goals' give each a stake in the well-being of the other.[263] Fourth, a regime is formed if there is trust among all parties. In addition, there must be reciprocity among parties. Lastly, in the same manner the confrontation of the postwar experience, reduces the costs a state may be willing to pay if other defects. Therefore, tends to act so that its consequences are within the manageable boundaries of the other party. When a single power enjoys diplomatic military and economic advantages over the other powers these advantages allow it to become a "regional broker."[264] However, a rising challenger may try to disrupt such a regime formation arrangement. Hegemonic perspective argues that formation of a strong security regime that produces such "common goals" as peace

[260] Robert Jervis, *The Illogic of American Nuclear Strategy*, (Cornell Studies in Security Affairs, 1985), p.65.
[261] Ibid.
[262] Volgy, T.J. International Politics and State Strength, (New York: Lynne Reinner Publishers, 2003), p. 67.
[263] Ibid.
[264] Franklin B., *Realism: Restatements and Renewal*, (New York: Routledge, 1997), p. 330

and stability requires presence of a hegemon, like the United States, both willing and able to lead and provide benefits and resources.

3.4.2. Security Regime Continuity

At this stage, extensive communication makes it easier for states to understand what other parties are doing.[265] In this sense, this relatively high level of communication may reduce misunderstanding that may cause a break-up of the security regime. States have greater confidence and trust that the other are not willing or planning to exploit them.[266] They have eventually found out that this regime is for the mutual benefit. Their "common goals" give each a degree of certainty that the other is willing to cooperate in the long-run. Furthermore, timely warning is another factor that assists regime continuity. For instance, the Nuclear Non-Proliferation Treaty may not prevent states from taking the forbidden action, but may indeed warn nations in order to take necessary measures against states that break the rules. One needs to remember that principles and norms lie at the heart of international regimes and norms may not, like many agreements be enforceable in a court of law they, for example, as mentioned above, if reciprocity principle is no longer accepted a security regime would sooner or later break-up. However, principles and norms of international regimes need to be distinguished from rules and procedures. These may change without affecting the nature of the regime. But changes in principles and norms result in changes of regime itself. An expectation of how the counterpart will behave in the future is another important factor that has an impact on regime

[265] Ibid, p. 74.
[266] Ibid, pp. 75-76.

continuity.[267] Therefore, it is necessary to establish relations that are conditional and to convince the counterpart that they will continue to be so.[268] When regimes are created and are in place, scholars assume that, there is a high degree of certainty that there may be continuity. But, how do regimes come to an end if regimes are thought to be so durable? Each participant needs to have a clear picture about the others military posture and overall military capability. In international security regimes, the most important aspect to compliance is transparency. Transparency, in this regard, serves the function of coordination, reassurance and deterrence. Self-reporting is the main source for information. One needs to bear in mind that, it is not an easy task to manage regimes. As may be imagined collection, verification and analysis of information is a huge organizational task. Starting from adaptation and flexibility to review, assessment and response functions they are complex tasks that need great effort.

3.4.3. Regime Dissolution

Like Stephan Krasner many scholars in the field of regime theory assume that basic principles and norms are very durable and it is hard to crack them. Moreover, he suggests that distribution power is more dynamic compared to change in outcomes. He suggests, also, that the regimes "assume a life of their own". Within the framework of this analysis there need not always be congruity between the change in the power distribution and regime dissipation. If change in distribution of power capabilities do not have a direct impact on regime dissipation then what does?

[267] Ibid, p.67.
[268] Ibid, p.78.

Change in interests may not either end a regime given the costs of regime dissipation is higher than regime continuity. Although there might be some reservations about some things that do not function well, parties may still like to go on with the same conditions then take risks. Uncertainty is not a choice many decision-makers would like to take and that is why they rather stick to the prevailing regime structure. According to Jervis, there is however one reason that may end a regime and that is the change in perception. "As the memories of the war fade the bonds erode that helped to hold the blocking conditions together."[269] In other words, the memories of the costs of war or arms race become vaguer as time passes and when decision-makers with no first-hand experience of the war or the arms race come to power they may not understand the benefits of a regime, thus this unacknowledged value of the regime may end any given regime.

How much impact does the decision-making variable have on the regime formation and regime dissipation is another question. Are we being too oblivious to the fact that decision-making actions may have an impact on regime formation and dissipation? For example, a decision of increasing their arms may also have an undesirable and even unintended consequence. Leaders that are in power may change the nature of the regime and the regime itself maybe more than structural changes. Furthermore, as Jervis points out even some sophisticated statesmen tend to underestimate the degree to which actions they might have taken could have consequences even they would not have been able to predict.[270]

[269] Robert Jervis, "A Political Science Perspective on the Balance of Power and the Concert," *The American History Review,* 16 (1), 1992, pp. 716-724.
[270] Robert Jervis, *Perceptions and Misperceptions in International Politics,* (Princeton: Princeton University Press, 1976), p. 69-72.

3. 5. Definition of the Nunn-Lugar Security Regime

As the Soviet Union's power declined and command and control over the Soviet nuclear arsenal loosened the need for assistance program became more acceptable both in the U.S. and in the former Soviet Union. The result of the developments taken place in the shortly before and after the Cold War, the Nunn-Lugar CTR Program came into being in November 27, 1991, and entered into force in 17 July, 1992. According to the Nunn-Lugar Umbrella Agreement, the former Soviet states, that possessed nuclear weapons on their territory would get assistance from the U.S. government to primarily transport and dismantle these weapons. All of these countries signed bilateral Umbrella Agreements with the U.S., in order to further the peaceful uses of nuclear energy, promoting nuclear safety, and applying safeguards in turn to verify that nuclear materials were not being used to make nuclear weapons.

Creation of this agreement fostered the formation of an international security regime in the field of nuclear proliferation whose principles, norms, rules and decision-making procedures could be defined. The Nunn-Lugar program founds a considerable accomplishment in institutionalizing a "collective interest," and it also has palpable successes to its tribute in slowing the pace of weapons spread as the Nuclear Nonproliferation Treaty has credit in curbing and even rolling back nuclear proliferation.[271]

[271] Elizabeth Turpen, "North Korean Rollback?, November 14, 2007, http://www.stimson.org/MAB/?SN=CT200706191329 See also Michael Brenner, "Progress and U.S. Nonproliferation Policy", in Emanuel Adler & Beverly Crawford (eds.), *Progress in Postwar International Relations*, Columbia University Press, New York, 1993, p. 176.

3.5.1. Nunn-Lugar Cooperative Threat Reduction Principles

Principles of an international security regime reveal the objectives and the premises of the adherents of the security regime, and the targets the members are anticipated to follow. They are mostly expressed in the preambles of the agreement. The basic principles of the Nunn-Lugar security regime have been set forth in the belief that the proliferation of nuclear weapons would have an undesirable impact on world peace and stability.[272] In addition, the security transportation the liquidation of all of the existing stockpiles and the elimination of nuclear weapons from the former Soviet arsenals, in this regard are the principal aspiration of the parties. The essential goal is to enhance the Nuclear Non-proliferation Treaty in general, and augment the safety and security as well as to extend the dismantlement of the former Soviet weapons of mass destruction in particular.[273] Accordingly, the "appropriate behavior" for nuclear armed states would be to not assisting others in attaining a similar capacity, and thus to secure these weapons as well as possible so that other state or non-state actors will not have any easy access to these weapons.[274]

Hence, specific initiatives should be principled actions, which are rooted in far-reaching norms and values that, in turn, will benefit from previous precedents and principles. The Nuclear Non-Proliferation Regime is therefore particularly significant in this respect because it provided certain standards. The United Nations have created standards that have provided high level of legitimacy and are universally promotable. Nunn-Lugar CTR security regime can carry out the same function, thereby

[272] Roger K. Smith, 1987, "Explaining the Non-Proliferation Regime: Anomalies for Contemporary International Relations Theory", *International Organization*, 41(2), pp. 253-281. See also Mustafa Kibaroğlu, p. 36.
[273]Thomas Bernauer, *The Chemistry of Regime Formation*, UNIDIR, Dartmouth: Aldershot, 1993, p. 55.
[274] Roger K. Smith, 1987, "Explaining the Non-Proliferation Regime: Anomalies for Contemporary International Relations Theory", pp. 253-281.

enhancing non-proliferation norms and values-established standards. The fundamental aim of the Nunn-Lugar agreement would be to promote the NPT and contribute to the realization of the principles of the United Nations Charter,[275] the prohibition and elimination of all WMD in general. The fundamental purpose of the NPT regime would also be to contribute to the realization of the purpose and principles of the UN Charter.[276] The guiding principle of the Nunn-Lugar security regime, as the nuclear non-proliferation regime presumes that the spread of nuclear weapons into many hands would in turn endanger international peace and stability. Hence, the Nunn-Lugar and the NPT serve the same function, namely to prohibited and eliminate all WMD and ultimately to reach the objective of disarmament in the long-term as the preamble in the NPT the NWS pledges to ultimately disarm themselves from all nuclear weapons. Accordingly, the "appropriate behavior" of the NWS not to help other NNWS in attaining nuclear capacity and for states that do not possess them, not to intend or attempt to acquire them.

3.5.2. Nunn-Lugar CTR Norms

The norms of an international security regime, in this case, can be considered as a mandate for the rules as well as procedures of the security regime. They specify "appropriate behavior" for members of the security regime. In other words, it

[275] Article 11 tasks the UNGA with considering "principle governing disarmament and the regulations of armaments" and making recommendations on the on the same to the UNSC that under Chapter V has the responsibility of making more detailed plans in reference to disarmament. And, Article 26 of the UN Charter stipulates that "in order to promote the establishment and maintenance of international peace and security with the least division of world's economic and human resources the UNSC shall be responsible for formulating, with the assistance of the Military Staff Committee referred in Article 47, plans to be submitted to the members of the United Nations for the establishment of a system for the regulation of armaments."

[276] Thomas Bernauer, *The Chemistry of Regime Formation*, UNIDIR, Dartmounth: Aldershot, 1993, p. 55.

designates what is legitimate or illegitimate.[277] The general principles of the Nunn-Lugar CTR security regime have interpreted into explicit norms through two sets of institutions. In addition, the series of treaties such as START and SORT calling for the elimination of nuclear weapons in order to enhance arms control measures as well as the Nuclear Non-proliferation Treaty have contributed to the general standards of behavior of its members. In this context, the more significant institution is the Non-Proliferation Treaty because "it explicitly lays out the essence of the *nuclear bargain* between the nuclear *haves* and *have nots*."[278]

Senator Lugar inclined the extension of the Nunn-Lugar counter-proliferation security regime into Pakistan, which was perceived shortly before and after at the collapse of the Soviet Union to keep former Soviet WMD out of the hands of states willing to acquire these weapons or terrorists.[279] Through the Nunn-Lugar Program the U.S. Defense Department gave assistance to former Soviet Union to enhance denuclearization in the NIS. Nunn-Lugar programs have consequently "expanded beyond the former Soviet Union, including to Pakistan." [280] The Nunn-Lugar Program has also been "the major engine behind the launch of broader nuclear security initiatives including the G-8 Global Partnership, GICNT, and WINS."[281]

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[277]Bernauer, ibid., p. 56

[278]Ibid, Smith, p. 253.

[279]Nuclear Threat Initiative (NTI), "Obama Urges Congress Pakistani Security Aid," May 6, 2009. http://gsn.nti.org/gsn/nw_20090506_3811.php See also Pakrockerx, "Nunn-Lugar Bill: Another Threat to Pakistani Nukes," March 12, 2010. http://www.pakrockerx.com/politics/nunn-lugar-bill-another-threat-to-pakistani-nukes/ Perkovich, George, "Strengthening Non-Proliferation Rules and Norms – The Three State Problem." *Disarmament Forum: The 2005 NPT Review Conference* 4 (2004), pp. 21-32.

[280] Gareth Evans & Yoriko Kavaguchi, *Eliminating Nuclear Threats*, (Canberra, Tokyo: Report of the International Commission, on Nuclear Non-Proliferation and Disarmament, November 2009), p.154.

[281] Jack Boureston& Tanya Ogilvie- White, *Seeking Nuclear Security Through Greater International Coordination*, (Washington D.C.: Council on Foreign Relations Working Paper, March, 2010), p. 10. http://docs.google.com/viewer?a=v&q=cache:EHSvV3EWD1wJ:www.cfr.org/content/publications/attachments/IIGG_WorkingPaper_1_NuclearSecurity.pdf+Nunn-Lugar+nulear+security+norms&hl=tr&gl=tr&pid=bl&srcid=ADGEEShy2rVadODTHGk59Xd3HObcyDh738QcPp0SSv_ApWKZIpuAZgcAH1wSQDQYsHAAYYA16YbaOlwgMmOmyDqFTyzAeGVe

Hence, there have been associate programs supported by countries other than the US, such as the European Union (EU). In addition to EU other industrialized countries such as Japan, Australia, and Canada have signed bilateral agreements and established separate assistance programs with Russia under the Global Partnership Against Spread of Weapons and Materials of Mass Destruction.[282] As a leader of these initiatives Nunn-Lugar security regime has become one of the most important forces "in shaping norms of the emerging nuclear security regime."[283]

Thus, Nunn-Lugar has developed the international practices such as the Global Partnership that has evolved from the Nunn-Lugar Program. In addition, it has established nuclear security norms, such as physical protection of nuclear weapon and related fissile material and encourages counties to criminalize offenses in domestic law. These new security norms that are founded by the Nunn-Lugar CTR security regime, practically assures that state and non-state actors will not have easy access to nuclear weapons in particular and WMD in general.

Nunn-Lugar CTR norms can then serve as the basis of counter-terrorism through the Nunn-Lugar Umbrella Agreements, as well as through the diplomacy of nongovernmental organizations. The accessibility of applicable legal machinery is a significant factor in countering terrorism. The well-established consensus standards and Nunn-Lugar CTR security regime assist both nuclear non-proliferation and fight

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[282] Global Partnership was launched at the 2002 G-8 Summit in Kananaskis. It continues to make contributions to international security and stability since countries have pledged to assist Russia for the 10-year, and give $20 billion to fulfill *G-8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction* goals. Building upon the principles and guidelines agreed to at Kananaskis, G-8 Global Partnership partners continue to implement projects in Russia and Ukraine. The Partnership has also evolved to address new challenges and to deal with the spread of weapons and materials of mass destruction worldwide. For more information see Partnership for Global Security, "Report on G-8 Global Partnership 2010," June 26, 2010. http://www.partnershipforglobalsecurity.org/PDFFrameset.asp?URL=http://g8.gc.ca/g8-summit/summit-documents/report-on-the-g-8-global-partnership-2010/

[283] Ibid, pp. 6-18.

against terrorism, thus identify solutions to these challenges. Hence, the reaffirmations of the non-proliferation norm, as nuclear security norm fall into the international standards that limit the proliferation of WMD, thereby, provide international behavioral standards. Similarly, Non-Proliferation Treaty, among many others, is examples of regime formation that provide management mechanism.

3.5.3. Nunn-Lugar Security Rules

Rules of a security regime are prescriptions as well as guidelines for actions of participating states that are expected to behave in an appropriate manner. In other words, these rules define the expected behavior, and the specific situations under which the rules are to be operative. Rules are often founded by an international treaty or an agreement. Nunn-Lugar CTR security regime has also has operational rules that are accepted to be followed by participating states. For instance, there are verification rules. Such assurances are needed in order to verify that the fissile material has been destroyed or stored appropriately. Second, there are also rules in order to assure accountability. There are guidelines to assure that US funds are not wasted. Thus, this has led the DOD to fund, for instance, warhead storage sites that will remain open. In addition, restrictions to the Nunn-Lugar CTR regime are also apply to rules set by the NPT since it is part of the non-proliferation regime.

3.5.4. Non-Proliferation Decision-Making Procedures

Decision-making procedures of an international security regime are those mechanisms, which deal with circumstances necessitating collective choice of the parties involved in a regime. These procedures may adjust or translate the principles, norms, rules or procedures of the regime, and to deal with compliance issues, including monitoring, verification and sanctions against violators as it is in the nuclear non-proliferation Treaty.[284] Nunn-Lugar CTR security regime requires monitoring the activities of the member states by a group of CTR inspectors. In case of non-compliance determined by the inspectors, it is the task of DOD, and DOE under the US government to urge the state to come in line with its agreed obligations under the agreement. If a state fails to comply with the terms of the Nunn-Lugar CTR agreement then the funds may not be given to that particular program. The decision-makers may also adopt a set of measures to ensure that parties of the agreement comply with its obligations. In case of failure again, the Board can bring the case to the attention the U.S. State Department.[285] The US Government Accounting Office reports annually whether the parties have fully complied with the obligations.

[284]Bernauer, ibid., p. 59.
[285] Sharon K. Weiner, "The Evolution of Cooperative Threat Reduction," *The Nonproliferation Review*, 16 (2) 2009, pp. 211-235.

CHAPTER IV

THE NUNN-LUGAR SECURITY REGIME

4.1. Evolution of the Nunn-Lugar CTR Programs: Nunn-Lugar Security Regime

This chapter will question whether the Nunn-Lugar CTR Program has evolved into security regime? Robert Jervis' security regime evolution criteria will be used to assess if CTR satisfies all the conditions of Jervis' security regime criteria, namely willingness of establishing a security regime, reciprocity, and non-expansionist policies.

4.1.1. Robert Jervis's Evolution Criterion

Robert Jervis has identified several systemic conditions, which are necessary ingredients for a security regime to come into being, as was mentioned in the third chapter. As stated above according to Robert Jervis, it is necessary for major powers to be willing to establish a security regime. Was the United States willing and able to conclude such an agreement?

As one could imagine the Cold War legacy was not over and there was much opposition to this legislation in the US. There were congressional barriers because the senators could not easily reverse mind-sets. The Cold War was over, yet the senators were still thinking on the lines of the Cold War. As we have mentioned above, Aston B. Carter and William J. Perry explained in detail how the Nunn-Lugar approach came into existence in 1980s.[286] During this process, not only the senators but also the agencies outside of government were contributing to the early efforts of the Nunn-Lugar Program. Senator Sam Nunn and Senator Richard Lugar and their staff worked together with think-tanks and universities. Thus, there was a non-proliferation community that was concerned about nuclear and fissile material safeguards way back then. This community played an important part in constructing the norms for a safer and securer world. All these efforts, in turn, contributed to build proliferation knowledge and later those people were extended from academia to government service. Prominent scholars, namely Dr. Carter of Harvard university and Dr. Perry of Stanford University who later served in the Clinton administration played a great part in the evolution of Nunn-Lugar programs, mentioned above. Although the U.S. congressmen were not willing to conclude an agreement in the beginning, but with the efforts of the nuclear non-proliferation community in the U.S. the attitudes of the politicians were changed. And, finally in the end, as stated earlier, on November 28th 1991, the Nunn-Lugar legislation passed.

In sum, it may be stated that the United States was willing and able to establish a new approach which was the so-called the Nunn-Lugar approach since many academics, senators and leading government members worked for building nuclear proliferation knowledge and, later, managed to pass the Nunn-Lugar

[286] Carter and Perry, 1999, p.70.

legislation in the Congress. Thus, we may come to the conclusion that United States was willing and able to set the course of the *Nunn-Lugar security regime* after some hesitation.

According to Robert Jervis's second criterion, there needs to be reciprocity for a regime to be formed. In other words, both parties should also desire a mutual security and cooperation. So, did the United States believe that the former Soviet Union shared the same intentions with them? Could the American's trust their former adversary the former Soviet Union? It was well known that after the demise of the Soviet Union, not only Russia but also the Newly Independent States (NIS) had not only economic problems but also they faced with various problems related to the WMD as mentioned much earlier in the dissertation.

First and foremost, there were environmental problems that were caused by rapid aging of weapons systems. Second, the threat of proliferation was another problem for Russia. As stated above, the unprecedented scale of WMD transportation from the former Soviet states and troubled regions was a concern of the Russian Federation. Last but not least, there was a need to acquire new technologies for safe and secure WMD elimination.[287] All these concerns were stated by the Head of the 12th Main Directorate (GUMO) of the Russian Ministry of Defense regarding the situation straight after the Cold War. The Russians needed the US assistance and therefore the US could be sure that Russia would be willing to cooperate under these conditions. Thus, we may conclude that Nunn-Lugar programs also satisfied the second condition set by Jervis.

Other criteria needs to be satisfied, according to Robert Jervis. According to this criterion no state should believe that security is best provided by other means

[287] Orlov, 2006, p.7.

such as expansionist policies. After the Cold War it seemed neither the United States nor the Russian Federation had the intention to follow an expansionist policy since they were both exhausted by the arms race. If we go back in history and analyze the empirical date we may observe that neither the United States nor the Russian Federation did pursue an expansionist policy right after the Cold War.

After some hesitation the United States Congress was willing and able to assist Russians in safely securing and transporting their nuclear weapons and fissile material from the former Soviet Union states. The United States managed to get the job done in 1996 and all the three nuclear weapons states namely Kazakhstan, Ukraine and Belarus were denuclearized. The United States during the end of Cold War did not try to expand in any other country. The US was considered to be trust worthy by Russians at that time period. This is the reason behind the success of the Nunn-Lugar Umbrella Agreement.[288]

Finally, there is yet another criterion that needs to be satisfied, and that is according to Jervis, war and individualist action of security should be seen as costly and unnecessary to both states. As one may imagine, in the case of the United States and the Russian Federation after decades of arms race individualistic action was indeed considered to be too costly. One of the reasons behind the collapse of the Soviet Union was specifically the costly arms race that was pursued by the great super powers. Both of the countries had learned their lessons well and both accepted that it was time to cooperate. The necessity of mutual action was well understood by both parties. That was why the bilateral agreement between the US and the Russia Federation was signed and it has lasted more than a decade and it is still in force. Finally, the last criterion of Robert Jervis is also satisfied.

[288] See Appendix 1, Nunn-Lugar Umbrella Agreements 1992, 1999, 2006 signed by the United States and the Russian Federation.

Nevertheless, it is better to use other criteria and not just rely on Jervis's criteria. For this dissertation to be reliable and well-grounded let us use Charles Parker's evolution criteria as well and see whether Nunn-Lugar programs may be defined as a security regime according to his criterion. Charles Parker has used these criteria to evaluate if the Nuclear Non-Proliferation Treaty has evolved into a nuclear non-proliferation regime. This dissertation will also approach this research question in the same manner that Charles Parker has utilized and at the same time it will make a comparison with the nuclear non-proliferation regime and the Nunn-Lugar security regime.

4.1.2. Charles Parker's Evolution Criterion

This dissertation will now make use of Charles F. Parker' 'five C's' evaluation framework, namely: coverage, compliance, change, counterfactual reasoning, and overall regime consequence, which was constructed by Charles Parker, as mentioned above. [289]However, it will diverge in the sense that it will not only work on regimes but it will also be applied to the evaluation framework to the regime in this case, the Nunn-Lugar CTR Program. In this respect, all five elements of study are applied to the regime of nuclear non-proliferation regime, which is assumed to be the Nunn-Lugar security regime, and then find out how successfully it affects the effectiveness of the nuclear non-proliferation regime will be elaborated.

First and foremost, understanding the concept of coverage in a regime is important.. Meaning, how inclusive and widespread is the regime's membership?

[289] Parker, 2002, p.1.

Charles Parker states that, "the nuclear non-proliferation is widely subscribed to with an impressive global coverage that is almost universal."[290]

Although the same may not be said neither for the Nunn-Lugar CTR Program nor the Global Partnership against weapons of mass destruction, they both fall far short of universal coverage. However, the number of donors and members of the Global Partnership against weapons of mass destruction are increasing rapidly. The second question that is to be addressed here is whether the most important key states covered by the regime? For instance, the nuclear non-proliferation would be affected less severely by the withdrawal of Seychelles, which is the smallest sovereign state of Africa, from the NPT then by a withdrawal by Iran. For the case of Global Partnership even though the number of members is limited to 18 still it may be said that most important states are covered by the program. For instance, the US, the Russian Federation, the U.K., Germany, France and even Japan are part of this program.

On the other hand, extensive coverage and widespread regime membership is of little use if there is no or only low level compliance. For instance, a regime may be regarded as weak if participants violate the rules and procedures of the regime. Regarding the second 'C' of compliance, the nuclear non-proliferation has enjoyed relatively high levels of compliance according to the empirical examination of Parker. In other words, it has moderately well-developed compliance mechanisms and the regime enjoys relatively high degree of transparency while International Atomic Energy Agency has provided monitoring and verification work. In addition, resources to compliance mechanisms exist through both IAEA and the UN arrangements. For example, the UN Security Council may take measures it deems

[290] Parker, 2002, p.5.

necessary ranging from economic sanctions to use of force. Nonetheless, most of the time there are disagreements about the need to use force between the EU and the US, yet if all parties agree there is always the option to do so if it deems necessary, as mentioned above. If one examine the coverage, namely to the case of the Nunn-Lugar program one may observe that this program has been mostly funded by the US and Russia. Although Russia pledges to make contributions to the funds sometimes does not comply as much as it promises. On the other hand, the Global Partnership program members' levels of compliance are low as well because some partners have not been consistent in word and deed either. Nevertheless, most of the important partners have indeed illustrated to be reliable partners and this contributes greatly to the level of compliance.

Moreover, change, considers two dimensions of transformation. The first involves examining to what extent a regime has contributed to changes in the condition of the issue area and changes to the behavior, interests, and policies of actors. The evidence has illustrated that the nuclear non-proliferation has been fundamental in forming a legitimate international behavior setting the norms, rules and principles as a prerequisite for membership in good standing to the international community. The regime has been used to change norms over time. In addition, it has constituted an appropriate and legitimate international behavior. Secondly, the nuclear non-proliferation was the key to the so called 'roll-back' that was achieved in the cases of South Africa, the former Soviet Union republics, Argentina and Brazil. In the case of Nunn-Lugar program, the program has assisted the Russian government in safe and secure transportation of the nuclear warheads from the NIS countries and these countries will no longer be able to deploy nuclear weapons as they did after the dissolution of the Soviet Union. On the other hand, the Nunn-Lugar

program has paved the way to the Global Partnership program and is responsible for a notable change in states behavior. Long lasting Nunn-Lugar program has shown the necessity of taking precautions to other states. Thus, many countries decided to take part in it the tasks US was undergoing through the Nunn-Lugar program in trying to assist the Russian's in securing their weapons of mass destructions from other state-actors as well as non-state actors aspiring to get hold of these weapons.

Furthermore, counterfactuals is yet another criteria to measure both regime and regime's effectiveness, which any evaluation of a regime's effectiveness involves a comparison with what might have happened if the regime had never existed. For instance, if nuclear non-proliferation regime and in our case if Nunn-Lugar programs never existed would the world be more secure compared to now? Thus, it is significant to examine the historical record and attempt to untangle what role nuclear non-proliferation played, and find out whether it had a positive, negative affect or it has played no role at all, in the degree of proliferation that has taken place since the formation of the regime. In the absence of these regimes, would their respective issue areas be altered? Similar question will be asked for the Nunn-Lugar program. The study will make an in depth analysis on this issue and 'what if' statements will be asked in order to illustrate how dangerous the world would be without such a Program.

What if Nunn-Lugar programs did not assist? What if one of the nuclear suit case bombs were stolen by some terrorist group in Russia what would have happened? What if the terrorists that got hold of the nuclear suit case bombs had used it in the attacks made on 9/11 how many more casualties would there be in New York city and how would the world be affected from this attack? How would world security, society, and economy be affected from this kind of attacks?

It is clear that any attack made by any of weapons of mass destruction would be deadly to our ultimate survival. We could no longer talk about perpetual peace since fear would overrule any expectation for peace. Perpetual threat would be the only notion in the world politics. People everywhere in the world especially in big cities such as Paris, London, Tokyo, Moscow and many others would be living in fear of another deadly attack. Since most of the lose nukes are under control in Russia and the NIS thanks to the US efforts through Nunn-Lugar programs we can hope to live in peace today. Although one should not forget that there is still job to be done in Russia concerning the security of fissile material, chemical weapons and biological weapons. Global Partnership together with Nunn-Lugar efforts is trying to safeguard some of these deadly WMD today.

Finally, consequence, which is the fifth and last criteria, considers the overall impact of the regime on the issue area. It provides us evaluation indicators that may be measured. In addition, it provides us with a regime to figure out the value of the regime or regime in question, first, as a standard-setting instrument, second, a point of reference, third, an assurance mechanism, fourth a policy regime, and finally as a forum for interaction. In the case of the nuclear non-proliferation it is a normative standard setting instrument. The regime defines what the proper idealized standard of behavior is regarding the acquisition and possession of nuclear armament, as Parker points out. In this respect, the behavior and policies of certain states are distinguished as inappropriate and dangerous. These states which have nuclear ambitions are regarded as 'rogues' or 'international outlaws'. Thus, the nuclear non-proliferation assumes the role altering the motives and material capabilities that states attempt to acquire nuclear weapons. In this respect, the Nunn-Lugar program has also been a regime in assisting the nuclear non-proliferation in providing the

funds and scientific expertise to avoid the nuclear weapons aspiring state and non-state actors to proliferate. They have been capable of slowing and complicating the efforts states and non-sate actors to acquire nuclear weapons. The Nunn-Lugar Program has also demonstrated to be a guiding star in the formation of the Global Partnership program, where 18 countries have decided to take part in fulfilling tasks that the Nunn-Lugar have tried to accomplish for many years.

By utilizing Parkers' evolution framework for regimes this dissertation has applied it to the case the Nunn-Lugar Program. In this respect, it has analyzed the impact of the Nunn-Lugar Program on the nuclear non-proliferation regime's effectiveness. In this sense, it demonstrates whether the Nunn-Lugar Program has changed state behavior. Whether it has functionally and normatively affected state's behavior as standard setting instruments, points of reference, assurance mechanisms, forums, and policy tool for the overall impact of states, as mentioned above. That is why it was important to go through Charles Parkers not only to see if the Nunn-Lugar Program satisfies the criteria of Parker but also to have a better understanding of the Nunn-Lugar security regimes effectiveness on the nuclear non-proliferation regime.

4.2. Evolution of Nunn-Lugar CTR Programs: Principles, Norms, Rules, and Decision Making Procedures

In this part we will evaluate whether Nunn-Lugar programs have fulfilled the necessary conditions to be an international security regime criteria prescribed by Stephen Krasner. He had described international regimes as convergence of

expectations of states under set principles, norms, rules and decision making procedures as mentioned earlier in this dissertation.

4.2.1. Principles

Shortly, principles are how states' describe 'common interests' and "common good." Namely, what is considered to be 'good' and 'bad' for world's safety and security is considered to be principles. According to the NPT, for instance, nuclear weapons are considered to be dangerous since spread of nuclear weapons is thought to increase the risk of thefts of nuclear weapons and fissile material and accidents. "Weak states" are considered not to have sufficient resources and capabilities to effectively control these dangerous weapons against criminals, terrorists or rogue states.

The Nunn-Lugar Program established some principles to prevent terrorists, or those that harbor them, from gaining access to weapons or material of mass destruction. The first principle called to promote the adoption, universalization, full implementation and, where necessary, strengthening of bilateral treaty namely the Umbrella Agreement. Second principle called to develop and maintain appropriate effective measures to account for and secure such items in production, use, storage and domestic and international transport and provide assistance to states lacking sufficient resources to account for and secure these items. The third principle mentioned the need to develop and maintain appropriate and effective measures applied to facilities, which house such items, including defense in depth, provide assistance to states lacking sufficient resources to protect these facilities. The fourth principle accounted for the need to develop and maintain effective boarder controls, law enforcement efforts and international cooperation to detect, deter and interdict in

cases of illicit trafficking in such items, for example through installation of detection systems, training of customs and law enforcement personnel and cooperation in trafficking these items to provide assistance to states lacking expertise or resources to strengthen their capacity to detect, deter and interdict in cases of illicit trafficking in these items. The fifth principle indicated the need to develop, review and maintain effective national export and transshipment controls over items on multilateral export control lists, as well as items that are not identified in the list. Sixth principle was to provide full time employment for nuclear scientist who might sell the know how to other nuclear aspiring states or non-state actors such as criminals or terrorists.

4.2.2. Norms

Norms are considered to be rights and obligations of states. In other words, norms defined and set standards of behavior. What are the rights of the states and what are the obligations of the states are prescribed under the NPT? According to the NPT there are states that legally can posses' nuclear weapon. Thus, countries such as the US, the Russian Federation, UK, France, and China are de jure nuclear countries under the NPT. On the other hand, according to the NPT other countries can only use nuclear know how for peaceful purposes to produce electricity to their citizens.

Non-proliferation, disarmament, counter-terrorism and nuclear safety can be considered to be norms that states regarded necessary for safety and security of our world for instance. In the beginning Nunn-Lugar programs primary objective was to return the nuclear weapons in the NIS since they were considered to be de jure nuclear states so they had to return their nuclear weapons after the collapse of the

Soviet Union. There was a need for safe and secure transportation of these weapons from the NIS countries to the Russian Federation. Thus, in this process the Nunn-Lugar Program assisted Russians while transporting these weapons to their country.

4.2.3. Nunn-Lugar Security Rules

Rules are, as stated, earlier prescribed ways of action. For instance, what is accepted as standards of behavior and what would not be accepted behavior? In the case of NIS countries, their possession of nuclear weapons was not considered to be accepted behavior. So, they were urged to return these weapons to the real possessor, namely the Soviet Union. Prescribed rules, under the NPT also proposes de facto states to eliminate their weapons since they legally do not have the right to possess them. The Nunn-Lugar rules were mainly safe and secure transportation, and storage to address non-proliferation, disarmament, counter-terrorism and nuclear safety. In addition, mutually agreed effective monitoring, auditing and transparency measures and procedures were required in order to ensure cooperation activities. Moreover, the projects were needed to be implemented in an environmentally sound manner. Furthermore, the material, equipment, technology, services and expertise needed to be provided solely for peaceful purposes. And, procurement of the goods and services were done by the US firms that were exempt from taxes, duties, levies and other charges.

4.2.3. Decision making procedures

According to Nunn-Lugar Program the decision making procedure was the umbrella agreements that were signed with each and every state bilaterally. These umbrella agreements provided the legal basis for the Nunn-Lugar programs. They were in force for seven years and they were renewed by the Russian Federation since there was further need for cooperation in Russia.

The Nunn-Lugar Program as mentioned above has set principles, norms, rules and decision making procedures necessary to become a security regime according to Stephen Krasners description of an international regime. Hence, we can also say that the Nunn-Lugar Program satisfies Krasners' evolution criteria as well. Below you will find all the necessary ingredients necessary in order to form a security regime, which the Nunn-Lugar Program has satisfied in every respect to be called an international security regime.

CHAPTER V

THE NUNN-LUGAR SECURITY REGIME

In the previous chapter we have come to the conclusion that according to Robert Jervis's and Charles Parker's security regime criterion that the Nunn-Lugar Program becomes a security regime after evolving in scope and scale. This chapter will analyze whether the Nunn-Lugar Security Regime managed to reach its objectives in curbing nuclear proliferation as it aimed in the aftermath of the Cold War. It will also assess how much the Russians contributed in these non-proliferation efforts. No other research has questioned how much the Russians would accomplish if they done the job alone. Therefore, there will be an extra part analyzing how much effort was put by Russians in reaching non-proliferation goals.

5.1. Nunn-Lugar Security Regime: Achievements/ Problem Areas and Lessons Learned

According to former Senator Sam Nunn, the Nunn-Lugar programs have contributed to Nunn-Lugar accomplishments for less than 1% of the US defense budget. There

will be a follow up analysis of the accomplishments made on ground in this chapter. In other words, there will be an evaluation on whether the Nunn-Lugar programs have really accomplished as much as the former Senator Sam Nunn claims.

The US General Accounting Office (GAO) Reports will be utilized as empirical data to assess achievements and problem areas encountered while implementing Nunn-Lugar programs. In addition, Russian White Papers on Russians contribution to nonproliferation will be analyzed in this chapter. Although the Nunn-Lugar funds covered most of the programs expenses it is significant to see how much the Russian side contributed to assist the programs to be realized since this lead to further cooperation in the field of security. Thus, two former adversaries' scientist, experts and officials learned to work together.

5. 2. Nunn-Lugar Security Regime: Achievements

5.2.1. American Contribution to the Non-proliferation Effort

The Nunn-Lugar security regime can be considered to be analogous to the Marshall Plan, which was an economic assistance in securing national political or security interests of the US. In the same manner, the Nunn-Lugar security regime goes beyond traditional methods such as diplomatic exhortation, threat, pressure, cartels or other means that have been frequently utilized by the US government to pursue non-proliferation goals. These old methods have proven to be unsuccessful in accomplishing non-proliferation objectives, and thus the new methods of the Nunn-Lugar security regime seem to have reached this goal much effectively than any of

the other traditional methods at hand. According to Gloria Duffy's analysis, the Nunn-Lugar approach seems to be "highly successful when we look at the many quantitative and qualitative indicators of its success in the safeguarding and reducing nuclear weapons."[291]

It is a novel approach, which is preventive rather than reactive or defensive, in pursuing the US national security objectives. The uses of economic and technical incentives to become involved in shaping events in various regions before they emerge as a threat to the US national security interests have been successful in the Nunn-Lugar case. In this way, the US avoids more costly and demanding response by military means that might be necessary in the future.[292] The new Nunn-Lugar approach "has played a unique role in opening up communications and establishing a base for the relationship" between the US and Russia as well as the NIS countries.[293]

Guy B. Roberts is the Deputy Assistant Secretary General for Weapons of Mass Destruction Policy and Director at NATO, and he has also been involved in Nunn-Lugar security regimes negotiation process and later in the verification process in Russia came to attend a meeting in the Center of Excellence Defense Against Terrorism (COE-DAT) in Ankara, Turkey between 10-11 April, 2008. There I asked him whether he believed it was Nunn-Lugar programs have been successful to curb proliferation of nuclear weapons. He said that the Nunn-Lugar programs accomplished many things in Russia. For instance, he told me that when they first went to Russia to have first-hand information about the situation on ground the Russian did not even have a computer system to track how many nuclear weapons and fissile material they had in their facilities. In order to solve this problem they

[291] Duffy, 1997, p. 23.
[292] Ibid., p.27.
[293] Ibid, p.26.

provided Russians with the National Material Protection Control and Accounting System (MC& A).

In addition, Robert Einhorn former senior arms control and defense specialists from the Clinton Administration now is the Senior Adviser, International Security Program, Center for Strategic and International Studies (CSIS) also agree that the Nunn-Lugar approach has been successful in Russia. In a reception at the US Embassy in Ankara, Turkey, last year in April, I asked him whether tools that were used in Nunn-Lugar programs could be applied elsewhere and he told me that it could and it was indeed tried to be applied in some countries. He said that "US experts are actually making some quick fixes like bars on windows, blast proof doors, fences followed by more sophisticated security measures such as sensors, cameras, and personnel access measures in some other nuclear countries as well." [294]

Moreover, I interviewed Charles Ferguson who is a senior fellow at the Council on Foreign Relations (CFR) when he came to Ankara, Turkey last year in May. I asked him whether he thought that Nunn-Lugar programs were successful and he responded the same way as the other two US experts have. He told me that "he was an optimist and he thought Nunn-Lugar programs were indeed successful and the Nunn-Lugar approach and tools could be applied in other countries such as North Korea."[295]

Furthermore, I had the opportunity to interview Dr. David Holloway, who is a political scientist at Stanford University and co-director at Center for International Security and Cooperation (CISAC) this year in the International School on Disarmament and Research on Conflicts (ISODARCO) winter course in Andalo

[294] Interview, Robert Einhorn, 2008, Ankara.
[295] Interview, Charles Ferguson, 2008, Ankara.

(Trento) Italy on the 14th of January, 2009. He also stated that "the Nunn-Lugar Program has made some progress in the field of nuclear non-proliferation and thought that there was still job to be done in Russia and Russians and Americans needed to continue cooperating."[296] He also added that "Henry Kissinger was trying to rebuild the US relations with the Russian Federation since they thought continuing cooperation in the field of nuclear non-proliferation with Russia was important."

I also had the chance to speak to Rosa Gottemoeller who is the director of the Carnegie Endowment for Peace in Moscow when I attended a meeting at the Carnegie Center at Moscow. I asked her whether she thought that The Nunn-Lugar programs were successful I saw that she was a long supporter of the Nunn-Lugar effort in Russia and she thought that the Nunn-Lugar program would be extended yet another seven years in 2013 because both Russians and Americans needed to go on cooperating in the security field. It seems that she would do anything in her power to see the two countries cooperate in the future.

Not only does experts, strategists, and academics point out many of the successful endeavors of Nunn-Lugar programs but also the US General Accounting Office (GAO) Reports mention all about the successes and obstacles that the programs have faced in detail. First, GAO reports notes that the Nunn-Lugar programs evolved into a multi-year effort.[297] In this respect, Department of Defense planned to give $400 million annually starting from 1994 for the next 5 years for the Nunn-Lugar Program to implement its projects in Russia. Second, with the funding the US has provided Russia with necessary railcar safety and security enhancement kits, emergency response equipment and nuclear material storage containers.[298]

[296] Interview, David Holloway, 2009, ISODARCO, Andalo, Italy.
[297] US General Accounting Office Reports (GAO), 5.1, 1994.
[298] GAO, 5.2, 1994.

Third, Nunn-Lugar provided assistance to Russia with its chemical weapons destruction since it lacked technical capabilities for safety destroying its chemical weapons.[299] Fourth, Nunn-Lugar Program helped employ former Soviet states accountability starting from 1994.[300] The US helped them find peaceful work meaning work in civil nuclear facilities and has established a multilaterally funded science and technology center in Moscow since 1994. Fifth, Nunn-Lugar officials also planned to help develop or improve national controls and accountability over both non-military and military nuclear material in Russia as well as in Ukraine and Kazakhstan. Russians had a facility based material control on their territory however they did not institute a consolidated nationwide nuclear MC& A system for reconciling facility level requirements for establishing complete system. Thus, Nunn-Lugar assisted them to establish a computerized MC& A system which has proven to be quite successful. Last but not least, Nunn-Lugar provided training and equipment for developing a Western-style national export control system in Belarus.[301]

In 1995, the GAO report underlined the progress made by the Nunn-Lugar Program. Firstly, GAO found that the Nunn-Lugar Program has facilitated Ukraine's weapons dismantlement efforts and has been a raw model for the other recipient states. Secondly, the DOD has developed a multiyear Nunn-Lugar program and has doubled program obligations and tripled program expenditure over the following 11 months.

In 1996, GAO Chapter Report found that the Nunn-Lugar Program nuclear material that former Soviet Union produced is vulnerable to theft because it was not accurately and completely inventoried. Especially, the NIS did not have adequate

[299] GAO, 5.4., 1994.
[300] GAO, 5.5., 1994.
[301] See Appendix 7, for funding for Nunn-Lugar Cooperative Threat Reduction Projects.

resources to track its movement. Why is this so, did not the Soviet Union have an adequate system to protect its nuclear material? With the breakdown of the Soviet Union the MPC&A system broke down as well. On the other hand, nuclear facilities relied on antiquated systems of accounting which were not computer based and they relied on manual, paper-based material accounting systems. This system may have difficulties in tracking information on were these materials locate and where they may be assessed. Nuclear facility operators thus had to manually check hundreds of paper records to determine if there is any material missing. The US, in contrast, utilized computers to maintain current information on the presence as well as quality of material that was kept in these facilities. This system was planned to be brought to NIS and Russia, since 1995.

The concerns of tracking information increased since the amount of nuclear material is expected to increase as more nuclear weapons are dismantled. There has been seizures of small quantities of these stolen material have been registered. The main concern of the US national security has been to protect nuclear material that may be used in nuclear explosives. Therefore, the Nunn-Lugar Program has agreed to upgrade controls at high priority sites and develop a national material protection control and accounting (MPC& A) regulatory infrastructures to deter, detect and respond to attempts of theft. Since 1996, the US planned to expand MPC& A assistance program to all NIS direct use nuclear facilities and has provided funding for this program. Furthermore, DOE lab-to-lab programs have improved controls at two Russian labs and also began to provide monitors to several Russian weapons facilities.[302]

[302] GAO Report, 2.4., 1996.

Although there has not been any direct link found between black market and stolen or diverted nuclear materials, however, according to the US officials, the more important cases have been listed in the GAO Chapter Report. For instance, since 1992 there have been cases of theft. In 1992, 1.5 kilograms of weapons grade HEU were diverted from the Luch Scientific Production Association in Russia by a Lunch employee. In 1994, three men were arrested in St. Petersburg trying to sell 3.05 kilograms of weapons-usable HEU. There have been many other reported cases of this sort and you may find them in the GAO Chapter Report.[303]

In 1996, GAO Chapter Report revealed that there have been two strategies to improve MPC&A in the NIS. First strategy was to form government-to-government agreements between DOD and the Ministries. The second strategy was to establish DOE's lab-to-lab program, which is implemented directly with Russian nuclear facilities. DOE's national laboratories, in this case, sign contracts directly with their Russian laboratory counterparts. Top-down and bottom-up approaches are used in accomplishing Nunn-Lugar Program's tasks. To see how many government-to-government and lab-to-lab projects were applied in Russia, Ukraine, Kazakhstan and Belarus see Figure in the Appendix.

In addition, the GAO Letter Report in 1996 pointed out that the GAO also revealed the Nunn-Lugar dismantlement funds to specific countries. According to this figure Ukraine got most of the funds with 40% of the funds notified, while Russia received 35% and Kazakhstan followed Russia with 16% and got 9%. To see the GAO figure total notifications of fiscal year 1992-96 funds look at the Appendix. On the other hand, the nuclear weapons storage facility was now under construction. The GAO Report also calculated the amount of funds of fiscal year 1992-1996 to be

[303] Ibid.

$1,502,110,000 and the distribution of the funds were calculated as well. According to this figure allocation of Nunn-Lugar funds were revealed to be mostly spent on supplying delivery vehicles which was calculated to be 45% of the grand total. Nuclear controls gained second place in this list with 28% of the funds. Demilitarization followed by 15% and chemical weapons received 5% of the funds. Other expenses summed up to be 7% of the grand total. To have a better understanding of the GAO figure total notifications of fiscal year 1992-96 funds see Appendix. There is also a table of lists on Nunn-Lugar Funding Status in the Appendix where you may find detailed figures of how much has been spent to specific programs and counties if you are interested to have a better grasp of the amount funds that were provided by the US to these countries.

GAO, in 1996, also indicated that the US would export high performance computers to Russia when Russia requested for the export of the US computers for stockpile maintenance. Convex SPP 2000 computers were known to be more capable than any computer used in Russia. This choice was significant step because it would enhance the Russian's newly developing computerized MPC& A assistance program.[304]

In 1997, GAO Letter Report indicated that conversion efforts in the NIS and Russia were underway. In Russia there were five projects, which were established commercial partnerships. These consisted of radar and avionics firm, an electronics firm that made gear for space and military applications and a military avionics firm. The projects in Ukraine were even more compared to ones started in Russia. Seven projects were established there. Commercial ventures consisted of various categories such as a manufacturer of radio components, a manufacturer of guidance and control

[304] GAO, Stmnt. for the Rec., 1996.

systems, a firm that designed and tested radio equipment and instrument systems for missiles and satellites and a manufacturer of aerospace and military electronics equipment. On the other hand, there were four projects founded in Kazakhstan. These included a firm responsible for converting an abandoned Soviet military command and control facility, The Kazakhstan National Nuclear Center, a production factory for submarine-launched missiles and biological weapons production enterprise. Finally, four projects were underway in 1997 in Belarus. These commercial ventures included a nuclear-hardened computer circuit firm, satellite optics and reconnaissance firm and a mainframe computer factory.[305] See Appendix if you want to have detailed information on the tables of types of WMD Conversion in the former Soviet Union and Status of Defense Conversion Projects.[306]

In GAO Chapter Report gave results for the Initiatives for Proliferation Prevention program from fiscal year 1994 through 1998. See Appendix to have a detailed knowledge on the proliferation prevention program table. However, the amount of money that went to the scientists at the institutes was unknown since institutes' overhead charges, taxes and other fees reduced the amount of money available for scientists. Yet, it is important to note that the program has been successful in employing scientists through research and development projects.[307]

In 2001 GAO Report to the Congressional Committees noted that the Nunn-Lugar assisted recipient countries destroyed WMD, transport and store weapons to be destroyed and thereby has prevented WMD proliferation. In the beginning of 1990s the Nunn-Lugar assistance was in the form of equipment like cranes, trucks and cutting tools and so forth. As the program evolved the assistance took the form

[305] GAO Letter Report, GAO/NSIAD-97-101, 3.1, 3.2, 3.3, 3.4, 1997.
[306] See also Appendix for Defense Conversion Table.
[307] GAO Chapter Report, GAO/RCED-99-54, 1999.

of services. Program experts helped dismantlement of Russian submarines. Moreover, other costs were also included into the program funds. These costs included not only travel expenses, but also training exercises, conferences as well as contractor support costs. In 2000, the provided equipment was at is record low. As the program matured the assistance it provided changed and as you may see in the Figure, Nunn-Lugar started providing more assistance in the form of services than just equipment supplies to the NIS and Russia. The Nunn-Lugar Obligations starting from FY 1992 to 2000 may be found in the Appendix Figures 1 and 2.

On the other hand, another significant issue was taken up in this report and that is the level of access to sites the Nunn-Lugar experts were allowed by the recipient countries. This varied among different Nunn-Lugar projects due to the extreme sensitivity of nuclear weapons storage sites. Where access was denied photographs were taken of the sent equipment to show US experts that these equipments where used. Also, see the Appendix for the level of access provided to Nunn-Lugar experts to verify the success of the projects.

In 1997, the GAO Letter Report revealed that the DOD reports were not perfect in nature and had some weaknesses in auditing and reporting of Nunn-Lugar activities. It is to be noted that these reports were not comprehensive enough. For instance, the Nunn-Lugar founded cash grant that DOD provided to Ukraine was excluded in the report. The GAO found in general that the DOD's reports lacked detailed information. So it is important to note that all these reports were not as comprehensive and detailed as one would expect. In this sense, one needs to be aware of the weaknesses when one covers Nunn-Lugar activities in Russia and the NIS.[308] Once again, in 2000 Letter Repots GAO found that DOD did not provide

[308] GAO Letter Report, GAO/NSIAD-97-218, 1997.

complete and fully accurate information and it also added that it contained overstated estimates of the percentage of equipment to Russia and NIS.[309]

However, in 2002, 2003, 2004 and 2005 GAO Reports the Nunn-Lugar report was found to meet the legislative requirements and DOD was found quite successful in reporting to the GAO. GAO was found to be taking action on most of the GAO's past recommendations. In the 2005 Report it was found that DOD had improved its management and internal controls but it also mentioned that there were yet some challenges for DOD to address. It also added that to manage Nunn-Lugar program DOD had addressed five areas of concern. First, program management was improved immensely after two project failures in Russia which cost US nearly $200 million. Second, several new methods of assessing risk were used to make improvements to balance the requirements of each projects. Third, performance measurements were improved too by implementing new guidelines on developing and reporting Nunn-Lugar project objectives. Fourth, a new process was introduced to review Nunn-Lugar projects more systematically. Finally, the most important issue was improving communication with DOD officials involved in the Nunn-Lugar program with recipient countries. They constantly share more information and the Nunn-Lugar teams made more trips to recipient countries, for instance, they have increased the number of trips from 70 trips in fiscal year 2001, to 165 trips in 2004.

The success made in year 2005 was listed in different program areas in the GAO report. First, GAO found that Nunn-Lugar had provided security and safety upgrades at institutes engaged in legitimate dangerous biological research. Nunn-Lugar assistance has been provided to Kazakhstan, Russia as well as Georgia and Uzbekistan to improve the safety and security of the biological facilities in these

[309] GAO Letter Report, GAO/NSIAD-00-40, 2000.

countries. Second, The Chemical Weapons Elimination program has assisted Russia in the safe, and secure as well as environmentally sound destruction of its chemical weapons stockpiles. Third, the Nuclear Weapons Safety and Security program has assisted Russia to enhance its ability to secure nuclear weapons during the process of transportation and storage. It has improved safety and security of nuclear weapons during shipment through new rail cars and storage containers that were provided by US. Fourth, The Strategic Offensive Arms Elimination program assisted Russia in the destruction of strategic nuclear weapons. In addition it also helped them to reduce the opportunities for proliferation use. It also assisted Russia in destruction of submarine lunched ballistic missiles as well as their launchers Last but not least; GAO noted that Nunn-Lugar programs have initiated the Weapons of Mass Destruction Proliferation Prevention Initiative. Nunn-Lugar officials are worked with Azerbaijan, Kazakhstan, Ukraine, and Uzbekistan. It provided training, logistic support, infrastructure support to agencies such as Boarder Guard, Customs, National Guard, and Defense and Interior Defense and Interior government organizations.

The Congress required annual Nunn-Lugar CTR reports on planning and accountability in the mid-1990s. Although the DOD reports were not always found to be precise they did give some idea about the projects that were accomplished in former Soviet states and Russia. The GAO found that the reports did not address all congressional requirements and did not include important planning elements and necessary funds. GAO was critical about many aspects but to be realistic it is not easy to find hard data on all these issues and make future plans and estimates in a country that has newly started to be economically and socially stabilized. Since the Nunn-Lugar Program is still in force and is being applied in Russia this may be illustrating us that the program was indeed assisted the Russian’s to curb WMD

proliferation. However, how much of US national security interests are being met is another question? Of course it is understandable that the Congress wants precise figures about where the money is going. But the concern of this dissertation is to understand whether the Nunn-Lugar Program has indeed been effective in curbing WMD in the former Soviet Union.

Most importantly, it is significant to note that the Nunn-Lugar Program has immensely improved US-Russian relations. It brought out of a period that was characterized with animosity into a new era, which may be considered as to be one of partnership. Nunn-Lugar programs have given an opportunity for both Russians and Americans to work together on a daily basis on many cooperative endeavors. The important question here is to ask whether the US and Russia, now as partners may keep the world safe, from spread of particularly nuclear weapons as well as chemical and biological weapons?

5.2.2. Russian Contribution to the Nonproliferation Effort

It is also important to note that the Nunn-Lugar experts were not doing the job alone. The Russians contributed to realize nuclear nonproliferation in the region too. In the White Paper Russian President Vladimir Putin has stated that the problem of nonproliferation the "most important issue of our time."[310] Moreover, it was mentioned that "Russia's contribution to ensuring the irreversibility of nuclear disarmament in the context of the NPT includes the implementation of a program for the processing of 500 metric tons of highly enriched uranium (HEU) extracted from

[310] Russian Federation's White Papers 2006.

Russian nuclear weapons into nuclear fuel (low enriched uranium (LEU)) for nuclear power plants". However, there was not much found in the Russian White Papers on the contributions of Russians to the Nunn-Lugar programs or the Global Partnership efforts.

The details can also be found in the GAO reports. According to these reports Russia was able to dismantle by the end of the century about 30,000 warheads on its own without US help. [311] The Russian officials have announced that they have dismantled the former Soviet Union nuclear stockpile at a rate of 2,000 to 3,000 per year. It is significant to mention that the Russians did not want any help from the US in actually dismantling these weapons; they wanted to do it themselves. However, Russia requested for the US to construct storage facilities since they claimed that there was lack of storage place.

Nunn-Lugar officials past assertions that the Russians may not meet its obligations under the START I on its own without US assistance was overstated. Russia has been dismantling nuclear delivery systems in compliance with the arms control treaties. According to Russian officials Russia has indeed achieved 100 percent of START's 3 year limits and nearly 50 percent of its 7 year limits for delivery vehicles. Since this was information was revealed the Nunn-Lugar officials conceded that Nunn-Lugar assistance is not necessary to ensure Russian START I compliance and instead indicated that Russia will need additional help for START II dismantlement efforts. Nunn-Lugar officials also claimed that this help would increase the Russian dismantlement rate.

Ukraine, Kazakhstan or Belarus, for instance, lacked Russia's capabilities and infrastructure. Thus, these countries did indeed needed Nunn-Lugar assistance to be

[311] GAO Letter Report, 5.1., 1994.

able to comply with the Lisbon Protocol and START obligations. But, this was not the case for Russia. In addition, US also provided training to Belarusians so that they could complete the work themselves. However, this was not the case for chemical weapons dismantlement. Russians lacked technical capabilities for safely destroying its chemical weapons.

In GAO Testimony written in 2000, there is some concern about Russia's inability to share the burden of reduce threats posed by WMD. The continuing economic crisis in Russia is given as the main reason for this situation. This problem has indeed risen questions whether Russia will be able to pay its agreed upon share of the program costs.[312] According to the Russian officials, the agents stored at Gorniy and Kambarka were destroyed. In December 2005, the Russian government completed its destruction efforts at Gorniy and began destroying chemical weapons in Kambarka. There are many other chemical weapons waiting for dismantlement in the Maradykovskiy, Leonidovka, Kizner, Pochep and Moscow. The other countries also pledged to assist Russia in this effort. International donors such as Belgium, Mayada, Czech Republic, Denmark, EU, Finland, Germany, Ireland, Italy and the Netherlands committed funding for the Russian destruction.

[312] GAO Testimony, GAO/TNSIAD/RCED-00-119, 2000.

5.3. Nunn-Lugar Security Regime: Problem Areas

5.3.1. The American Side of the Argument: Problem Areas

The Nunn-Lugar Program has not only been praised, but also criticized by both the US Congress and the US General Accounting Office. They have argued that the Nunn-Lugar Program has not taken concrete steps toward denuclearization. Most importantly they have criticized the Program arguing that by giving such assistance to dismantle weapons in Russia this in turn allowed Russia to spend their own funds in improving their own military capabilities and missiles technology, which could threaten the US in the long run.

Opponents of the Nunn-Lugar Program have claimed that assisting Russia has created opportunities for the Russians to spend their money in other areas such as the missiles development. This concern may be supported by Putin's declaration, in conference of high ranking officials, that they are conducting research and are testing the most up-to-date nuclear missile systems that he suggested would be supplied to the armed forces in the near future. Russia's Interfax News Agency reported this news in year 2004. "We will continue developing missile technologies, including new-generation ballistic missiles," the president said in year 2007, in RIA Novosti. Putin has declared that Russia had successfully tested a new multiple warhead ballistic missiles, designed to overcome air-defense systems such as the US shield planned for deployment in central Europe, Staff Writers wrote in Agence France-Presse on 29 May, 2007. In addition, Russia's first deputy prime minister, Sergei Ivanov stated "we will also prioritize the development of high-precision weaponry." Moreover, Ivanov, announced that the country had tested a new multiple-warhead

intercontinental missile, the RS-24, and an improved version of its short-range Iskander missile. He added that the missiles were capable of destroying enemy systems and added: "As of today Russia has new missiles that are capable of overcoming any existing or future missile defense systems. In terms of defense and security, Russia may look calmly to the country's future" Luke Harding wrote in The Guardian in May 30, 2007. There are some that are concerned that Putin's nuclear missiles program would indeed spark a new arms race?

However, what other option do US have other than help Russia dismantling, moreover, secure its nuclear weapons and fissile material? Would the Russians do it themselves and dismantle these weapons of mass destruction? The former Senator Nunn has once argued that if US does not assist Russia then it is analogues to US putting a gun to his own head and shouts "Come one step closer and I'll pull the trigger!" He adds that this mentality is the sort of logic some US Senators have in general.[313] Some note that the critics of the Nunn-Lugar program sometimes see the effort from their own narrow-minded and institutional perspective.[314]

First and foremost, although, in 1994, the DOD has intended to expand the funds of the Nunn-Lugar Program yet the officials of the Program neither were not prepared to establish long-term planning process nor prepared for a multi-year plan.[315] In 1994, planed Nunn-Lugar aid was not enough to overcome existing challenges and could only reduce but not eliminate certain proliferation risks. Second, there were delays in completing agreements with former Soviet states. There were also complications due to political sensitivity. For instance, in the case of Ukraine there were delays of nearly a year in signing a strategic nuclear delivery

[313] John M. Shields and William C. Potter (ed.) *Dismantling the Cold War: US and NIS Perspective on the Nunn-Lugar*, (The MIT Press), xviii, 1997.
[314] Duffy, 1997, p.31.
[315] GAO Letter Report, 2.1., 1994.

vehicle agreement with the US. On the other hand, the Russian Parliament delayed to agree on establishing a science center for about 2 years. Moreover, US efforts to help Russia construct a nuclear material storage facility have also been slowed down by local environmental concerns as well as changes in Russian plans and Russian government delays identifying the type of equipment for the facility. Change and transformation did not happen instantly the Nunn-Lugar officials had to persuade the recipient states.

In 1995, GAO found that the Nunn-Lugar Program assistance has been limited due to lack of storage facilities. Moreover, the Program needs to overcome various challenges and problems like lack of agreement over disposal methods.[316] Furthermore, Russian chemical weapons destruction had been hampered by numerous delays. Much of the experts were not being paid regularly because of continued deterioration of the Russian and NIS economies. The US, European Community (European Union), Japan, and Russia agreed to establish the Moscow Center to provide civil nuclear jobs to weapons scientists and engineers. Yet, GAO also alleged in 1995 that Nunn-Lugar money has been used by individuals and institutions working to create new weapons of mass destruction. For instance, the US has committed $46 million to the International Science and Technology Center in Moscow. The ISTC is aimed to employ scientists and engineers, formerly working on weapons projects, in peaceful pursuits. GAO reported that some of these scientists and engineers are continuing their weapons-related activities, working for the center only part of the time. The GAO report declared its concern that "if this proves true, the money will have been used to subsidize the salaries of those working to develop

[316] GAO Letters Report, 1995.

new WMD."[317] For further information and data see Appendix for Funding for the Nunn-Lugar Cooperative Threat Reduction Program (Fiscal Year 1992-1995).

In 1996, the slow pace of the government-to government program in Russia was a result of difficulties in negotiating agreements with Minatom to obtain access to sites, these sites had direct use material and were naturally considered to be a sensitive issue for the Russians. It took time for the Russians to gain trust in US government. Confidence-building measures progressed slowly, but in the end some improvement was made. The second obstacle was because Minatom did not recognize the role of Gosatomnadzor (GAN), which is the head of the Russian Nuclear Regulation Agency, as a regulatory entity.

GAO Letter Report, in 1996, also found that DOD still did not plan Russian nuclear weapons storage and chemical weapons destruction facilities. However, propriety was given to nuclear weapons storage facility because DOD officials considered chemical weapons to be less urgent. On the other hand, foreign aid for chemical weapons conversion was very limited. Aid was provided by only Germany, the Netherlands, Sweden and the US did not live up to Russian's stated requirements. Only a pilot facility was provided at this stage. This was considered to help "jump start" the slow moving effort to destroy Russia's chemical stockpiles.[318]

GAO also pointed out to some failures in attempts of conversion projects. One of the five projects and three of them faced major obstacles before they became commercially successful. However, the DOD officials told that these obstacles were no different from those they faced earlier in Russia, therefore in 1997 the future of these ventures were not certain. In Ukraine there were delays due to Ukrainian

[317] GAO Letters Report, 1995.
[318] GAO Letters Report, 6.3, 1995.

government bureaucracy. However, although there were obstacles two of the housing projects were completed. In Kazakhstan there were also challenges to the projects that needed to be addressed. It was hard to reach agreements with the Kazak government and bureaucratic obstacles were also hampering the success of the projects. One of the projects have started production however the rest of the three projects were facing major obstacles and needed licensing to pursue a telecommunication business there. In Belarusian the situation was no different. There was lack of understanding between the Belarusian and US governments. This poor political and economic situation led to some delays in running these projects.[319]

In GAO Letter Report that was written in 1998 there were some evidence that now Nunn-Lugar activities focused plutonium disposition programs. Now the DOE was making long-term plans that covered the next 25 years. Achieving mutual reduction in US and Russia was a challenge. Russia had, twice as large plutonium compared to the US plutonium stockpiles. There were uncertainties about the implementation of US-Russian plutonium disposition efforts.[320]

In 1999, the GAO issued a report that reviewed and criticized DOE's Initiatives for Proliferation Prevention (IPP) program that sought to provide alternative employment for the Russian nuclear scientists. The report noted that "Russian institutes had received only around one-third of the funds allocated to IPP projects and those taxes, fees, and other charges had further reduced the amount of money available to Russian scientists." [321] The report also mentioned that it questioned: DOE's oversight of the programs' that Nunn-Lugar Program officials seem not always to know how many scientists are receiving funds through the IPP

[319] GAO Letter Report, GAO/NSIAD-97-101, 4.2, 4.3, 4.4, 4.5, 1997.
[320] GAO Letter Report, GAO/RCED-98-46, 1998.
[321] See US General Accounting Office,1999.

program. Nuclear Nonproliferation: Concerns with DOE's Efforts to Reduce the Risks Posed by Russia's Unemployed Weapons Scientists.

According to the GAO Report, in 2005 DOD failures cost nearly $200 million the Nunn-Lugar Program. On the other hand, in 2006, GAO reported that DOD needs more reliable data to better access the costs and schedules of the programs. For instance, in the case of chemical weapons destruction facility Shchuch'ye Facility the delays were pointed out to be costing DOD millions per month. However, DOD had little to do when in 2005 bankruptcy of the Russian construction subcontractors delayed construction of the buildings.

5.3.2. Russian Side of the Argument: Problem Areas

Russian's argued, in the early stages of the Program that despite Nunn-Lugar Program's accomplishments there were also problems in management and implementation of the Nunn-Lugar assistance.[322] First, slow pace of implementations of projects by both top-decision makers and contractors on the ground was a problem. Second, the Russians complaint about the lack of US management flexibility while implementing these projects. They argued that US accounting procedures, work plans and schedules on NIS participants as well as on Russians were too rigid. Third, the Russians complaint about high level of bureaucracy on the US side while implementing these projects. Fourth, they could not understand the need for large amount of "consultants" whom they thought consumed Nunn-Lugar

[322] Shield and Potter, 1997, p.389.

resources by contributing little to the program itself. Last but not least, they complained about the US supplied equipments that were supplied at high costs.[323]

Later, Russians also noted that there was lack of compromise on one of the most important issue namely the construction of storage facilities for the nuclear material from the dismantled weapons. The US agencies have not shared the same view for some time because they could not confirm that such a shortage existed. The Russians noted that dismantlement delays would be caused because of US government if it fails to support new storage facility needs.

The Russian side also criticized the US that "the US has required contracting for Nunn-Lugar assistance to be with US firms."[324] However, she argues that by law US is required to operate by the principles of 'free and fair competition', which means that any company whether it is domestic or foreign, is free to bid on a contract. In addition, she adds that in Fiscal Year (FY) 1996 and 1997 US Congress has encouraged purchase of equipment from NIS and Russia.

There is also criticism from the NIS that the pace of the projects has been slow but in only one year equipment was procured and shipped and put to use in these countries. There were some delays in implementing some projects, but that seems normal because Russia and United States was leaning to work with each other. Confidence building takes time and some delays were a natural part of this process. The Defense industries (MDI) in Russia expressed positive attitude stating that the Nunn-Lugar Program has been practical, positive collaborator with the US.

There are other Russian experts that are not so positive about the US-Russian joint efforts. In June 2007, when I interviewed Executive Director of PIR Center Anton

[323] Shield and Potter, 1997, p.390.
[324] Duffy, 1997, p. 32.

Khlopkov, he stated that "working with Germans, Canadians and Norwegians was much easier compared to working with American experts because the Americans were arrogant and were belittling Russian efforts."[325]

Moreover, in the Center of Excellence Defense Against Terrorism meeting in Ankara, Turkey on the 11th of April 2008, a Russian expert working for SIPRI in Sweden, Vitaly Fedchenko told me that "working with Swedes was much productive than working with Americans, although the funds that Swedes gave Russia was a very small amount compared with the Americans."[326] He added that the Americans were also wasting most of the Nunn-Lugar funds by paying big amounts of money to American experts and paying their luxurious hotel expenses.

Sometimes agencies that express greatest concern and discontent were agencies such as Ministry of Atomic Agency (Minatom), which was abolished and Federal Atomic Energy Agency (Rosatom) was reorganized in May 20, 2004 because it was not an efficient agency that was able to address new challenges of the country. Minatom's administrative reform place was changed and it was subordinated directly to the prime minister.[327] Those that had "broadest and deepest working relationship" with US seemed to be quite satisfied by Nunn-Lugar Program's efforts.[328]

However, all these explanations about the situation at hand are not to criticize the raised concerns about the program however, it is intended to have an overview of the efforts. In addition, to keep a sense of perspective about how complex this working relationship was with the Russians for the US experts and vice versa. This was an unusual experience for both parties who had been adversaries for decades. It

[325] Interview, Anton Khlopkov, 2007, Moscow.
[326] Interview, Vitaly Fedchenko, 2008, Ankara.
[327] Orlov, 2006, pp.28-32.
[328] Duffy, 1996, p. 34.

was not easy to communicate and solve the differences and this process took time and lots of effort. There was not only cultural differences' but also the mind-set of the experts was also quite different. The way they approached a problem and handled the situation was not the same and this created some problems. It was naturally challenging for both parties to work together in such a sensitive issue, such as nonproliferation. Those who worked to build the weapons to win the arms race now had to dismantle Cold War legacy.

5.4. The Nunn-Lugar Security Regime: Lessons Learnt

We need to keep in mind that problems emerge in any novel venture and the most important thing is to confront these challenges and this requires immediate action. This chapter concludes by considering how lessons learned from Nunn-Lugar program may help guide future nonproliferation efforts. What kind of lessons may be drawn from the Nunn-Lugar efforts, so that this approach may be utilized in other countries such as North Korea and Pakistan? First, could positive aspects of Nunn-Lugar approach be utilized in these two countries? Second, could such programs serve broader objectives of nonproliferation policy? These questions will be answered in the next chapter.

This chapter will draw some lessons from the past experience of the Nunn-Lugar efforts and then move on to the next question and elaborate whether it is possible or worth wile to encourage the development of Nunn-Lugar efforts beyond the borders of the NIS and Russia?

First and foremost, an important lesson from the Nunn-Lugar assistance may be the need for a conversion of interests and objectives between US and recipient countries. Good communication is essential in making cooperation and collaboration work between US and NIS countries more effective. The willingness of the US and NIS and Russia to work together and try to find common ground has provided a ground for the continuation of the Nunn-Lugar Program. Finding the balance of common interest was hard at times but US has addressed the social, economic and environmental concerns of the recipient countries and provided incentives so that the dismantlement and denuclearization could be a reality.

Second, lesson learned was shared and active involvement of all parties. The most successful projects were those in which the US and the recipient countries was one of the partners. These projects were not a donor and recipient relationship however, a partnership that made these projects possible and successful. To rely heavily on NIS contractors and personnel to provide manpower, equipment and material for demilitarization and nonproliferation proved to be more cost-effective as well as more successful. However, it took time for the US to understand this and in the early stages of the program US personnel and equipment was utilized. Yet, this challenged the cooperative assistance activities immensely since it had get funds each year from the US government and made the Program "tough to sell."[329] There was lot of skepticism in the Congress and there were many who opposed the Nunn-Lugar Program in the US.

Third, reduced bureaucracy on the US side was a need in implementing these projects. This excessive level of bureaucracy on the US side delayed many projects particularly those which were government-to-government MPC&A projects. US

[329] Potter and Shields, 1997, p.386.

partners at Minatom, the Federal Atomic Inspectorate (GAN) and other Russian agencies had problems with US auditing and reporting requirements. Some delays resulted from implementing projects could have been avoided given the complexity of the new program. United States and Russian experts needed time to get used to working together and understanding each other. On the other hand, the laboratory-to-laboratory program has indeed demonstrated that it was possible to implement MPC&A projects on time. This bottom-up approach showed that this model may be applied more widely.

Fourth, lesson learned from this Nunn-Lugar experience was cost control and cost sharing. There was a need to attract new capital both from private business and from other national governments. Thus, in the early years there was lack of combined financial resources. Yet, this problem was solved by turning to other willing and able donor countries and finally Global Partnership was established in 2002. When US needed some backing, it managed to persuade other industrialized countries the nonproliferation of WMD was also in their interest. So, first the G-8 industrialized countries and later the other countries followed suit in US nonproliferation efforts.

On the other hand, according to Gottemoeller, the Nunn-Lugar Program has three major efforts. The US experts have learned how to deal with the obstacles and accomplish its objectives in Russia and the NIS. These efforts have been improved greatly.

i) The Nunn-Lugar program has encompassed three areas of effort:

1. destruction and dismantlement;
2. chain of custody;
3. and demilitarization

ii) Destruction and dismantlement activities include

1. removing warheads,
2. deactivating missile and
3. eliminating launch facilities for strategic weapons under the START I agreement

Nunn-Lugar efforts came into being to improve:

1. safety
2. security
3. control over nuclear weapons and fissile material

iii) Demilitarization projects have included:

1. defense conversion projects and
2. International Science and Technology Center projects to help WMD scientists pursue work with peaceful objectives and military-to-military contracts

Nunn-Lugar has evolved and expanded in almost two decades. Adjustments were made and the Program has also bowed to bureaucratic intransigence. The Program also made quick fixes, which was a pragmatic approach that was adopted by US Nunn-Lugar experts. For instance, the Department of Energy provided blankets of facility because they discovered that the facility guards were leaving the nuclear facility to collect woods to build fires. Moreover, as economy worsened in mid-1990s Nunn-Lugar projects were developed in order to provide employment and sources of income for unpaid or out of work scientists.

Some argue that Nunn-Lugar has not done enough quickly, for instance could not make long-term plans as quickly. However, we should not forget that Russia and the NIS was an undiscovered land for US, so planning and calculating the appropriate costs for each project was not that easy for the DOD officials and Nunn-Lugar experts. On the other hand, those that argue that Nunn-Lugar has not done enough have claimed that the programs have focused on nuclear weapons rather than nuclear material security misguidedly, whereas the greatest threat lies in nuclear material. The "loose nukes" were considered to be a threat when Soviet Union disintegrated however, the Nunn-Lugar experts learned from their mistakes quickly and when reports of theft came to them of nuclear material the Nunn-Lugar officials decided to allocate resources to, material protection, control as well as accounting as well. The Nunn-Lugar experts learned to develop a practical approach to make "quick fixes" like bars on windows, blast proof doors, fences followed by more sophisticated security measures such as sensors, cameras, and personnel access measures.

CHAPTER VI

APPLICABILITY OF THE NUNN-LUGAR TOOLS

6.1. Nunn-Lugar Approach and Tools: Is it Applicable in the North Korean and Pakistani Cases

The previous chapter, both in interviews conducted by US experts and academics working on nuclear non-proliferation and in books and articles written on these issues, illustrated that many US experts have claimed that the Nunn-Lugar approach could be a good example for other nuclear countries and may be applied elsewhere in the world. In line with this argument the Foreign Affairs, in 2002, published Senator Lugar's article on how Nunn-Lugar tools could be applied to other countries. He explained that precise replications of the Nunn-Lugar program would not be possible in every country. Nevertheless, the experience of Nunn-Lugar in Russia and the NIS has demonstrated that it is possible to cooperate in matters as sensitive as nuclear weapons based on mutual interest.[330] He also acknowledged that in different countries there may of course be differences from the former Soviet Union that may limit the applicability of the program.

[330] Lugar, 2002, p.4.

One needs to bear in mind that, one major reason why Nunn-Lugar approach was successful in Russia was because there was a basic level of agreement about the threat and a willingness to cooperate. Russia had already agreed to strategic nuclear reductions under START I and the only question was how to implement these reductions as quickly as possible and who would pay for them. Both parties did indeed put money and effort in accomplishing set goals. They worked hand in hand in not only in government-to-government, but also in scientist-to-scientist, laboratory-to-laboratory projects. This chapter will analyze if it is really possible to overcome obstacles and apply such a new approach to North Korea and Pakistan in order to rollback proliferation of nuclear weapons.

6.1.1. Brief History: US & North Korean Negotiations

6.1.1.1. Agreed Framework: The North Korean Nuclear Program

In 1952, North Korea started working on its nuclear program with the establishment of the Atomic Energy Research Institute and the Academy of Sciences.[331] Later in 1956, the North Koreans signed cooperative nuclear agreements with the Soviet Union.[332] This agreement allowed them to send scientists and teachers to the USSR for training.[333] In the early 1960s, the Soviet Union provided a variety of technical assistance such as a Soviet IRT-2000 Nuclear Research Reactor. In this manner, North Korea constructed the Yongbyon Nuclear Research Center, which became

[331] Jasper Becker, *Rogue Regime: Kim Jong Il and the Looming Threat of North Korea*, (Oxford University Press), 2006, p.179.
[332] Kyoung-Soo Kim, *North Korea's Weapons of Mass Destruction*, (Californian University Press), 2004, p.249.
[333] Wit, Poneman and Gallucci, 2004, p. 474.

fully operational in 1967. By 1974, North Korea managed to independently expand the IRT-2000 reactor without getting any outside assistance.[334]

The North Koreans not only built a 5 MW (e) graphite-moderated natural uranium reactor, but also produced a plant for the chemical extraction of plutonium. The uranium reactor was operational, in 1989. The plant for the chemical extraction of plutonium from spent fuel rods is also said to be situated near Yongbyon. North Korea had begun constructing on a 50 MW (e) nuclear power reactor at the Yongbyon Nuclear Complex, which was under cover a facility for the production of electricity, by the mid-1980s.

Nevertheless, North Korea finally was a part of the NPT however it refused to be part of the IAEA until 1992. The country also accepted the US-DPRK Agreed Framework, in 1994, and it agreed to freeze its nuclear program as well as halt the construction of 200-MW (e) power reactor at Taechon and the 50 MW (e) nuclear power plant. In return, the US agreed to give incentives (Johnson, 2007, p.103). One of the incentives was to construct two light water power reactors and the other incentive was to provide 500,000 tons of heavy fuel oil per year until the first reactor came online with a target date of 2003.[335]

However, this agreement did not last long, when intelligence revealed that North Korea had begun to acquire a uranium enrichment capacity. With that discovery, the Agreed Framework quickly fell apart**.** Moreover**,** on 10 January 2003, North Korea notified the IAEA officials that it was withdrawing from the NPT. Furthermore, it announced that it would restart its nuclear reactors. Tensions increased after a North Korean diplomat reportedly stated that North Korea

[334] James Clay Moltz and Alexandre Y. Mansourov, *The North Korean nuclear program: security, strategy, and new perspectives from Russia*, (New York: Routledge), 2000, p.474.
[335]Vinod K. Aggarwal and Min Gyo Koo (et al), *New Institutional Architecture: Evolving Structures for Managing Trade, Financial and Security Relations*, (Springer), 2008, p.321.

possessed nuclear weapons on 23 April 2003 at a round table discussion in Beijing. It is said that North Korea probably has fabricated two to three nuclear devices according to some estimates this number was even higher and as high as 6 to 8. Yet, it is not known where the weapons fabrication center is located or where they are stored.[336]

The Clinton Administration had engaged a traditional approach, while negotiating the Agreed Framework with the North Koreans. This traditional approach was a diplomatic approach based on coercive diplomacy. However, this approach failed and there seemed to be a need for a better approach in order to roll back nuclear proliferation.[337]

According to Joseph Cerami, the reason why the North Korea Agreed Framework did not succeed was due to its top-down policy leadership. President Clinton, Secretary of Defense Perry, Secretary of State Christopher Hill and other high-level executives were only engaged in developing the Administration's policy but also overseeing the bilateral US-North Korean negotiations.[338]

United Nation's (UN), International Atomic Energy Agency (IAEA) and the US government, especially the intelligence agencies were involved in the process of monitoring and verifying the data. Yet, there was lack of internalized principles, norms rules and decision-making mechanisms such as institutional and organizational that was also involved in the process. The Agreed Framework, in this

[336]Goodby, J. E., Burghart D. L, Cheryl C. A., Loeb, A., and Thornton C. L., Cooperative Threat Reduction for a New Era, Center for Technology and National Security Policy, National Defense University, 2004, p.44.
[337] Robert J. Art, Patrick M. Cronin, *The United States and the Coercive Diplomacy*, US Institute of Peace Research, 2005, p. 196.
[338] Cerami J. R., *From the Six-Party Talks to a Northeast Asian Security Regime: CTR Strategies and Institutional Development*, The Bush School of Government and Public Service, Texas A&M University, 2005, p.26.

regard, could not achieve lasting effects in accordance with the US objective of rolling back nuclear proliferation in North Korea.[339]

Compared with the Nunn-Lugar approach the Agreed Framework was bound to fail since not the same policy was adopted during the negotiation process. Hence, the Nunn-Lugar outcomes are considered to be more successful than the Agreed Framework experience.[340] First and foremost, the Nunn-Lugar programs were led more directly by the secretary of defense, along with DOD staff and later DOE staff joined in as well, and they were also influenced by other organized stakeholders, including the Congress and regional players. They "all suggested additional insight into the components of effective counter-proliferation policymaking."[341] Thus, in line with this argument we suggest that the Nunn-Lugar approach succeeded due to a bottom-up as well as a top-down policy.

For instance, Cerami stated that after the Cold War "the executive and legislative branch leadership efforts were designated to address the critical proliferation threats of 'loose nukes',"[342] when the Soviet Union was disintegrated. In addition, there were supporting decision making mechanisms and institutional structures that may have accounted for the success of Nunn-Lugar programs in comparison with the Agreed Framework. North Korean Agreed Framework relied only on the International Atomic Agency (IAEA) for not only monitoring, but also verifying and enforcement.[343]

The resulting collapse of the North Korea international monitoring provides once again a contrast to the relatively more effective monitoring mechanisms of

[339] Ibid, p.27.
[340] Ibid, p.28.
[341] Ibid.
[342] Ibid, p.28.
[343] Cohen ; Hopkins and Puchala, in Krasner, *Power, the state and sovereignty: essays on international relations*, 2000, p. 11.

Nunn-Lugar programs that included host agencies, like MINATOM that is now restructured and named as ROSATOM. (Russian Federal Atomic Energy Agency) Those host agencies were also engaged directly in monitoring and enforcement activities. The evidence suggests the significance of host country involvement in actively, supporting monitoring, verifying or enforcing during the negotiation process and the aftermath of the negotiations. In sum, we may argue that joint projects and joint effort leads to success while coercive diplomacy leads to failure.

6.1.1.2. The Six Party Talks: The North Korean Nuclear Program

During the Bush administration North Korea participated in ongoing six-party negotiations with China, Japan, South Korea, Russia and US that were aimed to dismantling its nuclear weapons program. North Korea used its nuclear weapons program as a bargaining chip. North Korea has stated that it would expect to receive incentives, some kind of a "reward" for taking the preliminary steps towards such a "nuclear freeze." US indeed did offer incentives during negotiations in June 2004. Energy and security guarantees were promised if North Korea dismantled the nuclear weapons program.[344]

Thus, North Korea promised to freeze its nuclear facility at Yongbyon in exchange for energy/ fuel aid. In addition, North Korea wanted to be removed from the US list of states sponsors of terrorism so that economic sanctions would come to an end. National Security Advisor Condoleezza Rice stated that North Korea may

[344] Cerami J. R., *From the Six-Party Talks to a Northeast Asian Security Regime: CTR Strategies and Institutional Development*, The Bush School of Government and Public Service, Texas A&M University, 2005, p.31.

also reap "surprise" rewards if it dismantled its nuclear weapons program, in early July 2004. These continued negotiations, however, have not resulted in any agreement between North Korea and the US, back in 2004.[345]

North Korea not only has nuclear device or devices, but also is major producer of ballistic missiles, based on Soviet "Scud" technology. It has facilities for producing and testing of the 1,000 km-range No Dong missile, which are located at Hwaedoe-Gun. It is reported that the long-range Taepo Dong missile is fabricated there as well. In addition, North Korea is working on Taepo Dong II missile with a range capable of striking the continental US. That is why it is considered to be a threat to the US as well as world's peace and security.[346]

Nuclear weapons research centers are located in and around Yongbyon and in Pyongyang. There are probably several hundred professional level scientists and engineers that are associated with the fissile material production centers and also with ballistic missile research development and production according to reports. These professional scientists and engineers are considered a threat to nuclear proliferation because these professionals may always share know-how with the other countries and terrorist organizations that may want to gain access to such knowledge and may be willing to pay millions of dollars to attain this knowledge.[347]

[345] Ibid, p. 33.
[346] Ibid, pp.35-38.
[347] Cerami, pp. 38-40.

6.1.1.3. Six Party Talks Renewed: The North Korean Nuclear Program

The conflict of nuclear weapons program in North Korea had long lingered on but no agreement could be reached up to this date. George Bush once again offered North Korea an opportunity to make a peace deal in 7th of September 2007.[348] The combined pressure in the end brought North Korea's leader Pyongyang back to the negotiation table. In 13 February, 2007 the so-called six party talks began once again. The same regional players were at the negotiation table to conclude an agreement so that the nuclear weapons' program would come to an end and nuclear disarmament in North Korea would finally begin. Jonathan Watts and Justin McCurry wrote in the Guardian in 8th September, 2007 that "the unusually cordial diplomatic relations between Washington and Pyongyang has raised hopes for a peace deal to their highest level in decades."[349]

The North Koreans after a few hours after signing the agreement, Korean negotiators announced that they would begin implementing them after the US lifted the sanctions against Banco di Macao. After four months US announced that an agreement was finally reached with North Korea and it would unfreeze the $25 dollars if Pyongyang began to shut down Yongbyon plutonium production reactor. However, this time the banks refused to unfreeze the money even though government-to-government agreement was signed. They feared that they would suffer further sanctions under the Patriot Act. Another two months passed but in the end the Russians played a significant role to end the deadlock. Russia, in fact, was an economic partner with North Korea but this time round it was willing to play a risk-

[348] Watts J., McCurry J., "Bush Offers North Korea a Deal to End the World's Oldest Cold War," *The Guardian*, 7 September, 2007.
[349] Ibid.

taking partner wrote, director of the Carnegie Endowment for Peace in Moscow, Rose Gottemoeller in her article entitled "The Evolution of Sanctions in Theory and Practice."[350] According to the Blooming News Agency, on June 14th 2008, the New York Fed wired the North Korean money to the Russian central bank that then transferred it to a North Korean account in a Russian bank.

North Korea slowed down nuclear disarmament to so-called a "snail's pace" since it had received only part of the promised energy aid, according to Edward Cody who wrote in the Washington Post. However, some like David Albright and Jacqueline Shire, called this negotiation process to be 'slowly but surely' proceeding in the article they wrote together for The Washington Post in January 2008. They argued that the North Korean's were taking incremental steps in return for corresponding US incentives. On the same day Michael Heath wrote in Bloomberg that US would designate North Korea as a state sponsor of terrorism until it fully declares its nuclear weapons.

In 12th of March this year, US Assistant Secretary of State, Christopher Hill announced the Associate Press, that the talks with go nowhere unless the North Korean's provided the negotiators a complete list.[351] The sanctions continued to press North Korea to declare its nuclear weapons, in March 16th 2008, the Foreign Minister Masahiko Komura declared that Japan would continue sanction imposed on North Korea although he indicated that Japan would not expand them further. China and South Korea also went on imposing sanctions to North Korea. In a way North Korea was economically encircled by all these sanctions imposed to Pyongyang's policies. In March 17th 2008 this year Donald Kirk wrote an interesting article in the

[350] Gottemoeller, R., *"The Evolution of Sanctions in Theory and Practice", Survival,* 2007, http://www.carnegie.ru/en/pubs/media/77220.htm
[351] Klug, F., "US Envoy Calls for North Korea Nuclear List," *Associated Press, 22 January 2008.*

Christian Science Monitor, that "separate agreements one open and the other secret may be critical to bring the US and North Korea to term on the disclosure of the North's nuclear program."[352]

The same month Christopher Hill made another announcement reported in Agency France-Presse, that negotiations were at a point that US needed to make progress soon to move on to the second phase. He was still willing to keep up the diplomatic pressure. Arshad Mohammed wrote in Reuters that US Assistant Secretary of State, Hill still had hope that North Korea may eventually give up all nuclear weapons and programs and he emphasized the benefits the Koreans would get out of this disarmament process.[353]

In early April, as reported in the Yonhap News, the US State Department announced that it was still waiting for the declaration list of nuclear weapons and reiterated once again that the North Korean denuclearization deal needed further progress and that US is willing and ready to fulfill its obligations too. In mid April 2008, Demetri Sevastopulo wrote in Financial Times, that the North Koreans no longer had to provide the complete declaration of its nuclear activities. This tentative deal eased the tensions a bit. The obstacles were reduced in order to get the negotiation process moving. This new mechanism was said to verify North Korea's nuclear program reported the Agency France-Presse in April 16th of 2008. North Korea announced at last how much plutonium they produced to US and it was reported, in Reuters, that this number was declared to be as around 30 kg. A Japanese newspaper reported that this was 20 kg less than US estimates.

[352] Kirk, D., "High Level Talks Keep North Korea Nuclear Deal Alive," *The Christian Science Monitor*, 17 March 2008.
[353] Mohammed, A., "Coming Weeks Key on North Korea Nuclear Declaration," *Reuters*, 10 September 2008.

In May, Nicholas Kralev wrote in The Washington Times, that there were still discussions on whether US was lowering the bar for North Korea. Yet, Siegfried Hecker and William Perry replied to this critic quite harshly in The Washington Post and repeated their mantra: "It's the plutonium, stupid."[354] Siegfried Hecker of Stanford University had gone to visit the Yongbyon nuclear facilities with Senator Lugar this February. Senator Lugar held some talks with the North Korean officials on applying the Nunn-Lugar tools and approach in North Korea**. "**The application of the Nunn-Lugar has been widely discussed among the involved parties", wrote Lee Joo-hee in The Korean Herald on February 4th 2008.[355]

However, the North Korean's are not considered a reliable partner because of their past evidence. When I had a discussion with Guy B. Roberts who is the Deputy Assistant Secretary General for Weapons of Mass Destruction Policy North Atlantic Treaty Organization after a CIE-DAT conference, in April 2008 last year, I realized how American officials perceived North Korea and after years of negotiations they had lost hope in North Korean foreign policy endeavors.[356] Guy Roberts had both experience in North Korean talks and the Russian Nunn-Lugar negotiations and he was not optimistic about the applicability of Nunn-Lugar tools in North Korea country since he did not trust the North Korean officials anymore. He told me not to count on them since they had cheated many times before.

Another feedback I got from an expert Charles Ferguson, who is a senior fellow in the Council on Foreign Relations in the US, last year in July 2008, he also confirmed that there was indeed lack of confidence on North Korean policies on the

[354] Kralev, N., "North Korea to Give Nuke Files to US," *The Washington Times,* May 2008.
[355] Joo-hee, *The Korean Herald*, 4 February 2008.
[356] Interview, Guy Roberts, Ankara, April 2008.

American side.[357] He had been part of the talks with North Korea and had experienced the same disappointment while negotiating with the Korean officials. Yet, he said he was an optimistic and believed that somehow the negotiations would succeed and then it might be possible to apply the past experiences gained from the Nunn-Lugar approach in North Korea too.

The negotiations were going on well and North Korea has destroyed the 'cooling tower' to show North Korea's sincerity. This act had a "symbolic meaning to giving impetus to the denuclearization process" as reported by the Yonhap News. Condoleezza Rice replied to the critics who thought the Bush administration's North Korean strategy for '…letting Pyongyang off the hook' in The Wall Street Journal. She stated that Korea was now disabling its plutonium production facility at Yongbyon and not freezing it as was in the previous cases in the past. She also added that the North Korean's have turned over 19, 000 pages of production records from its Yongbyon reactor as well as other associated facilities.[358]

US promised not only energy assistance but also economic assistance in return for its efforts on denuclearization process. It would have gotten, moreover, Nunn-Lugar funds if it went on disabling its nuclear reactor. However, North Korea needed to be removed from the state sponsored list in order to be legible to get the Nunn-Lugar assistance. North Korea was on the State Department sponsor-of-terrorism list, as known by many who follow the North Korean case closely, and is therefore currently illegible for Nunn-Lugar aid**.**

Therefore, the US made the necessary effort to remove North Korea from this list. The New York Times wrote on 13th of October last year that the Bush

[357] Interview, Charles Ferguson, Ankara, July 2008.
[358] *The Wall Street Journal*, "Condoleezza Rice: Interview with the Wall Street Journal," 17 April 2008, p. A-15.

administration announced that it had removed North Korea from a list of state sponsors of terrorism. But, North Korean officials were still not satisfied.

The negotiations stalled because North Korea did not like the idea that the scope of the program would try to verify North Korea's nuclear activities and holdings. Thus, the negotiations stalled much before the rocket launch in 5th of April, 2009.

Had the six-party talks succeed than there would be a need to be addressed for North Korean disarmament? First, North Korea needs to freeze all plutonium and uranium production. Second, it needs to dismantle all facilities relevant to the manufacturing and production of nuclear weapons. Third, it needs to eliminate any nuclear weapons. Fourth, it has to dismantle or convert all ballistic missiles production facilities. Fifth, it has to eliminating ballistic missiles. Last but not least, it needs to prevent illicit export or transfer of fissile material, nuclear weapons, weapons relevant technology, and the means of delivery.[359] All these efforts will need lots of funds to make them a reality. At this point the North Korean's can make use of the Nunn-Lugar funds.

6.1.2. Applying Nunn-Lugar Tools: Case of North Korea

6.1.2.1. American Perspective: Applicability of the Nunn-Lugar Tools?

There are some American strategist argue that there is a need for a new approach and the Nunn-Lugar approach may be the strategy. Naturally, there is also opposition to

[359] Goodby, 2004, p. 58.

this view there are those who think that the defense funds could be used for other projects that could serve US far better. However, these groups of strategists have not come up with a better alternative so far. They have tried to carry out negotiations with traditional methods and failed. The latest efforts in North Korea have shown that the US government has to think a better way to approach the North Korean case. The high level talks have failed since the North Koreans do not trust the negotiators. Charles Thornton has argued that 'it may be possible to define a Nunn-Lugar model for international security cooperation that generalizes the existing program's concepts and lessons learned."[360]

In addition, James E. Goodby, Daniel L. Burghart, Cheryl A. Loeb, and Charles L. Thornton, of US National Defense University have written about the possibilities of applying Nunn-Lugar tools in other countries. In their work they have illustrated how Nunn-Lugar experience can be utilized. They have found out that some Nunn-Lugar tools can indeed be applied to other countries too. For instance, they have identified different categories of tools that have been relatively successful in Russia and in the NIS countries and applied it to other countries. The US government officials have acknowledged that they lack the 'appropriate tools' to address these threats.[361] Can it be "a new strategies and the continuing utility of the traditional tools available to counter the threats our nation faces" as Senator Lugar claims?

Moreover, after Congress bumped up the budgets for a number of nonproliferation programs for countries in the former Soviet Union in its 2008 appropriations bills Senator Lugar suggested that "Congress should augment this shift by granting the executive branch greater flexibility to allocate money quickly to

[360] Goodby, 2006, p. 47.
[361] *Congressional Record:* March 18, 2002 (Senate) Page S2009-S2014.

address short-term needs, such as the planned dismantlement of North Korea's nuclear facilities."[362]

6.1.2.2. The North Korean Perspective: Applicability of the Nunn-Lugar Tools?

What do the North Koreans think about the Nunn-Lugar approach? Of course because North Korea is a closed society it is hard to know what they really have in mind. It is still not possible to make research there and interview experts and professors. Yet, the official view seems to be quite positive. The officials have accepted some US experts to visit the Yongbyon facility. Hecker was one of the professors who had a chance to visit and discuss these issues with North Korean experts. Moreover, Senator Lugar and his experts were also there in February this year. They also had a chance to talk about the applicability of the Nunn-Lugar approach in the North Korean case and they got positive feedback. In conclusion, we can say that the North Koreans had no opposition to get the Nunn-Lugar funds that were offered by them during Senator Lugar's visit to North Korea in February 2008.

[362] Arnaudo, D., "Bush Requests Less for Threat Reduction Program Latest ACA Resources", *Arms Control Today*, March 2008.

6.1.3. The North Korean Case: Which Nunn-Lugar Tools may be Applicable?

There are some that suggest some of the Nunn-Lugar tools may be applicable to the North Korean case too. For instance, the physical conditions of nuclear weapons and fissile material may be improved. On the other hand, accountability of nuclear weapons, fissile material and related material may also be improved using Nunn-Lugar experience. Let us analyze some of the tools that may be applicable in detail to see for ourselves whether it would be possible to apply them as some argue.

6.1.3.1. Improving Physical Control of nuclear weapons and fissile material

Professor James Cotton is a consultant, Foreign Affairs, Defense and Trade Group on 31st of August, 1999. At the moment, the biggest threat posed by North Korea's nuclear activities relates to poor safety standards and lack of technologies to deal with spills and other accidents. The Russian experience may be useful in the North Korean case as well. Nunn-Lugar techniques and approaches can be utilized to improve physical control and secure nuclear warheads and fissile material. Security upgrades that were used in Russia were simple short-term solutions such as bricking over windows, installing monitoring, installing security detectors at doors during the dismantlement process.

On the other hand, IAEA and Nunn-Lugar as well as other partnering organizations and states may provide authorized access, personnel, reliable security

checks, automated inventory control, management systems, and site security enhancements. In addition, all of North Korean scientists and technicians may also engage in exchange of technical information on which security measures need improvement. In Russia the Nunn-Lugar experts have worked together with the Russian experts in order to improve the nuclear weapons and fissile material safety.

6.1.3.2. Improving accountability for nuclear weapons and fissile material

The Russian experience can also be used in procedures to improve accountability of nuclear materials such as the MC&A - material control and accounting systems which have proven to be quite successful in Russia can be employed in other countries such as North Korea as well. This could include, for instance, the use of items by inspection teams to ensure the continued and proper use of these measures. In this sense, computer tracking/accounting systems may improve the accountability of nuclear weapons and fissile material in North Korea as well.

6.1.3.3. Preventing the leakage of technical and unauthorized recipient

In the Russian case Nunn-Lugar experts helped the weapons scientists find gainful employment in civil jobs. Weapons scientists thus had a chance to shift their jobs. This in turn allowed officials to have better intelligence on how information is shared. In this respect, program and information exchange may be developed that will assist experts shift their jobs to civil work. If they are employed in gainful jobs

then they will not be tempted to sell their know-how to other countries or non-state organizations that would like to have access to this information. Also, state and non-state actors may also have the interest of employing these experts to acquire nuclear weapons. If they are provided by satisfactory jobs then this will encourage them not to take risks and transfer their scientific know-how to third parties.

6.1.3.4. Preventing the export of nuclear weapons and fissile material

The second important issue is to ensure that these weapons and fissile material are not diverted to potential proliferating states or non-state actors. In this case the Russian experience can also be utilized to ensure verifiable safeguards and increasing transparency. In this manner, national export controls to prevent illicit smuggling of nuclear weapons, fissile material and components may be developed.

6.1.3.5. Diverting technical and scientific expertise to peaceful purposes or civil use

There are thought to be thousands of nuclear scientist and engineers who have worked in the weapons program since North Korea has a complete nuclear fuel cycle. These scientists and engineers may be trained as in Russia in order to be employed in civil jobs. Scientist-to-scientist and laboratory-to-laboratory exchanges and cooperation agreements may be offered to North Korea, as it was offered to

Russia after the dissolution of the Soviet Union, so that these professionals will be offered new research topics in civilian areas.

6.1.3.6. Supporting alternative power sources

There is another area that could be worth utilizing in the North Korean case. That is construction of both reactors that was started and that were halted when North Korea did not comply with the Agreed framework in 1994. These alternative conventionally fueled power plants may be constructed with Nunn-Lugar funds as well as external support.

6.1.3.7. Assisting conversion of defense industries or weapons laboratories to civil purposes

This tool may be used to convert parts of the North Korean nuclear weapons complex to civil purposes. This tool has been utilized in Russia too although it was not as successful as other Nunn-Lugar tools. However, because North Korean nuclear devises and nuclear material must be either dismantled or stored because under the NPT it is not allowed to possess any nuclear devices the best way to make use of them would be to convert them into civil purposes. In the North Korean case this tool may be more applicable and relatively more successful than it was in Russia.

6.1.3.8. Eliminating means of delivery nuclear weapons

In the case of NIS and Russia the Nunn-Lugar tools were used to dismantle launchers, missiles and bombers, according to the START I and Lisbon Protocol. In the North Korean case, these funds can be utilized to disable, transport, and store not only nuclear delivery vehicles and but also nuclear facilities.

6.1.2.9. Removing nuclear weapons, fissile material for producing weapons-usable fissile material from countries of concern

There was also a need to safeguard nuclear weapons, fissile material as well as related equipment and material in the previous Russian and NIS cases. In the North Korean case the country may also agree to the removal of nuclear weapons, fissile material, related equipment and material that may be capable of producing weapons-usable fissile material to safe and secure storage in North Korea. The relatively successful Russian experience could be very much applicable in the North Korean case too.

6.1.4. Evaluation of the Situation on Ground: The North Korean Case

After all said and done what is the current situation in North Korea at the time being and can the situation improve in the future. In 30th of April this year U.S. Secretary of State Hillary Clinton claimed that it was “implausible, if not impossible” that North Korea would rejoin the six-nation process aimed at dismantling its nuclear

program, according to the Kyodo News (GSN, 2009). So is it the end of the North Korean nuclear talks? Are we now facing a deadlock and will it be impossible to apply the Nunn-Lugar tools anymore?

When the Nunn-Lugar CTR case is studied in the start its success in Russia may lead us to think that it may be applicable in other counties in order to curb proliferation. But, when the situation on ground is analyzed in other countries such as North Korea then we come to the conclusion that the model cannot be applicable elsewhere as it was applied in Russia.

Under these conditions we may argue that this Nunn-Lugar model and security regime creation cannot be generalized and the same approach cannot be utilized elsewhere. However, if we can come up with tools that can be used in order to explain when and how trans-nationalism may work then we can challenge the traditional approaches and come up with a new approach that can explain how new norms can be created and how trans-nationalism can be applied in tough cases such as North Korea.

Why was the Nunn-Lugar security regime not successful in the North Korean case? It was not trans-nationalism that failed in North Korea but it was the way it was executed in the country. What were the elements that were missing in the application of trans-nationalism in North Korea? First and foremost, there were limited resources put into the efforts during the negotiation process. As Russia's Foreign Minister Sergei Lavrov stated, after he went to visit Pyongyang, that nations negotiating with the regime, namely China, Japan, South Korea and the US had not meet their obligations to provide energy assistance and other benefits under the 2007 North Korean de-nuclarization deal. He added in 24th of April that "the most important goal under the circumstances is to put for six party talks and for related

countries to implement their duty faithfully."[363] Secondly, there was no reciprocity meaning all countries involved in the process had limited confidence on the North Koreans because of their past experiences. Thirdly, there was limited dedication because the negotiators did not indeed believe that there would be a negotiation in the end. They were just waiting for the country to dissolve. Fourth, there was lack of trust and most of the six countries did not trust the word of Pyongyang when he said that it was not a test of long range ballistic missiles but they had sent a satellite to space. The US earlier during the Bush administration had accused North Korea of operating a uranium enrichment program while North Korea had also denied that claim. In the end, this discussion led to the breakdown of the 1994 Agreed Framework that was intended to shutter the Asian nation's nuclear operation."[364] All these namely limited resources, confidence, dedication and trust lead to failure.

Which parameters were used in Russia and which parameters were missing in the North Korea case? The problem was that Nunn-Lugar model was tried to be applied as it was in Russia, just like an aspirin. The handicap was the way it was given to the North Korean government. In other words, the way the aspirin was tried to be given was wrong! So we can come to the conclusion that the way and method of giving the aspirin is significant in the process of norm creation and security regime formation.

The process is far more important than the substance itself. There are more important things the idea (message) during the negotiation process. Actors (mediators) involved in the process are more important than the message. Mediators' style and attitude are far more important than the message they are trying to deliver.

[363] *AFP*, "Peering into North Korea," 24 April, 2009.
[364] Alan R., "U.S. and North Korea Sign Pact to End Nuclear Dispute," *New York Times*, May 10, 2009.

How sincere the actors were during the negotiation process? How much they believed in the applicability of the Nunn-Lugar security regime model in North Korea. Negotiators did not trust North Korea. Guy Robert's who was one of the negotiators involved in the 1994 Agreed Framework during the Clinton administration told me that I should not be so optimistic that Nunn-Lugar tools could be applied in North Korea since he did not trust them and he did not believe there would be a deal.

Christoffer Hill led the US side since 2004 in the nuclear talks with North Korea and he was no more optimistic than Guy Roberts. “We're not playing 'trust me',” he said. He added that the deal is structured in such a way that the North Koreans get very little until they have taken concrete steps to fulfill their obligations. For instance they have to shut down their nuclear facilities first in order to get incentives from US and other countries. Then, he said US would give out no more than 50,000 tons of heavy fuel oil, just 5 percent of the total we and our allies agreed to supply. Thus, we may assume that actors that went to North Korea to lead the negotiations were selected badly. Neither did the North Koreans respect nor did they trust these negotiators.

Hence, the actors’ character is much more important than the message itself. We may posit that the messenger is more important than the message. Tools were wrongly selected during the North Korean negotiation process. Old experts with old mentality were not dedicated enough to create change. They did not believe that the negotiation process would succeed in the very beginning.

Important things had changed this time round since China and Russia lots of time working to persuade North Korea to give up its nuclear weapons and related material although past events made many think it was hard to be optimistic and that

the North Koreans will reverse course. After the talks broke, over verification of the regimes atomic activities both China and Russia blocked the effort to issue new UN sanctions.[365]

As Russian Foreign Minister Sergei Lavrov has put forth economic penalties were "not constructive," and added that the nations negotiating with the regime "should concentrate for searching for solutions that could reactivate the tasks."[366] Here as Foreign Minister Lavrov suggests direct diplomacy needs to be done in the spirit of mutual respect. In addition, nations negotiating should be prepared for paralyzing sanctions against North Korea. Carrot and stick approach that was used for long has proved to be unsuccessful. Sticks shown to North Korea or any other country may lead the course of events to end up in failure rather than success. As Lavrov argues that "it would be a mistake to lose what was achieved so far."[367] An academic and expert Siegfried Hecker from Stanford University who has visited the Yongbyon nuclear complex told the press that uranium metal production furnaces were removed from Yongbyon nuclear complex and it can resume to operation in six to eight months.[368]

Moreover, in 27th of April North Korea announced also that it would test another nuclear weapon and additional ballistic missiles unless his country receives an apology from the UN Security Council that they were mistaken.[369] The negotiation process seems to be halted but there is still a chance according to Russian Foreign Minister Lavrov. The negotiators need to be patient and try not to act too emotionally. The process may succeed if Obama administration can select committed

[365] Hecker S. S., Perry W. J., "The Right Path with North Korea," *The Washington Post,"*2008, *p*. A-15.
[366] *GSN*, 27 April 2009.
[367] *AFP*, "Russia Worried about North Korea's nuclear activities," 13 December 2010.
[368] Ibid, *GSN*, 27 April, 2009.
[369] Ibid, *APF*, 13 December, 2010.

experts who are hopeful for change. New ideas are needed for agency driven change, therefore, experts, academics and think-tanks can get together to find a feasible solution. The negotiation process was not easy when Nunn-Lugar Act was going to be passed in the US Senate. It was hard to persuade the US senators of the need for a preventive approach because they were still under the effect of Cold War legacy. The Nunn-Lugar programs in Russia were created by key individuals and agencies. If we recall our knowledge Carnegie Endowment for Peace in Washington, Brookings Institute lead by John Steinbruner, Catherine T. MacArthur Foundation, Center for Science and international Affairs at Harvard's Kennedy School of Government now known as the Belfer Center and Stanford University was in the process right from the beginning even before the Nunn-Lugar Act was passed in the Senate.

In March 1992, Carter and Perry joined senators Nunn and Lugar, Jeff Bingaman, David Hamburg as well as old minded staffers such as Bell, Myers and Combs went on a trip to Russia to look at the problem firsthand. [370]Yet, this window of opportunity could have been missed in Russia as it is missed North Korea if strategic planning was not done adequately by these farsighted scholars and experts at universities and think-tanks.

[370] Potter, Dismantling the Cold War, 1997.

6.2. Nunn-Lugar Approach and Tools: The Pakistani Case

6.2.1 Brief Account: Pakistani Nuclear Weapons Program

This dissertation will, also, briefly recounts Pakistani Nuclear Weapons Program. Pakistan's nuclear power program is not as extensive as India's. Pakistan took the enrichment uranium route to nuclear weapons. It did not base its weapons program on plutonium like India. Zulfigar Ali Bhutto was the one who established Pakistani nuclear program, in 1972, after the country lost the Indo-Bangladesh war of 1971. After India's underground testing of a nuclear device in 1974, Pakistan followed suit and acquired sensitive uranium enrichment technology and expertise in the late 1970s.[371]

Dr. Abdul Qadeer Khan, known as A.Q.Khan, a German-trained metallurgist assisted Pakistani government in building its nuclear program. He had reportedly stolen blueprints for uranium enrichment technology from the Netherlands. So he had the knowledge of gas centrifuge technology. Pakistan employed an extensive clandestine smuggling network in order to obtain the material and key technology required for uranium enrichment capabilities, under Dr. Khan's direction.[372]

Pakistan had developed a uranium enrichment facility, by the mid-1980s. In the Khan Research Laboratory there is an ultracentrifuge facility is located. In this facility weapons grade uranium is fabricated into weapons. Pakistan's entire inventory of such reactors, are composed of first, a heavy water, second, natural

[371] Federation of American Scientists, 2004; see also Goodby, Burghart, Loeb and Thornton, 2004, p. 29.
[372] Cirincione, 2002; see also Goodby, Burghart, Loeb& Thornton, 2004, p. 29.

uranium power reactor and third, two light water LEU power (plant) reactors. Pakistan has also got several centers for uranium processing including, mining, milling and conversion into uranium fluoride. In addition, there are two other facilities for production of heavy water.[373]

Pakistan's ballistic missile program is also a well-developed. Therefore, it is significant to go through these details to understand the full military capacity of the country. Pakistan got assistance from China and North Korea and is considered to be superior to India's missile program. The first types of missiles are the Ghauri missile, which is based on North Korea's No-Dong liquid fueled missile. It has a 1,300km range and may carry a payload of 850 kg. The second type of missiles are the Shaheen I missile, based on Chinese technology is a solid-fueled, 750 km range missile, perhaps of a 500kg payload. All of these missiles are targeting the long rival and can reach important targets in India while carrying nuclear weapons.[374]

Pakistani government decided to acquire nuclear weapons because they felt the need to compete with India. In 1998, in response to nuclear weapons tests by India, Pakistan announced that it had successfully conducted 5 nuclear tests. Pakistan also declared that it was a nuclear power. Later, conducted one more test on May 30 in Chagai Hills in the western part of its country. It was a symbolic act to demonstrate its military power and might to India.[375]

In 2000, Pakistan founded a Nuclear Command Authority, in addition, consolidated the Khan Research Laboratories, which later became the Pakistan Atomic Research Corporation into the Nuclear Defense Complex.[376]

[373] Goodby, Burghart, Loe and Thornton, 2004, p. 29.
[374] Ibid.
[375] Ibid.
[376] Berry, 2008, p.4.

It is worth mentioning some of the key Pakistani nuclear facilities that include:

1. the Karachi Nuclear Power Plant,
2. the Khusab 50-MWt heavy water and natural uranium research reactor,
3. the Nuclear Defense Complex,
4. the Pakistani Institute of Nuclear Science and
5. Technology and Sihala, which is reportedly the site of a non-safeguarded
6. pilot-scale uranium enrichment plant.

(See Appendix to see the map of the Pakistani nuclear complex where these nuclear facilities are located).[377]

6.2.2 Perspectives of Both Sides on Nuclear Safety and Security

The most important thing that needs to be emphasized here in the beginning is that there is a difference between safety and security of the nuclear weapons. This distinction needs to be made in order to grasp the situation in Pakistan. The focus will be on physical security measures rather than safety measures.

6.2.2.1. American Perspective: Nuclear Safety and Security Concerns

American strategists point out that one of their major concern is maintaining political stability in Pakistan, which is considered to be a "highly volatile country". Pakistan is one of the counties where radical Islamists are well established. On the other hand, there is concern that there will be another Indo-Pakistan war over Kashmir. Last but

[377] See Appendix on the Pakistani nuclear complex.

not least, in late 2003 and early 2004, it was reported that Dr. Khan the "Father" of Pakistan's nuclear weapons program had disseminated nuclear weapons-related technologies, equipment and know-how to not only Iran, but also to North Korea and Libya. Thus, Pakistan has not only become a de facto nuclear power, but also has enabled the increased number of proliferating countries. "This may be the most pressing danger stemming from the Pakistani program and a development that must never be permitted to happen again."[378] For many years the US has been concerned about Pakistan's nuclear weapons- related activities and about the continuing tension between Islamabad and neighboring India.[379]

American concerns further exacerbates over the stability of Pakistan's nuclear weapons and fissile material with events such as assassination attempts against Pakistani leader General Pervez Musharraf, moreover, the discovery of nuclear material black market involving Pakistani A.Q. Khan who is a well-known nuclear scientist. According to K.E. White who wrote on Proliferation Press in his article titled the Proliferation Press Dispatch: New America's 'Pakistan in Peril' round table that "to make matters more difficult Benazir's Bhutto's recent assassination has only exacerbated Pakistan's domestic unease, while some observers worry over the security of Pakistan's nuclear arsenal."[380]

Many American officials try to shed a light on whether both U.S. and Pakistan can find a mutual ground to cooperate in securing Pakistan's nuclear weapons and related material to safeguard against, for example, illicit export of nuclear weapons, fissile material and related equipment. And, they wonder since

[378] Goodby, Burghart, Loeb and Thornton, 2004, p. 30.
[379] Ibid.
[380] White, K.E., Proliferation Press Dispatch: New America's 'Pakistan in Peril', *Proliferation Press*, 16 January 2008.

quite a long time since 9/11 attacks the American experts questioned if there may be "ways for gaining more leverage with Pakistan on the nuclear proliferation issue."[381]

Some reports as such have been written to the US Congress about Pakistan's nuclear proliferation activities and some recommendations have been given concerning this matter. Moreover, not only these reports suggest some new US policy options have been suggested, but also indicate to constraints and options. Report written in 2005 contends that there have been two sharp long-term contradictions in US policy toward Pakistan. What are these contradictions? These US strategists suggest that US had to align with Pakistan to gain a partner in war on terror and US nuclear non-proliferation objectives toward Pakistan have been subordinated to other US goals.

What do they mean with two contradicting US policies? This means that not only was Pakistan able to develop its nuclear weapons capability while receiving some $698 million annually in US military and economic aid. But, in this manner, during the Cold War years "the very same radical Islamists natured by Pakistani's Inter Service Intelligence (ISI) organized and armed by CIA in the successful effort to drive the Russian Army out of Afghanistan."[382] Now, the Cold War is over, but this time round, the US is constrained to address issues concerning Pakistan's nuclear activities because the US needs Pakistani help to capture or kill members of Al Qaeda and the Taliban identifies these US strategists who repeatedly report to the Congress. They argue that US government needs to make hard choices. The report notes that the need for a pragmatic approach requires a compromise with other significant US interests like nuclear non-proliferation. The report points out that

[381] Cronin, Kronstadt, Squassoni, 2005, p.4.
[382] Cronin, Kronstadt, Squassoni, 2005, p.2.

there is a danger if radical Islamists gained control of the Pakistani government and in turn control of its nuclear weapons.

This report asserts that a multilateral solution is needed. This multilateral approach they indicate may be based on "an international legal regime with universal justifications to enable the capture interdiction and prosecution of smugglers by any state that finds them in its territory."[383] In addition, this report maintains that it would be wise to expand the 2003 Proliferation Security Initiative (PSI) that emphasizes international cooperation to interdict WMD and ballistic missile shipments, and also the 1991 Nunn-Lugar Program, which focuses on securing nuclear weapons and other dangerous material.

Can this be possible? According to these strategists the basis for this step has already been taken. In the 108th Congress the Nunn-Lugar Expansion Act (Section 1308 of FY2004 Defense Authorization Act, and PL 108-136) gave permission to the Department of Defense to spend up to $50 million in funds on Nunn-Lugar Program in other countries outside the former Soviet Union. Later, in the 109th Congress Senator John Biden (Democrat-Pennsylvania) introduced S12 the Targeting Terrorists More Effectively Act of 2005 on January 24, 2005. This bill authorized $10 million in 'Nonproliferation, Anti-terrorism, Deming and Related programs' account to be spent in Pakistan.

Some US analysts maintain that any Nunn-Lugar assistance to Pakistan may send the wrong message. It may be considered to be an acceptance of their possession of nuclear weapons. In addition, they suggest that the Nunn-Lugar assistance could be misused and could in this manner be used in improving Pakistani nuclear capabilities. Yet, Nunn-Lugar program was implemented with a key

[383] Cronin, Kronstadt, Squassoni, 2005, p.5.

principle that "cooperation would serve the objective of enhancing physical security and protection of nuclear assets and not enhance any operational capabilities" wrote Gottemoeller Rose, with Longsworth, Rebecca, in the article entitled "Enhancing Nuclear Security in the Counter-terrorism Struggle: India and Pakistan as a New Region for Cooperation, Carnegie Endowment Non-Proliferation Project Working Paper in August, 2002. This principle, in this sense can be applied particularly to the Pakistani case since it has not joined the NPT and is *de facto* non-nuclear weapons states (NNWS) must also be adhered to in the case of any assistance to those states. However, there are means and ways to bypass these obstacles.[384]

There is not just one but various constrains on Nunn-Lugar assistance. The how may we bypass these Constraints on US Assistance? Constraints of US assistance may be grouped into three categories. First, those encompassed legal prohibitions; second, those embodied in international treaties; third, those procedures that are in the US domestic law. Domestic laws may be easier to change or provisions may be waived, however, international treaties are more difficult to amend.

The primary international treaty constraint on the US is founding by Article I of the NPT. Article I requires nuclear weapons states to commit "not to transfer any recipient whatsoever nuclear weapons or nuclear explosive devices or control over such weapons or devices, directly or indirectly; and not in any way to assist, encourage or induce any non-nuclear weapon state to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices."

[384] Cronin, Kronstadt, Squassoni, 2005, p.4.

Hence, Article I stipulates that the US is prohibited, as any nuclear weapon state, from transferring to any state nuclear weapons, nuclear explosive devices or control over such weapons or devices, directly or indirectly. The second part of the obligations lies in not assisting, encouraging or inducing non-nuclear weapons states such as Pakistan to manufacture or acquire nuclear weapons and/or other nuclear devices. In addition, as defined by paragraph 3, Article IX of the NPT, Pakistan is considered to be non-nuclear weapons states because they did not explode a nuclear device before 1967.

In the case of Russia there was no such concern since Russia is one of the nuclear weapon states under the NPT. It is difficult to interpret what might constitute a violation of Article I under the NPT**.** Yet, in the ratification hearing before Congress in the 1968, US administration officials noted that the treaty does not specify what may not be done. "There is no currently publicly available legal view from the State Department on what might constitute a violation of Article I, but legal advisors have considered this question by examining precedents in the application of US domestic law."[385] Some kind of aid, for instance, food or humanitarian aid may not be considered to be assisting or encouraging a nuclear weapons program. In the extreme they can be thought as they free up resources, which the Pakistani government may put, forwards a nuclear weapons program. However, this argumentation in practice would have limited support since it is hard to make a close association with a nuclear weapons program and humanitarian aid. On the other hand, if the assistance would take the form of transferable funds then it may be easier to make an association with the nuclear weapons program.

[385] Cronin, Kronstadt, Squassoni, 2005, p.17.

The second legal constraint to US assistance may be caused from restrictions that are covered by US domestic law that restricts nuclear weapons cooperation, nuclear weapons trade and dual-use export. In the sense, the US domestic law also contains nonproliferation requirements that may complicate cooperation with Pakistan. For instance, the Atomic Energy Act (as amended; 42 US 2011) governs not only the military but also civil uses of nuclear energy. Even before the international safeguards were developed the US law stipulated that states receiving US origin nuclear material and/or equipment were not allowed to retransfer it and place it under adequate physical security, unless they have an Agreement of Cooperation with that country. The US does not have an agreement with Pakistan. Yet, there are some exceptions such as the release of sensitive information which is covered by the IAEA in Section 144 stipulates. For example, in some cases the Secretary of Energy may release Restricted Data on some aspects of the nuclear fuel cycle. However, these may not be related to the design or fabrication of atomic weapons.[386]

In addition, the Secretary of Defense may allow the exchange restricted data if it is necessary to develop defense plans, rain personnel in employing and defending against nuclear weapons, evaluate the capabilities of potential enemies in employing nuclear weapons and develop compatible delivery systems for nuclear weapons in the case, of cooperation with other countries. Moreover, the President may authorize the Secretary of Energy, with the assistance of the Department of Defense either to exchange restricted data on atomic weapons with another country provided that communication of restricted data is necessary to improve that nation's nuclear weapons design, development and fabrication capability or if that nation has

[386] Cronin, Kronstadt, Squassoni, 2005, p.17.

made 'substantial progress in the development of atomic weapons'. When the language on 'substantial progress' was added in 1954, the only nation that met the qualification was the UK. However, now Pakistan is also one of the countries that have made this progress together with other de facto nuclear weapons countries like India and Israel. In this regard, most weapons related data, such as some on safety and security, are classified as restricted data. Since it is hard to imagine the US interest would be to improve Pakistan's nuclear weapons capability. It may be unlikely that the President would authorize such an exchange of restricted data under this provision of the Atomic Energy Act.[387]

On the other hand, there is also the Agreement for Cooperation on the Atomic Energy Act that was amended in 1978 by the Nuclear Nonproliferation Act (NNPA) and Section 123 of the NNPA stipulates that states with which the US conducts significant nuclear trade is to sign an Agreement for Cooperation. Section 123 of the NNPA stipulates also that states that are "non-nuclear weapons states" to maintain IAEA safeguards on:

All nuclear materials in all peaceful nuclear activities on their territory, unless, cooperation falls under the category of sale, lease or loan of non-nuclear parts of atomic weapons, which would require that the recipient nation has made 'substantial progress in the development of atomic weapons' and that the transfer would not contribute significantly to that nation's atomic weapons design, development or fabrication capability. The recipient state must guarantee that "no nuclear materials or equipment or sensitive nuclear technology transferred under the agreement will be used for any nuclear explosive device, or for research on or development of any explosive device or for any military purpose. Yet, the President

[387] Ibid, pp. 17-18.

may always exempt a proposed agreement for cooperation "if he determines that including such requirements would be seriously prejudicial to achieving US nonproliferation objectives or otherwise jeopardize the common defense and security."[388]

In addition, since 1992, Nuclear Suppliers' Group (NSG) member states have required full-scope safeguards when they want to supply items on the NSG list. Under the NSG guidelines nuclear material, nuclear reactors and equipment therefore, non-nuclear material for reactors, plant and equipment for the reprocessing ,enrichment and conversion of nuclear material and for fuel fabrication and heavy water production and technology associated with each of the above items are considered as items of concern. In addition, the 'dual-use' lists consists of the export of nuclear related dual-use items and technologies, which are items that may make a major contribution to an unsafe guarded nuclear fuel cycle or nuclear explosive activity, yet that has non-nuclear uses as well, for instance in industry.[389] Sanctions imposed on Pakistan after the 1998 nuclear tests, the number Pakistani organizations listed on the entities list grew in a quick pace. Nevertheless, these restrictions were lifted when the President determined that sanctions were not in the national security interest of the US in 2001.[390]

There is other concern, like those who question how the US' unwritten policy of not supplying any items to unsafe guarded nuclear facilities would fit with export to Pakistan under a program like the Nunn-Lugar. Under the Enhanced Proliferation Control Initiative (EPCI) that was formed in 1991, the Department of Commerce may impose licensing requirements on not only exports but also re-exports of goods

[388] Ibid.
[389] Cronin, Kronstadt, Squassoni, 2005, p.19.
[390] *Federal Register*, Vol. 66, No. 190, 1 October 2001, p.50090.

and technology, which would in turn normally be uncontrolled of course if there is an unacceptable risk of diversion to activities related to nuclear, chemical, biological, and missile proliferation. Technical constraints, on the other hand, of Pakistani nuclear weapons programs are incomplete, although Pakistan has exchanged lists of nuclear facilities in 1991 as part of a confidence-building effort.

Another significant concern is whether US assistance, if it targeted at making nuclear weapons more secure from unauthorized use, would improve Pakistani nuclear weapons capabilities. For instance, one of the aims of US nonproliferation effort is to keep Pakistan from deploying their weapons. Therefore, on needs to be aware that no matter how ready and able the US government is to apply Nunn-Lugar tools in Pakistan there are differences between the Russian case and the Pakistani case that needs to be mentioned. First and foremost, the objective of preventing diversion of scientist expertise may also applicable to Pakistan. Yet, one should not forget the underlying causes of concern are different. Thus, these differences in concern may call for brand new solutions. In the Russian case the financial insecurity has been a documented incentive for scientists to offer their service abroad. In Pakistan the scientists may want to sell their know-how since they may be extremists and anti-American. In this sense, some of the Nunn-Lugar tools which worked well for the Russian case may not work for the Pakistani case.

Valentine Tikhonov in a study for Carnegie Endowment for International Peace has rightly asserted that establishing verifiable safeguards against the proliferation of existing nuclear weapons, components and materials is the most applicable in Pakistan. Yet, the situation of Pakistan is much different from that in Russia and offers one major obstacle, which will be that threat reduction measures aimed at an outside/terrorist threat may conflict with Pakistan’s nuclear deterrence

policy. In other words, making materials and weapons safe from theft or espionage may logically lead to consolidating material and weapons at as few sites as possible, like it is done in Russia the plutonium is consolidated in the Mayak site. Nevertheless, that consolidation could increase Pakistan's vulnerability to a preemptive strike by an adversary. The obstacle to consolidation in Russia had been primarily those of cost and design of adequate facility

Nunn-Lugar chain of custody programs applied to the weapons and material that were taken out of service. Therefore, these programs did not raise questions about enhancing safety, security, and control over Russia's active nuclear weapons stockpile. However, applying similar programs for Pakistan might be desirable from the US security standpoint, but questionable politically since Pakistan's populated with radical Islamists who are anti-American. These groups would be an obstacle for any government in Pakistan even if the President would like to enforce them in this country. Yet, if there is a will there is a way. All obstacles may be overcome if the US and Pakistani governments have mutual interests in Nunn-Lugar like cooperation. It is significant to understand the Pakistani stand point, how would they perceive such an attempt and would they be willing to work with US on a Nunn-Lugar like joint program?

6.2.2.2. The Pakistani Perspective: Nuclear Safety and Security Concerns

What is the Pakistani official posture on this issue? In a Der Spiegel Interview in January 2008 Former Pakistani President Pervez Musharraf discussed the conspiracy theories about the security of the nuclear weapons and fissile material in Pakistan.

The Western fears that Pakistani nuclear arsenal may fall into the hands of terrorists. The former President Pervez Musharraf argued that this was highly exaggerated. However, he did not deny the fact that al-Qaida was operating in his country. First he agreed that they are carrying out terrorism in the tribal areas, secondly, he also accepted that they are the masterminds behind these suicide bombings. Notwithstanding, the fact that all these claims were true, he claimed that the extremists would never be able to take over Pakistan. He asserted that this was not possible since they are neither militarily so strong that they may defeat the Pakistani army, nor politically. He maintained that they would not be able to win the Pakistani elections, because they are much too weak for that he added.

When the President was asked about the head of the International Atomic Energy Agency (IAEA), what he thought about Mohamed ElBaradei expressed concerns about the security of Pakistani nuclear weapons. He stated that "Mr. ElBaradei's impression is totally misplaced. Before we were officially declared a nuclear power in 1998, our nuclear program was kept top secret. At that time the leading scientist A.Q. Khan had direct contact with the president and could act independently."[391]

In addition, he stated that he added "when I became the chief in 1999, I suspected that A. Q. Khan had been doing prohibited things and I fired him. Then I decided to introduce a custodial control, the Army Strategic Force Command, which is organized like a military corps to keep the assets safe. Everything is accounted for. Terrorists could not even take out a bolt from a rifle."[392]

[391] Interview, Pakistani President Pervez Musharraf, *Der Spiegel*, January 2008.
[392] Ibid.

He argued that the fear that extremists could one day infiltrate the security system around the nuclear installations really that far-fetched. To the question about individuals inside the army or the ISI intelligence agency in Pakistan who sympathizes with the religious extremists may infiltrate this system? He responded that "ISI does not handle any nuclear issue at all. They have nothing to do with it." (Der Spiegel, 2008):

So in general he refused all the conspiracy theories including the one about Bernazir Bhutto's assassination. After Bernazir Bhutto's assassination, Pakistani President Pervez Musharraf's decision to declare a national emergency and suspend the constitution had fueled the debate about potential for increased insecurity in Pakistan and thus increased concerns about the safety and security of that country's nuclear arsenal. However, Pakistani officials have again and again argued that "categorically rejected speculations that their grip on its nuclear assets is loose."[393]

Moreover, in an article written by Zeeshan Haider entitled, 'Pakistan's Nuclear Command Stays Unchanged: Official' in April 8th, 2008, the Pakistani officials once again this April support President Pervez Musharraf's claims that the weapons were under control. One official added that Pakistani nuclear arsenal is guarded by a National Command Authority (NCA) and headed by the President and with the Prime Minister as its vice chairmen. Thus he argued the nuclear arsenals are under great care overseen by the Pakistani military and Pakistani leaders. He said the command and control system of Pakistan would stay unchanged because it was strong and opponents of the government would not be able to change it.

[393]Luongo, 2007. Luongo, K. N., "Brig. Gen. (Ret.) Naeem Salik Building Confidence in Pakistan's Nuclear Security", *Arms Control Today, March 2007.*

Henry Sokolski argues that Washington's fears of what might happen if Pakistani government is weakens or loses stability is reasonable. He adds that "it is not merely a fatally deflated zeal to combat the Taliban and Al Qaeda but the prospect of a politically radicalized Pakistan with loose nukes allied with such groups, or worse, controlled by them."[394]

Although President Gen. Pervez Musharraf argued that it's unlikely a Pakistani nuclear missile will fall into Al Qaeda hands. Yet, it could not persuade the Bush administration and the US officials familiar with intelligence on Pakistan claimed that "you may never rule that out."[395] For instance, inside Pakistan's nuclear program, scientists not forbidden to support the Islamic politicians and vote for this country's conservative Islamic politicians. They are allowed to grow long beards, pray five times a day and Religious zeal does not bar them from working in top-secret weapons facilities. Yet there is an internal watchdog that is authorized to snoop on its employees in order to decide whether they have become religious extremists and they have the power to drive out those who breach boundaries.[396]

US assistance is a sensitive issue in Pakistan because the government does not want to be seen as needing assistance to protect its nuclear arsenal or scientists. The Pakistani government naturally wants to be seen as in full control of the situation. Pakistani government have been quite vocal in insisting there is no need for the US to be concerned and they are capable in securing their own nuclear weapons and fissile material in public. However, when I had an interview with Robert J. Einhorn, who is an expert in the CSIS, 4 April, 2008, he said the Pakistani government and the US had already started working together and that Pakistani

[394] Sokolski H.,"What Not to Do After the Pakistani Coup," *National Review Online,* 2007.
[395] Meek, J. G., "Unlikely Al Qaeda Will Obtain Nuclear Weapons, Says Officials", *New York Daily News, 2007.*
[396] Wonacott, P., "Inside Pakistan's Drive to Guard it's A-Bombs", The *Wall Street Journal, 2007.*

government did indeed accept some Nunn-Lugar type assistance for providing better physical security for their nuclear arsenals. Only, Pakistani Foreign office spokesperson Aziz Ahmed Khan admitted that "the US had offered to train Pakistani personnel on safety and security of nuclear assets."[397]

6.2.3. Nunn-Lugar Tools: Applicable to the Pakistani Case?

There are some tools relating to the Nunn-Lugar Program that may be applied to Pakistan as well. According to Goodby six tools could be applicable to the Pakistani case in 2004. On the other hand, experts have reported to the Congress that there could be at least four Nunn-Lugar tools can be implemented on physical security measures in 2005. The focus will be on physical security measures rather than safety measures. However, can these tools be applied to Pakistan while the government insists that their nuclear arsenal is under control?

6.2.3.1. Improving Physical Control of Nuclear Weapons and Fissile Material

First and foremost, Goodby asserts that Nunn-Lugar experts may provide the training and know-how for authorized access personnel in Pakistan. In addition, reliability security checks, automated inventory control and management systems may be provided to the Pakistani government.

[397] *The Hindu*, "Pak. 'No' to Joint Nuke Command with US,"2003.

He point out that it is significant to make vulnerability assessment on each facility. However, this may not be possible because of high sensitivity of nuclear facilities. It will take a long time to build enough confidence between US and Pakistan to collaborate on such a highly sensitive issue. So maybe it may be better to train Pakistani experts so that they could do it on their own.

On the other hand, Goodby posits that security at weapons storage sites need to be ensured, including adding videos and radios surveillance equipment and perimeter barriers and fences. Given the current instability in Pakistan and the recent assassination attempts on President Musharraf and assassination of Bhutto, improving physical control of items of interest will be a key tool to safeguard Pakistani facilities and the material of greatest concern.

Furthermore, nuclear material security is also a concern that needs to be secured. Sharon Squassoni puts more stress on the nuclear material security in her report written together with other experts. She argues that the Pakistan may be an attractive target since the threat of terrorism calls greater physical security at weapons sites and sites where nuclear material either is produces or stored. She adds that Pakistan became a party of the Convention on the Physical Protection Nuclear Material, which came into force in 1987 and was designed to protect nuclear material in transit between countries, while Pakistan became a part of it in 2000. Since then IAEA has conducted physical protection assessment programs however, because Pakistan has not requested such a mission. And, since states must request assistance and then a team conducts a confidential vulnerability assessment and recommends measures to the state the IAEA could not verify the security of the Pakistani nuclear material security. Yet, IAEA conducted a joint safety and security workshop in Pakistan in 2002 at least Pakistan has participated in IAEA technical cooperation

programs and has not refused to take part like India. Nevertheless, in India there are safeguards in six reactors while in Pakistan IAEA has safeguards on only two reactors. Some experts argue that these nuclear material production sites, as well as storage and assembly sites may be high-value target for terrorists.

The following facilities are not under safeguards in Pakistan:

1) Khan Research Laboratories at Kahuta

2) Golra and

3) Wah/Gadwal centrifuge enrichment plants at Sihala

4) Chasma reprocessing plant

5) PINSTECH facility reprocessing in Rawalpindi

6) SPINSTECH facility reprocessing in Rawalpindi

6.2.3.2. Improving Accountability for Nuclear Weapons and Fissile Material

The successful Russian experience, procedures for the improving MPC&A fissile material protection, control and accountability have been developed, which may in turn be employed in Pakistan as well. The use of audits by inspection teams to ensure the continued and proper use of the measures may be included to this list according to Goodby. In addition, he asserts that each facility should have computerized databases and tracking systems to account for nuclear weapons, fissile material as well as related technology. These tools are very significant since there have been

discoveries of illicit transfer of sensitive nuclear technology from Pakistani scientists to third parties.

6.2.3.3. Preventing the Leakage of Technology to Unauthorized Recipients

Moreover, how the information is shared may also be helping weapons scientists to find employment in civil jobs. In addition, Goodby suggests that information exchange should be developed, which may help experts make the transition to civilian work. In this case, the previous successful Nunn-Lugar experiences in laboratory-to-laboratory exchanges, research grants and programs, as well as employment in civilian energy products are methods that may be utilized Pakistan as well.

In terms of personnel security there is lots of concern focused on Pakistan since activities of Pakistani scientist A.Q. Khan. Although Pakistani officials claim that they have tightened controls and founded the National Command Authority (NCA) in 2000 the concerns still linger on. The program screens key scientists in Pakistani nuclear weapons every two years by the Inter Service Intelligence Agency. Yet, although top-level officials are controlled by the organization but they are not physiologically screened asserts Sharon Squassoni in an article she wrote for the Arms Control Today Journal. Therefore, there still seems yet to be a need for alternative measures in this respect.

6.2.3.4. Preventing the export of nuclear weapons and materials and equipment

Goodby also suggests that preventive measures may be utilized to ensure that nuclear weapons and fissile materials and related equipment are not diverted to other proliferating states and terrorist organizations programs such as the al Qaeda or the Taliban. This measure is aimed at establishing verifiable safeguards and increasing transparency and national export controls to prevent illicit smuggling of nuclear weapons/ components may be developed in Pakistan too. The problem in the Pakistani case is that high-ranking Pakistani nuclear scientists were involved. This increases the urgency of and necessitates the need for verifiable safeguards and interdiction programs in Pakistan.

6.2.3.5. Hardening Transportation Links against Attack

Another Nunn-Lugar tool that may be applied to the Pakistani case may be to harden the transportation links against a terrorist attack since nuclear weapons and fissile materials could be vulnerable while being transported from on point to another was suggested by Goodby. In this context, protection for weapons in transit may be provided under this precedent tool by employing such technology that was used in NIS and Russia such as railcar safety enhancements. Furthermore, training of security personnel to protect transportation routes and the provision of super containers to secure fissile material in transit may also be useful.

6.2.3.6. Purchasing HEU for Resale as Fuel for Commercial Nuclear Power Plants

There is also another Nunn-Lugar tool that was suggested by Goodby. He noted that purchase of HEU may be applied also to Pakistan's HEU. The US has bought quite a lot of HEU from the NIS and Russia and used it as electricity after it transformed it into low Enriched Uranium (LEU). The US may also implement a US-Pakistani Highly Enriched Uranium Purchase and sign an agreement, whereby HEU from dismantled Pakistani weapons is blended down the LEU and thus becomes less of a proliferation threat. But, this suggestion of Goodby seems to be unreasonable because the Pakistani government does not seem ready to dismantle its nuclear weapons. The nuclear weapons in Russia were aging thus most of them were redundant. Therefore, Russia did not hesitate and was eager to get its nuclear weapons dismantled under the START I. Pakistani government, on the other hand, would be reluctant to dismantle its nuclear weapons unless the Indian government follows suit.

Lisa Curtis, in 2007, in a testimony before the US Subcommittee she asserted that if the basic premise of the Nunn-Lugar legislation is intended to be followed that requires recipients of Nunn-Lugar assistance to make "substantial investment of its resources for dismantling or destroying such weapons" then it might be quite impossible to apply such an approach in Pakistan. In other words, it would be impossible to develop a Nunn-Lugar program with Pakistan along these lines without addressing the fact that Indo–Pakistani rivalry is what drives Pakistan's nuclear

program.[398] Unless India decides to dismantle its nuclear weapons, neither will Pakistan accept to do so.

6.2.4. Evaluation of the Situation on Ground: the Pakistani Case

What is said openly to public may be quite different from the real situation on ground. As Robert Einhorn who is a senior fellow in CSIS has indicated to me in a meeting at the US Embassy in Ankara last year that "the US government is indeed working with the Pakistani government in order to secure nuclear weapons a fissile material for quite a long time."[399] He said that US experts are actually making some 'quick fixes' like bars on windows, blast proof doors, and fences followed by more sophisticated security measures such as sensors, cameras, and personnel access measures in Pakistan. Although there is no formal agreements as the Nunn-Lugar Umbrella Agreement still the US experts are trying to secure Pakistani nuclear arsenal together with the Pakistani military so that it does not fall into terrorists hands.

Moreover, US President Barack Obama has announced in a speech he gave for the Washington Post on April this year he said that "Confident that Pakistan nuclear arsenal is secure." He added that "Pakistani army recognizes the hazards of does weapons falling into the wrong hands."[400]

He confirmed that US has military-to-military consultations and cooperation with the Pakistani army. Moreover, he said that the Pakistani government recognizes that the biggest threat comes internally. Thus, the stated that US is providing them all

[398] Curtis, 2007.
[399] Interview, Robert Einhorn,, Ankara, April 2008.
[400] Speech, US President Barak Obama, *Washington Post*, April 2009.

necessary expertise so that Pakistan does not end up becoming a nuclear armed militant state.

Although the Pakistani President Asif Ali Zardari repeatedly tells the press that Pakistan's nuclear arsenal remains secure and all nuclear installations are under extra control. [401] All these comforting words of course do not end growing international concerns when Taliban fighters came within 60 miles of the capital city Islamabad.

The US Secretary of State Hillary Clinton told Fox News that "US believes Pakistan's nuclear weapons are safe for the time being. Pakistani nuclear security is an issue that we have very adamant assurances about from the Pakistani military and government. We've done a lot of work over the years." But, on 26th of April she added that "one of our concerns, which we've raised with the Pakistani government and military is that if the worst the unthinkable were to happen and this advancing Taliban encourage extremists were to essentially topple the government for failure to beat them back-then they would have the keys to the nuclear arsenal of Pakistan." [402]

Even George Perkovich who is the head of the nonproliferation Program at the Carnegie Endowment for International Peace said that he thought it was unlikely that the Pakistani nuclear weapons would fall into terrorists hands but now he said that "it has gotten much worse in the last few years and you have a sense of parts of Pakistan now becoming ungoverned by the Pakistani state." [403]

Karen De Young wrote in 24th of April in Washington Post that for the past several months the Pakistani President's popularity dropped. His opponent former Prime Minister Nawaz Sharif raised to 83% in recent polls. Pakistan is in domestic

[401] *AFP*, 2009.
[402] *APF*, 26 April, 2009.
[403] *Radio Free Europe/Radio Liberty*, 2009.

turmoil and Taliban advances are a scary fact that cannot be hidden from the international community any longer. Thus, the US government called President Zardari to come up with a strategic plan with both economic and military components to change the situation in Pakistan and regain control over the country before it's too late.

US deputy secretary for management and resources Holbrook and Jacob J. spent a great amount of time to brief the Congress members "to build support for the plan to quickly and significantly increase development and military assistance to Pakistan."[404] So that the US policy and strategy is updated and that is actually reflects the changing situation reported a senior US official. The administration needs to make sure that it is ready for the worst case scenario and can move fast when the situation on ground calls for more assistance to the Pakistani military.

In 16th of April the farsighted Senator Lugar also has introduced a Nunn-Lugar enhancement bill to the Congress. The document first calls on the Defense Department to lift all geographic constrains on the Nunn-Lugar program. Second, it aims at eliminating contracting bottleneck. Third, it coordinates Nunn-Lugar effort to advance the goals of the Proliferation Security (PSI) and UN Security Council Resolution 1540. Finally, it requests the government to hire additional staff and collaborate with the Unified Combat Commands and other military entities to advance Nunn-Lugar objectives.[405] Senator Lugar told the public on 23th of April that "the program must be less cumbersome and bureaucratic so it can be more agile,

[404] *GSN*, 2009.
[405] *GSN*, 2009.

flexible and responsive to ensure timely contributions across a larger number of countries.”[406]

He added that the Nunn-Lugar approach need to be 'an active tool of foreign policy' and needs to be applied in primarily Pakistan and then in other countries such as Afghanistan, Congo, the Philippines and Indonesia. Under these conditions it can be said that the US is willing and able to assist the Pakistani government and military in its fight against terrorists. The long-lasting cooperation between the US and Pakistani governments show that there is desire from both parties to cooperate. So, we can say that there is also reciprocity. Pakistan seems not to have the desire or the capabilities to pursue an individualistic action. It is too costly for the Pakistani government to pursue such a pattern. Apparently under these circumstances the Pakistani government would not be able to pursue expansionist policies. The government is too busy trying to preserve the regime in Pakistan.

However, if Nunn-Lugar tools are to be applied in Pakistan there are other necessary ingredients such as normative standard setting instruments. In the Pakistani case the government has not yet recognized a need to accept universal principles, norms, and rules, in addition, there is still not a decision making procedure that is recognized by the Pakistani government. The Pakistani government needs to understand that their behavior is inappropriate and dangerous. Thus, they need to recognize the need to set normative standards. Hence, there are needs for standard setting instruments, assurance mechanisms, policy regime and forum for interactions if the Nunn-Lugar tools are to be applied in the Pakistani case as well. Without all the necessary ingredients it is hard to establish a Nunn-Lugar approach in Pakistan

[406] Ibid.

and utilize the tools that were used in Russia to fight against terrorism in this country.

CHAPTER VII

CONCLUSION

This chapter puts forward a summary of the dissertation's conclusions in four different parts. This research project analyzes the U.S. and Russian nuclear security cooperation in the area of weapons of mass destruction proliferation. Part one begins by giving a historical account of the evolution of the Nunn-Lugar CTR Program. Part two discusses to what extent the Nunn-Lugar, as a post-Cold War case, is a departure from the explanations of earlier models in the first sub-section. In this section, it concludes that Nunn-Lugar is a primary case of emerging concepts of Cooperative Security of the post-cold war era. Second sub-section gives a detailed account of the theoretical framework. It introduces the international regimes in general and security regime in particular and discusses how the Nunn-Lugar model that has first started off as a policy fits security regime theory. The third part elaborates if the Nunn-Lugar Program has evolved into a security regime that can address the challenges of today's world. The analysis focus on the notable variations in how the different Nunn-Lugar categories can best be explained. Also, overall trends of significant factors will be considered across categories. It addresses the implications of generalizing a Nunn-Lugar framework and a security regime by utilizing prominent

scholars' evolution criteria. It defines Nunn-Lugar as case of cooperative security, and further evaluates whether Nunn-Lugar Program satisfies Robert Jervis' and Charles Parker' security regime evolution criteria. It discusses the possible effects of the Nunn-Lugar CTR Program on global nuclear security and what are expected outcomes of an emerging Nunn-Lugar security regime. In the last part it evaluates whether this cooperation model can be applied in Pakistan and North Korea.

In the first part it is illustrated that Nunn-Lugar case, the cooperative activities are a constantly evolving set of programs, so incentives for cooperation and the cooperation implementation are intermingled throughout the process of Nunn-Lugar engagement. This part maintains that the Nunn-Lugar Program is the genesis of many such U.S.-led as well as global initiatives.

The second part dwells into the theoretical framework of the Nunn-Lugar case. It accounts for a primary theoretical comparison tested Nunn-Lugar as a new case study of security cooperation. The findings puts forth that applicability of the Cold War security cooperation framework varies by activity. The factors such as mutual security interests or direct reciprocity are useful explanations in weapons activities, but play a less decisive role in material and especially scientists' cooperation. This dissertation suggests that this different model emerges out because post Cold-War cooperation differs by being an inherently more intrusive and interactive relationship. Cooperation on program implementation, especially taking place in the other state, was not a subject with which the security cooperation framework had to contend. In the Nunn-Lugar case, explaining implementation level conditions is unavoidable, as organizations and working level teams are much more involved carrying the cooperation. This observation has implications for the development of cooperative security ideas: because such a greater portion of nuclear

security cooperation is in the form of direct interactions, there needs to be a greater focus on how states should attempt to cooperate, not only why they would be motivated to do so. The chart in the first part of this section provides a summary of the central security cooperation factors. The second part of this section gives a detailed account about why international regime theory is significant and applies to the Nunn-Lugar case. It discusses how international regime and security regimes are formed. It also seeks to find out how principles, norms, rules and decision-making procedures are formed. It goes into theoretical discussions about how norms are constructed.

This dissertation focuses on security regime theory and the Nunn-Lugar CTR Program as an emerging security regime, but explanations other than security regime theory can also be utilized to describe the post-Cold War security cooperation. It utilizes two scholars', namely Robert Jervis and Charles Parkers' security regime evolution criteria. Robert Jervis has identified several systemic conditions which are necessary ingredients for a security regime to come into being. First, he argues that it is necessary for major powers to be willing to establish a regime. Second, states must also believe that other states share same intention. In other words, they should also desire a mutual security and cooperation. Third, no state should believe that security is best provided by expansionist policies. Finally, war and individualist action of security should be seen as costly and unnecessary. This dissertation maintains that Nunn-Lugar case satisfies Robert Jervis' security regime evaluation criteria.

By utilizing Parkers' evolution framework for regimes this dissertation has applied it to the case the Nunn-Lugar Program. He has formulated 5 C's as his evolution criteria: coverage; compliance; change; regime consequence; and counterfactuals. This dissertation has analyzed the impact of the Nunn-Lugar

Program on the nuclear non-proliferation regime's effectiveness. In this sense, it demonstrates whether the Nunn-Lugar Program has changed state behavior. Whether it has functionally and normatively affected state's behavior as standard setting instruments, points of reference, assurance mechanisms, forums, and policy tool for the overall impact of states, as mentioned above. That is why it was important to go through Charles Parkers not only to see if the Nunn-Lugar Program satisfies the criteria of Parker but also to have a better understanding of the Nunn-Lugar security regimes effectiveness on the nuclear non-proliferation regime. This part concludes that the Nunn-Lugar model has emerged to be a successful security regime.

In the last section this dissertation has applied Nunn-Lugar tools to case of North Korea and Pakistan. It has identified tools that can be applied to each case. In the North Korean case it has suggested that Nunn-Lugar could initially attempt to freeze the nuclear weapons program, and then dismantle nuclear arsenals and convert them to civilian use as it did in the Russian Federation, if a future agreement can be formulated by North Korean regime. In the case of Pakistan, the Kerry-Lugar Bill is applied since 2009. Military officials, experts as well as scholars in the U.S. and Pakistan acknowledge that the Nunn-Lugar CTR program is applied in Pakistan. But, the tools applied are directed toward securing these weapons so that these weapons will not fall into the hands of terrorists. The intention is to provide necessary safety to these weapons and fissile material and not dismantlement of these weapons.

The dissertation contends that the Nunn-Lugar Program is a new approach to a new problem. The idea first came to being after the collapse of the Soviet Union and it was a unique case since never in history. In this case, one could find two adversaries could cooperate on such sensitive matters as nuclear weapons and

material security. Two adversaries French and the Germans decided to cooperate and founded European Community (EC) and then formed the European Union (EU), but this was not as radical as the Nunn-Lugar approach since it is just an economic cooperation. Therefore, this approach may be considered as a precedent to other nonproliferation efforts worldwide.

However, in the case of North Korea, it might be better for another country such as China, and Russia, take up a leading role. In addition, in the case of Pakistan other countries such as Germany, Norway and Canada or even Turkey may pursue a realistic course and put in more effort in the negotiation process. Tailoring a Nunn-Lugar program of assistance for Pakistan may be challenging because neither North Korea nor Pakistan are signatories to the Nonproliferation Treaty. North Korea decided to withdraw from the treaty after it acquired a nuclear device(s). On the other hand, Pakistan never was a part of the NPT. However, this does not mean it is impossible.

However, all these explanations about the situation at hand is not to criticize the raised concerns about the program, but it is intended to have an overview of the efforts. In addition, to keep a sense of perspective about how complex this working relationship was with the Russians for U.S. experts and vice versa. This was an unusual experience for both parties who had been adversaries for decades. It was not easy to communicate and solve the differences and this process took time and lots of effort was put into it to make it a reality. There were not only cultural differences,' but also the mentality of the experts was also quite different. The way scientists approached a problem and handled the situation was not the same and this created some problems. It was naturally challenging for both parties to work together in such a sensitive issue, such as nonproliferation. Those who worked to build the weapons

to win the arms race now tried to dismantle Cold War legacy. They worked hand in hand in not only in government-to-government, agency-to-agency, but also in scientist-to-scientist, laboratory-to-laboratory projects. It could be possible to overcome obstacles and apply such a new approach to North Korea and Pakistan in order to rollback proliferation of nuclear weapons.

Additionally, Senator Lugar has introduced a Nunn-Lugar enhancement bill to the Congress. The document first calls on the Defense Department to lift all geographic constrains on the Nunn-Lugar program. Second, it aims at eliminating contracting bottleneck. It coordinates Nunn-Lugar effort to advance the goals of the Global Treat Reduction Initiative (GTRI), Proliferation Security (PSI), Global Partnership Against Weapons of Mass Destruction and United Nations Security Council Resolution 1540. Finally, it requests the government to hire additional staff and collaborate with the Unified Combat Commands and other military entities to advance Nunn-Lugar objectives. The Nunn-Lugar approach need to be 'an active tool of foreign policy' and needs to be applied in primarily Pakistan and then in other countries like Afghanistan, Congo, the Philippines and Indonesia. This dissertation concludes that the Nunn-Lugar Program has emerged into a successful security regime that addresses challenges' of today's world.

Due to financial constraints this dissertation did not include some other important concerns such as the nuclear energy security and central handling of nuclear cycle. Funding availability and time concerns have limited the scope of the study. Nuclear energy renaissance and the trends to use nuclear energy use other relevant issues that can be analyzed in an extended version of this study. Additionally, in future research more area experts will be asked to attain additional data at different times for issues at hand. More interviews will be conducted not only

with experts, officials and scholars but also research fellows. This will, in turn, provide a larger range of outcomes that are available to the actors and increase the reliability of the results.

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2) **Robert J. Einhorn, the U.S. Department's Special Advisor for Nonproliferation and Arms Control, (Interview)** 4 April 2008.
3) **Rose Gottemoller Director Carnegie Endowment Moscow (Interview)** June 2007.
4) **Daniil Kabyakov, Expert, PIR Center (Interview)** June 2006.
5) **Anton V. Khlopkov, Executive Director, PIR Center (Interview)** June 2007.
6) **Peter Topychkanov, Carnegie Endowment Moscow,** June 2007.
7) **Guy Roberts, Deputy Secretary General of Weapons of Mass Destruction, NATO,** April 2008.
8) **Vitaly Fedchenko, senior fellow, SIPRI,** April 2008**.**
9) **Charles Ferguson, former senior fellow, Council of Foreign Relations, Current President of the American Scientists,** 29 July 2008
10) **Spiegel Interview** with Pakistani President Pervez Musharraf, Shots Either Hit You or They Do Not, 14 January 2008.
11) **Ahmer Bilal Soofi, Advocate of Supreme Court of Pakistan**, 18 March 2010.
12) **Mohammed Masood Aslam, Pakistani Lieutenant General**, 18 March 2010.
13) **Zafar Nawaz Jaspal, Assistant Professor, Quaid-I-Azam University, International Relations Department, Islamabad, Pakistan**, 15 January, 2010.
14) **Siegfried Hecker, Stanford University,** 15 March 2011.
15) **David Holloway, Stanford University,** 16 January 2008.
16) **Pierce Corden, Advanced Science Serving Society (AAAS),** 26 March 2012**.**
17) **Peter Zimmerman, King's College London, Department of War Studies**, 31 January 2012.
18) **Bill Vogt, Defense Threat Reduction Agency, Deputy Director, On-Site Inspections Directorate,** 30 January 2012.
19) **Bruce Lawlor, Retired Major General, Virginia Tech. USA,** 30 March 2012.

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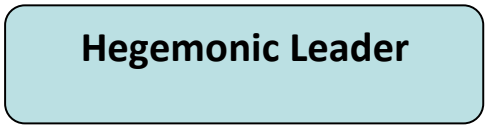
APPENDICES

APPENDIIX 1

Figure I

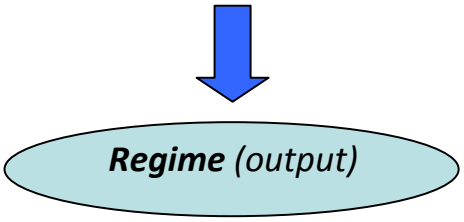
Evolution of the Regimes



Provide these states with leverage, information and more importantly money.

In this manner hegemonic leader inserts pressure. (input)

Evolution depends on pressure



(Coal)

Hegemonic leader inserts pressure (input)

Spillover effect leads to transformation

(Diamond)

Security Communities like diamond requires very specific conditions

(Ideal Type) diamond

APPENDIX 2

Russian Parliament (Duma) Hearings

See http://www.duma.gov.ru/

Success Richard Lugar's statement that there has been an agreement made by Russia and US, which allows 25 nuclear facilities will be opened to US experts for inspection.

ПЕРЕЧЕНЬ

протокольных поручений Государственной Думы,

исполненный Комитетом по обороне

Автор поручения Павлов Н.А.

Дата заседания Номер протокола

09.09.2005 Protocol 184

Содержание поручения

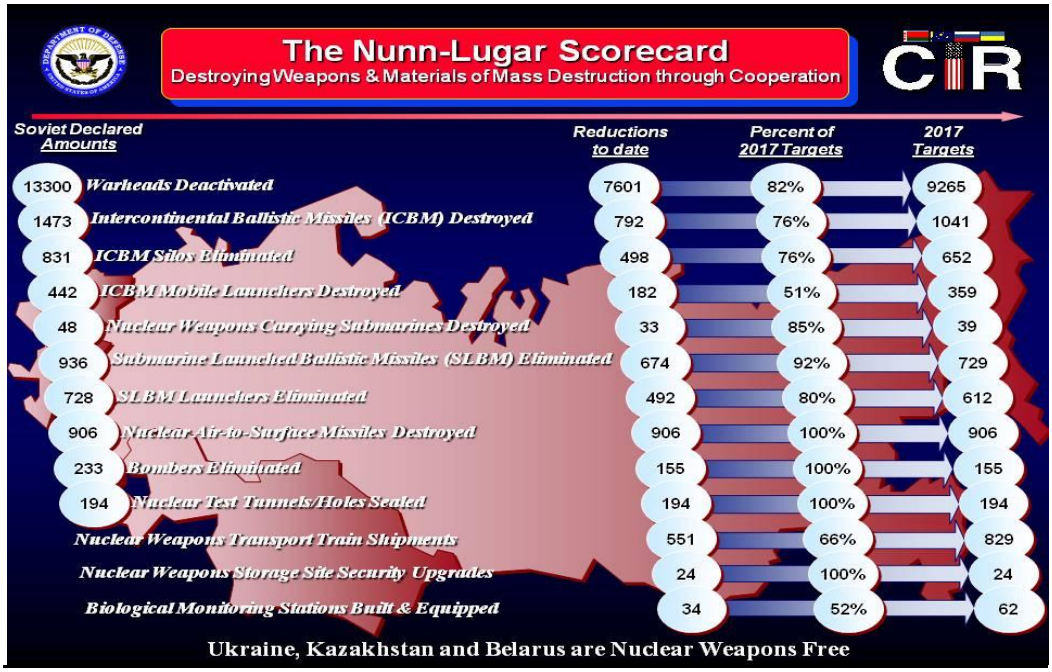
прессе со ссылками на интервью американского сенатора Р. Лугара сообщается, что США получили согласие России на проведение инспекций 25 российских ядерных объектов. Запросить информацию о том, какие объекты ядерного комплекса и

оперативно развернутых стратегических сил России могут инспектировать представители США, в том числе с помощью контрольно-измерительной аппаратуры, а также путем инспекций на местах. С полученной информацией ознакомить депутатов Государственной Думы.

Ответ Комитета Информация по данному вопросу направлена депутатам

ГД 14 октября 2005 года (N вн3.15-22/1050).

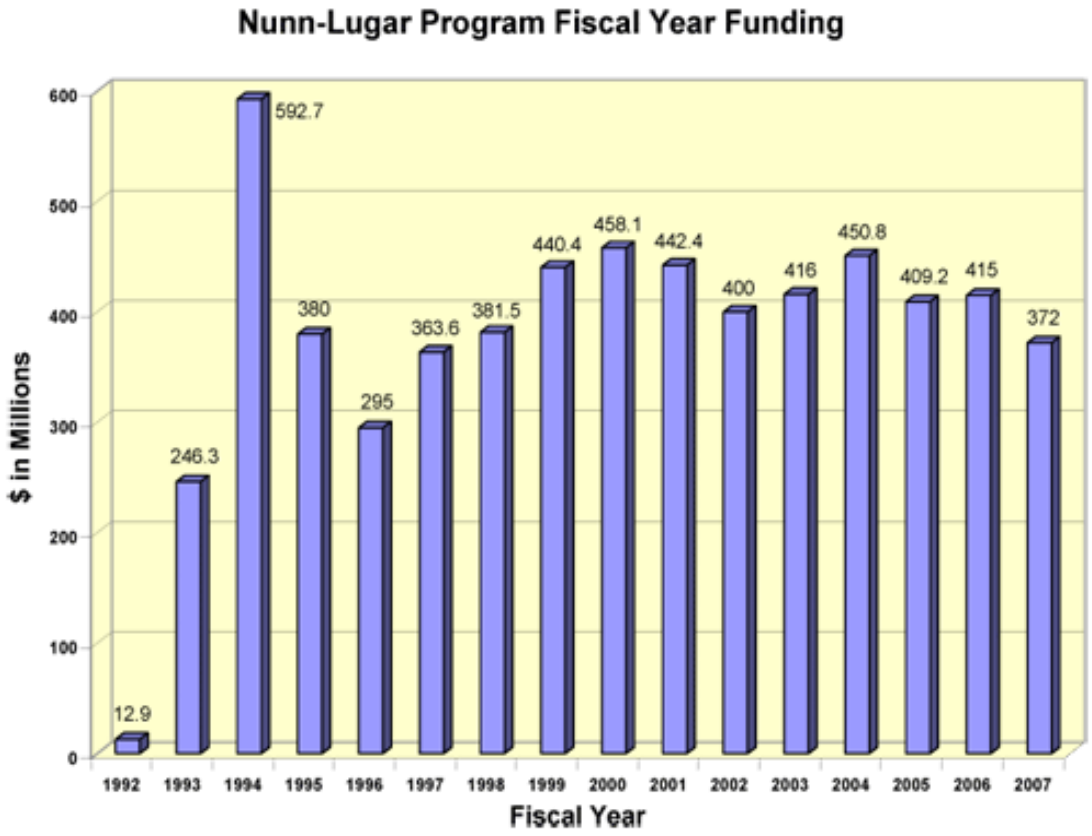
APPENDIX 3



Nunn-Lugar definition of terms

ICBM – Intercontinental ballistic missile
SLBM – Submarine launched ballistic missile
SSBN – Nuclear submarine capable of launching ballistic missile
ASM – Air-to-surface missile

APPENDIX 4


Nunn-Lugar Program Fiscal Year Funding
$ in Millions
600
500
400
300
200
100
0
12.9
246.3
592.7
380
295
363.6
381.5
440.4
458.1
442.4
400
416
450.8
409.2
415
372
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Fiscal Year

APPENDIX 5

FUNDING FOR NUNN-LUGAR

COOPERATIVE THREAT REDUCTION PROJECTS

= Appendix

(Dollars in millions)

Projects by country	Obligations	Planned obligations	as of 6/13/94	Disbursements as of 6/21/94
Belarus				
Communications link		$2.30	$0.30	$0.27
Defense conversion		20.00	7.27	0
Emergency response		5.00	3.98	1.50
Export controls		16.30	0.48	0.17
Site restoration		25.00	2.87	0
Propellant elimination		6.00	0	0
Subtotal		74.60	14.90	1.94
Kazakhstan				
Communications link		2.30	0.06	0
Defense conversion		15.00	0	0
Emergency response		5.00	2.00	0
Export controls		2.30	0.04	0
Material control and accountability		5.00	0.02	0
Silo elimination		70.00	0.12	0
Subtotal		99.60	2.24	0
Russia				
Arctic nuclear waste assessment		20.00	10.00	2.79
Armored blankets		5.00	3.24	2.91
Chemical weapons destruction		25.00	11.58	1.63
Chemical weapons lab		30.00	0	0
Defense conversion		40.00	0.15	0
Emergency response		15.00	11.77	9.06
Export controls		2.30	0	0
Fissile material containers		50.00	48.18	3.03
International science and technology center		25.00	23.02	0.47
Material control and accountability		30.00	0.25	0.15

Railcar security upgrade			21.50
21.50	13.97		
Storage facility design			15.00
15.00	11.42		
Storage facility equipment			75.00
15.01	0		
Strategic offensive arms elimination			130.00
28.06	0.06		
Subtotal			483.80
187.76	45.49		
Ukraine			
Communications link			2.40
0.04	0		
Defense conversion			40.00
5.38	0		
Emergency response			5.00
2.00	0		
Export controls			7.30
0.09	0		
Material control and accountability			12.50
0.03	0		
Nuclear reactor safety			11.00
0	0		
Science\technology center			10.00
0	0		
Strategic nuclear arms elimination			185.00
4.67	0.03		
Subtotal			273.20
12.21	0.03		
Other projects			
Defense/military contacts			15.00
1.01	0.09		
Defense Demilitarization Enterprise			7.67
0	0		
Fund			
Other assessment costs			15.00
4.84	1.99		
Subtotal			37.67
5.85	2.08		
Total			$968.87
$222.96	$49.54		

Note: Numbers may not add due to rounding.

APPENDIX 6

FUNDING FOR THE NUNN-LUGAR CTR PROGRAM (FISCAL YEARS 1992-95)

= Appendix

(Dollars in millions)

Projects	Notifications to Congress	Obligations	Disbursements
Destruction and dismantlement			
Chemical weapons destruction/lab--Russia	$55.000	$22.182	$7.336
Communications link			
Belarus	2.300	.974	.457
Kazakhstan	2.300	.614	.134
Ukraine	2.400	.650	.131
Environmental restoration-Project Peace	25.000	14.772	1.831
Nuclear infrastructure elimination			
Belarus	5.000	.000	.000
Kazakhstan	17.000	.000	.000
Ukraine	10.000	.000	.000
Strategic offensive arms elimination			
Belarus	6.000	.000	.000
Kazakhstan	70.000	.324	.049
Russia	150.000	112.083	19.639
Ukraine	205.000	89.536	19.279
Subtotal	550.000	241.135	48.856
Chain of custody/nonproliferation			
Armored blankets-Russia	5.000	3.244	2.905
Emergency response			
Belarus	5.000	4.288	3.604
Kazakhstan	5.000	2.045	.302
Russia	15.000	12.857	11.182
Ukraine	5.000	2.002	.179
Export controls			
Belarus	16.260	3.073	1.237

Kazakhstan	2.260	1.117	.137
Russia	2.260	.044	.011
Ukraine	7.260	3.337	.254
Fissile material containers--Russia	50.000	44.944	10.086
Material control and accountability			
Kazakhstan	5.000	4.923	.364
Russia	45.000	20.333	.568
Ukraine	12.500	11.504	.129
Nuclear reactor safety--Ukraine	11.000	11.000	.046
Rail car security upgrades--Russia	21.500	21.500	17.649
Storage facility design	15.000	15.000	12.866
Storage facility equipment	75.000	27.356	2.511
Weapons security--Russia	20.000	.000	.000
Subtotal	318.040	188.567	64.030
Demilitarization			
Defense conversion/Industrial Partnerships			
Belarus	20.000	19.607	8.098
Kazakhstan	15.000	14.860	.105
Russia	40.000	17.218	3.681
Ukraine	50.000	38.286	4.280
Defense Enterprise Fund	27.670	7.670	7.670
Research and development foundation--Russia	10.000	.000	.000
Science and technology center			
Belarus	5.000	.000	.000
Kazakhstan	6.000	.000	.000
Russia	35.000	22.853	20.889
Ukraine	15.000	.414	.307
Subtotal	223.670	120.908	45.030
Other authorized programs/program support			
Arctic nuclear waste--Russia	30.000	19.520	5.270
Military-to-military contacts			
Belarus	7.524	.301	.098
Kazakhstan	.900	.074	.014
Russia	11.548	7.761	

3.844
Ukraine 5.900 .869
.321
Other assessment 24.400 19.720
9.221
costs
Subtotal 80.272 48.245
18.768
Total $1,171.982 $598.855
$176.684

Note: These figures were current as of May 8, 1995.

WORK PERFORMED ON SELECTED CTR PROJECTS (FISCAL YEARS 1992-95)

Appendix VI

(Dollars in millions)

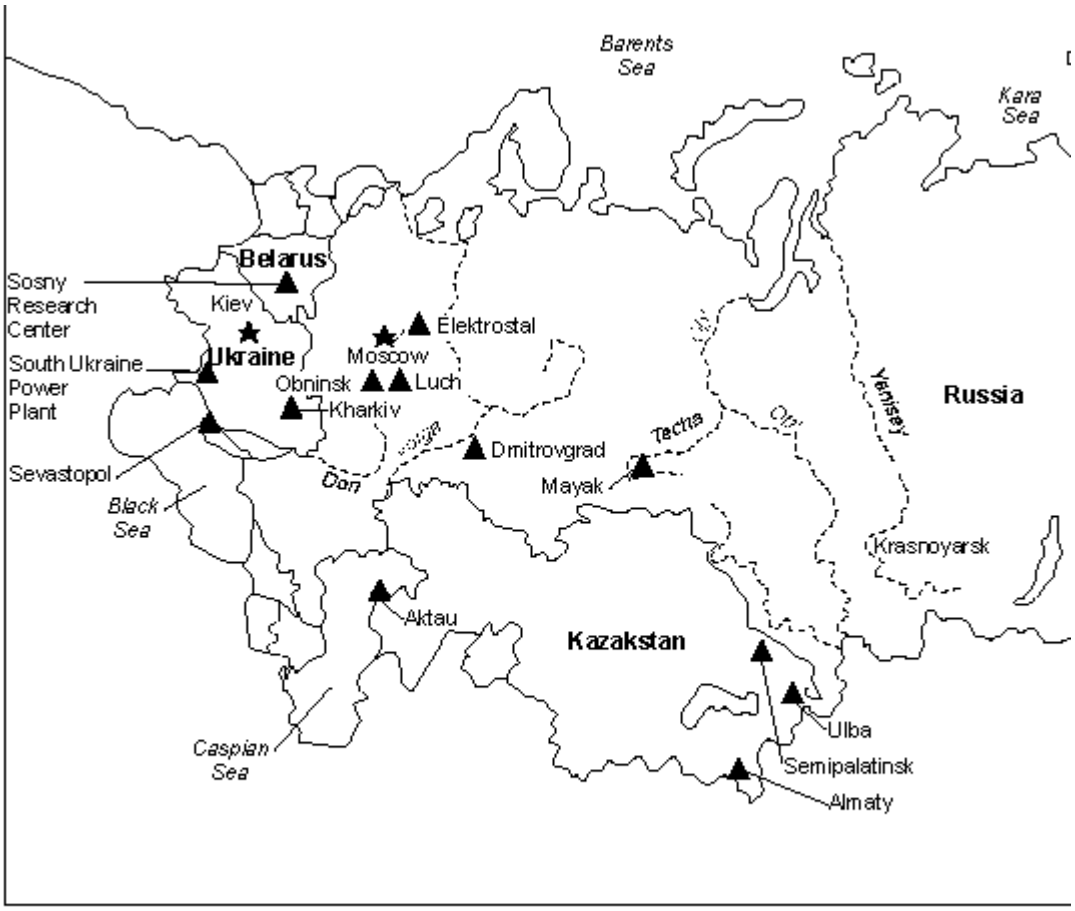
Projects	Value of work performed	Disbursements
Destruction and dismantlement		
Chemical weapons destruction/ lab--Russia	$7.649	$5.120
Environmental restoration- Project Peace--Belarus	4.958	.802
Strategic offensive arms elimination		
Russia	55.925	28.186
Ukraine	52.530	8.753
Kazakhstan	.045	.045
Chain of custody		
Emergency response--Belarus	4.125	3.340
Fissile material containers-- Russia	14.254	6.501
Material control and accountability		
Kazakhstan	.850	.016
Russia	1.189	.368
Ukraine	.660	.117
Storage facility design-- Russia	13.764	12.441
Storage facility equipment-- Russia	4.744	.345
Demilitarization		
Defense conversion-industrial partnership		
Belarus	7.785	6.844
Kazakhstan	.113	.099
Russia	3.059	2.524
Ukraine	6.043	1.966
Defense Enterprise Fund	7.670	7.670
Science and technology center-	20.313	20.313

-Russia
==========
==
Total $205.676 $105.450

--
Note: These figures were current as of March 1, 1995.

APPENDIX 7

Figure 2: Current Nunn-Lugar CTR Government-to-Government Projects in Russia, Ukraine, Kazakhstan, and Belarus



Sources: DOE and GAO.

APPENDIX 8

U.S. Assistance for Nunn-Lugar CTR-Sponsored Government-to-Government Programs

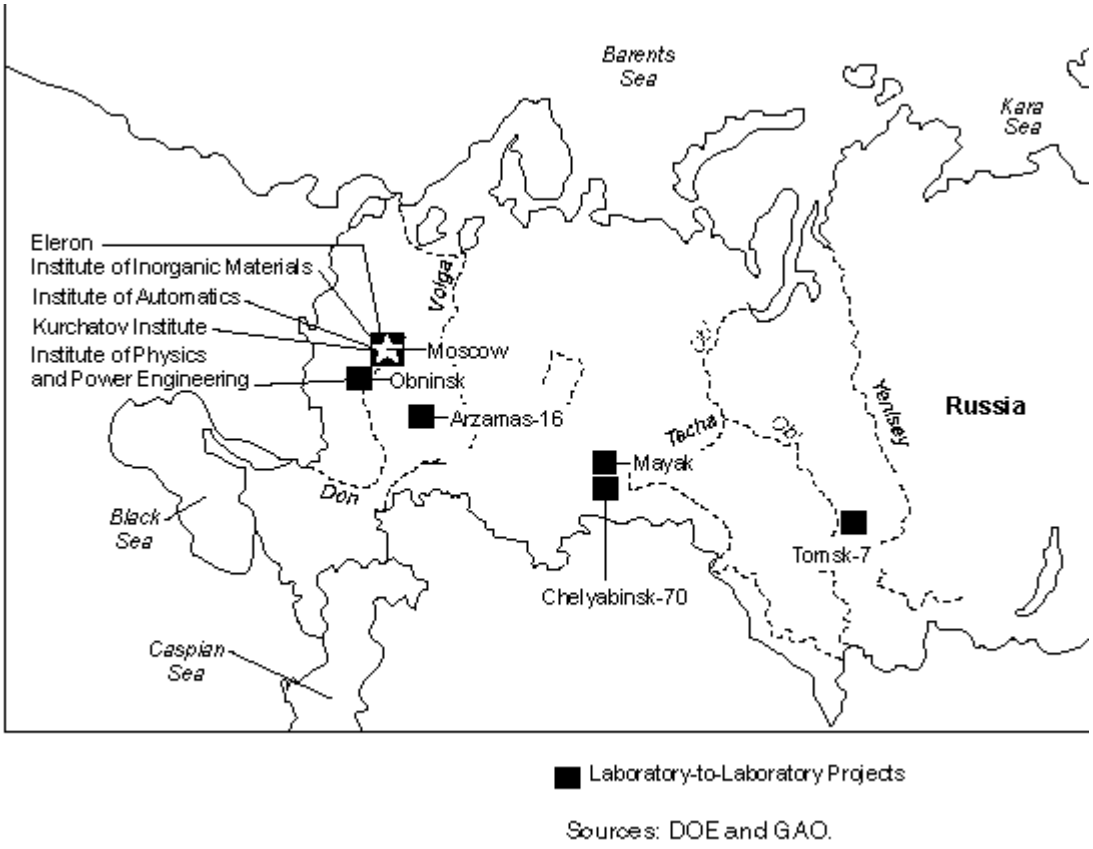
Fiscal years 1991-95)

(Dollars in millions)

Country	Budget	Obligations	Expenditures\a
Russia\b	$30.0	$27.5	$2.0
Ukraine	22.5	21.5	0.7
Kazakstan	8.0	7.6	1.1
Belarus	3.0	2.6	0
Total	$63.5	$59.2	$3.8

APPENDIX 9

Figure 2: Current Lab-to-Lab Projects



APPENDIX 10

U.S. Assistance for Lab-to-Lab Programs

(Fiscal years 1994-95)

(Dollars in millions)

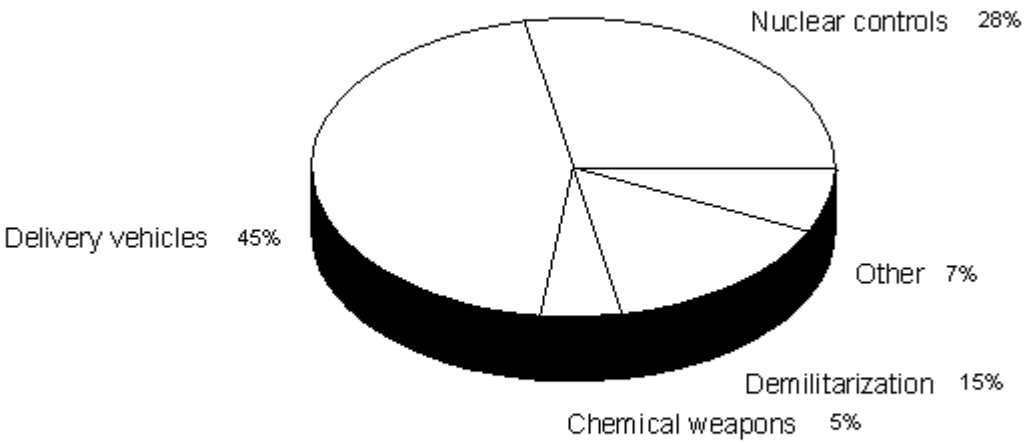
Fiscal year Budget	Obligations	Expenditures
1994		
$2.1	$2.1	$1.6
1995		
15.0	15.0	12.7\a
Total		
$17.1	$17.1	$14.3

APPENDIX 11

Figure 3: Allocation of Nunn-Lugar CTR

1992-96 Funds as of August 5, 1996

Total notifications of fiscal year 1992-96 funds: $1,502,110,000



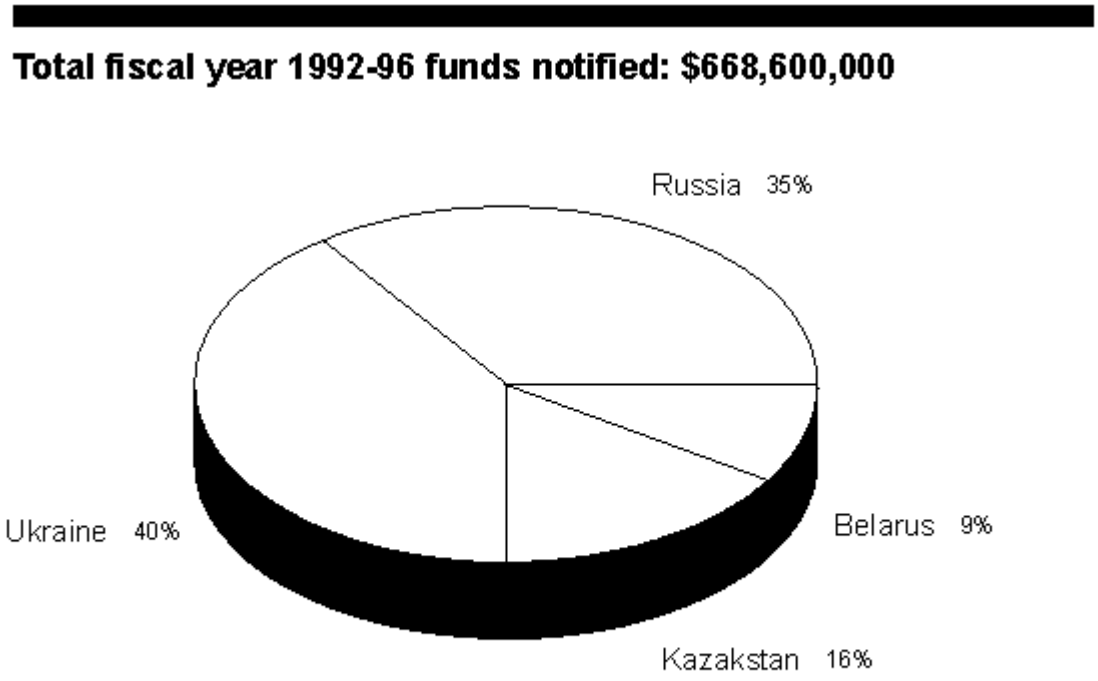
Note: The percentages depicted above are based on DOD's notifications to Congress of its plans to obligate funds for CTR projects. DOD must notify Congress at least 15 days before it may obligate funds for a project.

Source: GAO.

APPENDIX 12

Figure 4: Nunn-Lugar CTR Dismantlement

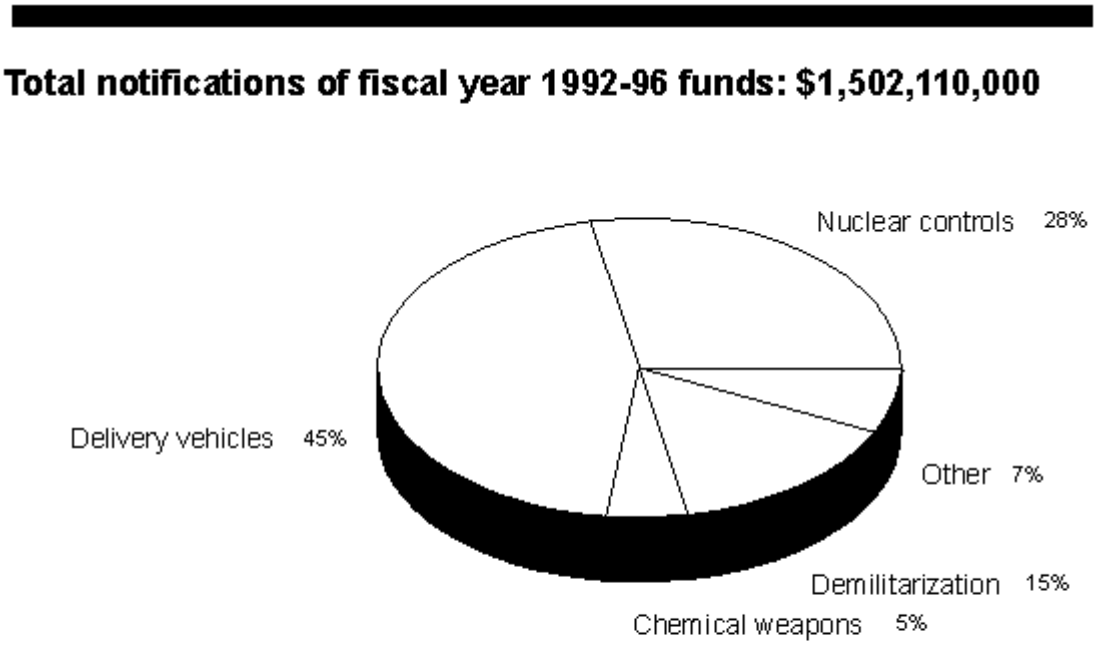
Funds Notified as of August 5, 1996



Source: GAO.

APPENDIX 13

Figure 5: Allocation of Nunn-Lugar CTR Obligations as of August 5, 1996

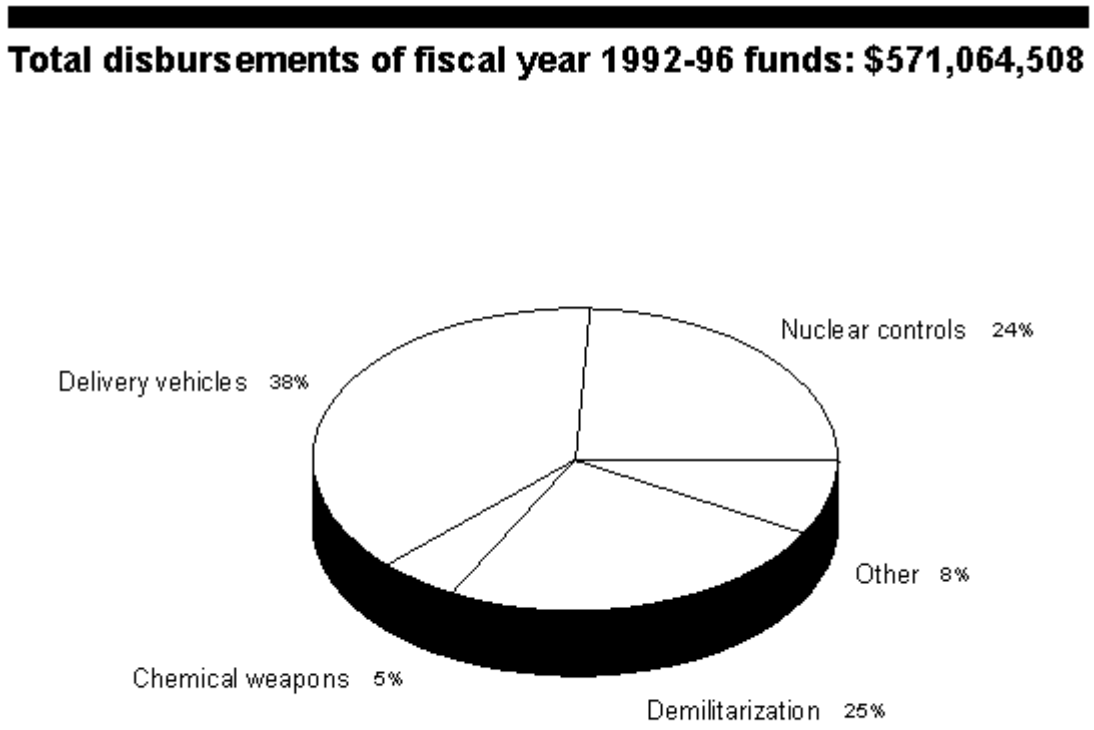


Note: The percentages depicted above are based on DOD's notifications to Congress of its plans to obligate funds for CTR projects. DOD must notify Congress at least 15 days before it may obligate funds for a project.

Source: GAO.

APPENDIX 14

Figure 6: Allocation of Nunn-Lugar CTR Disbursements as of August 5, 1996



Source: GAO.

APPENDIX 15

Table

CTR Funding Status as of August 5, 1996

(Dollars in millions)

Projects by Notification program area to Congress	Obligation	Disbursement
Chain of custody		
Armored blankets (Russia)	$5.000	$3.244	$2.905
Emergency response training and equipment		
Belarus	5.000	4.980	4.147
Kazakhstan	5.000	2.793	0.830
Russia	15.000	14.385	12.946
Ukraine	3.400	2.995	1.381

Export controls

Belarus
16.260 9.974 6.531

Kazakhstan
7.260 4.200 2.455

Russia
2.260 1.517 0.038

Ukraine
13.260 7.729 5.538

Fissile material containers
50.000 48.379 17.106

(Russia)

Fissile material storage facility
15.000 14.999 14.466

design (Russia)

Fissile material storage facility
75.000 57.044 12.396

(Russia)

Industrial Partnering Program
10.000 10.000 0.000

Material control and accountability

Belarus
3.000 2.891 0.828

Kazakhstan
23.000 7.718 2.364

Russia
45.000 42.817 18.349

Ukraine
22.500 21.522 3.200

Multilateral Nuclear Safety
11.000 11.000 8.858

Initiative (Ukraine)

Security enhancements for railcars
21.500 21.200 19.282

(Russia)

Weapons security storage
28.000 2.758 0.374

(Russia)

Weapons security transportation
46.500 24.764 3.692

(Russia)

==========
==========

Subtotal
$422.940 $316.908 $137.736

Demilitarization

Defense Enterprise Fund
7.670 7.670 7.670

Belarus
5.000 5.000 5.000

Kazakhstan
7.000 7.000 7.000

Russia
10.000 10.000 10.000

Industrial partnerships

Belarus
20.000 19.697 11.166

Kazakhstan
15.000 14.905 6.701

Russia
38.000 37.339 12.358

Ukraine
55.000 54.119 40.816

International Science and
35.000 34.585 31.914

Technology Center (Russia)

Research and Development Foundation
10.000 10.000 5.000

(Russia)

Science and Technology Center

Belarus
5.000 4.950 0.468

Kazakhstan
9.000 8.950 0.640

Ukraine
15.000 14.932 2.374

==========
==========

Subtotal
$231.670 $229.246 $141.127

Destruction and dismantlement

Chemical weapons destruction
68.000 48.681 28.325

(Russia)

Continuous communications link
2.300 1.158 0.790

(Belarus)

Government-to-government communications link

Kazakhstan
2.300 1.576 0.670

Ukraine
1.000 0.989 0.464

Nuclear infrastructure elimination

Kazakhstan
23.500 7.084 3.170

Ukraine
23.400 0.896 0.296

Site restoration (Belarus)
25.000 19.430 12.174

Strategic nuclear arms elimination
242.700 182.249 94.527

(Ukraine)

Strategic offensive arms elimination

Belarus
33.900 2.510 0.082

Kazakhstan
78.500 35.174 4.953

Russia
236.000 132.539 100.872

==========

Subtotal
$736.600 $431.392 $245.128

Other program support

Arctic nuclear waste (Russia)
30.000 29.950 17.669

Defense and military contacts

Belarus
3.524 0.780 0.366

Kazakhstan
1.900 0.516 0.057

Russia
15.548 9.061 4.969

Ukraine
9.028 2.737 1.189

Other assessments and
50.900 29.203 21.823

Administration costs

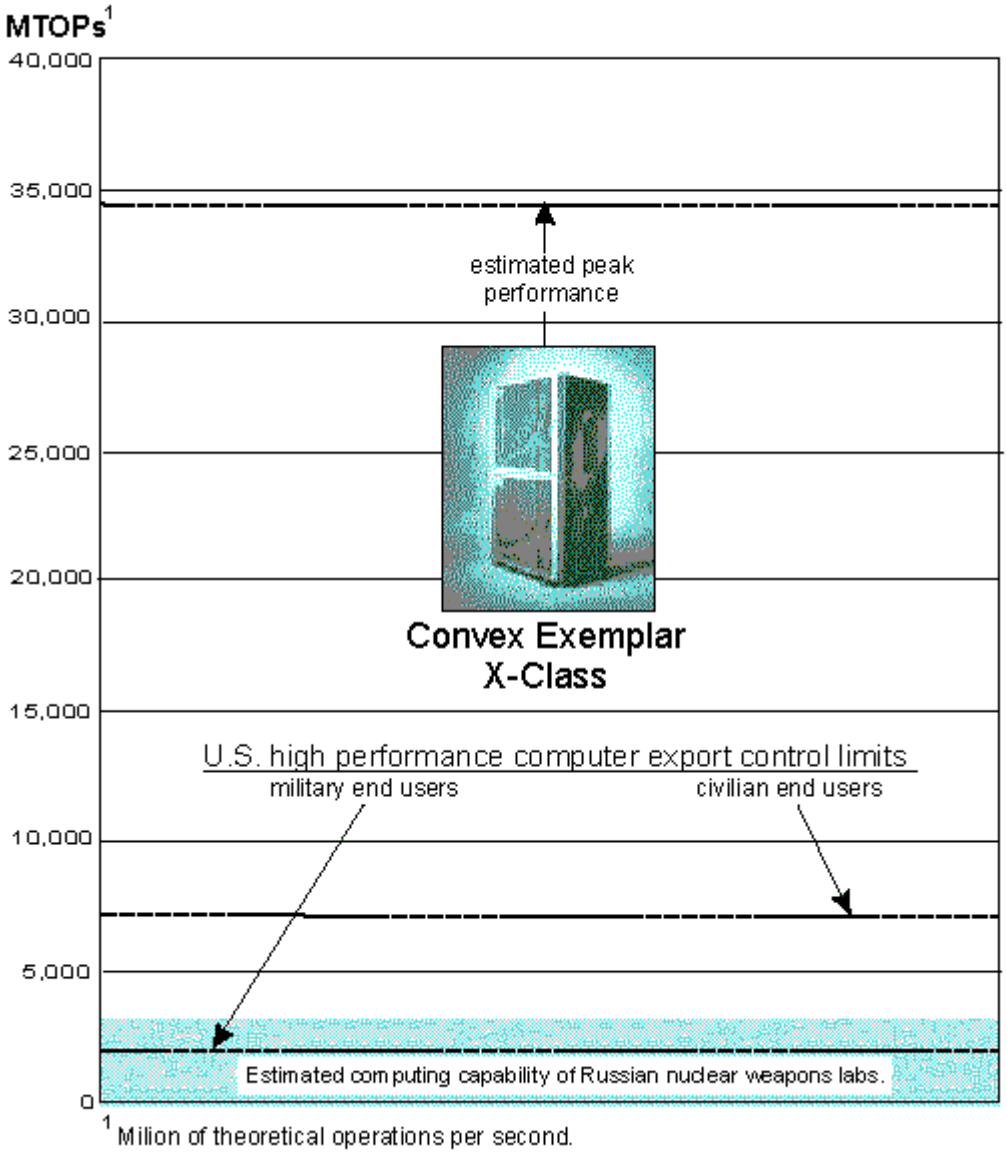
==========

Subtotal $110.900	$72.245	$46.073
Total $1,502.110	$1,049.791	$571.065

----------Note: Figures may not add due to rounding. Source: DOD.

APPENDIX 16

FIGURE 7: COMPARISON of RUSSIAN COMPUTING CAPABILITIES with the CONTEXEXEMPLAR X-CLASS COMPUTER



APPENDIX 17

Department of Defense Projects for Which No Information Was Given on the Condition of Assistance Provided

Continued

Accounting 1997 Report	
Country	Project
Belarus	
Conversion of military technologies and	
capabilities into civilian activities	
Continuous communications links	
	Defense conversion
Kazakhstan	
Government-to-government communications	link
	Emergency response
	Defense conversion
Russia	
Intercontinental ballistic missile	launcher
elimination	
	Heavy bomber elimination
	Liquid propellant transportation and storage

	SS-18 missile elimination
	Fissile material storage facility design
	Fissile material containers
	Emergency response
	Security enhancements for railcar
	Armored blankets
Ukraine	SS-19 missile neutralization and dismantlement facility
	SS-24 missile early deactivation
	Emergency response support equipment
	Emergency response
	Housing conversion
	1998 Report
Belarus	Liquid rocket propellant disposition
	Continuous communications link
	Emergency response
	Defense conversion

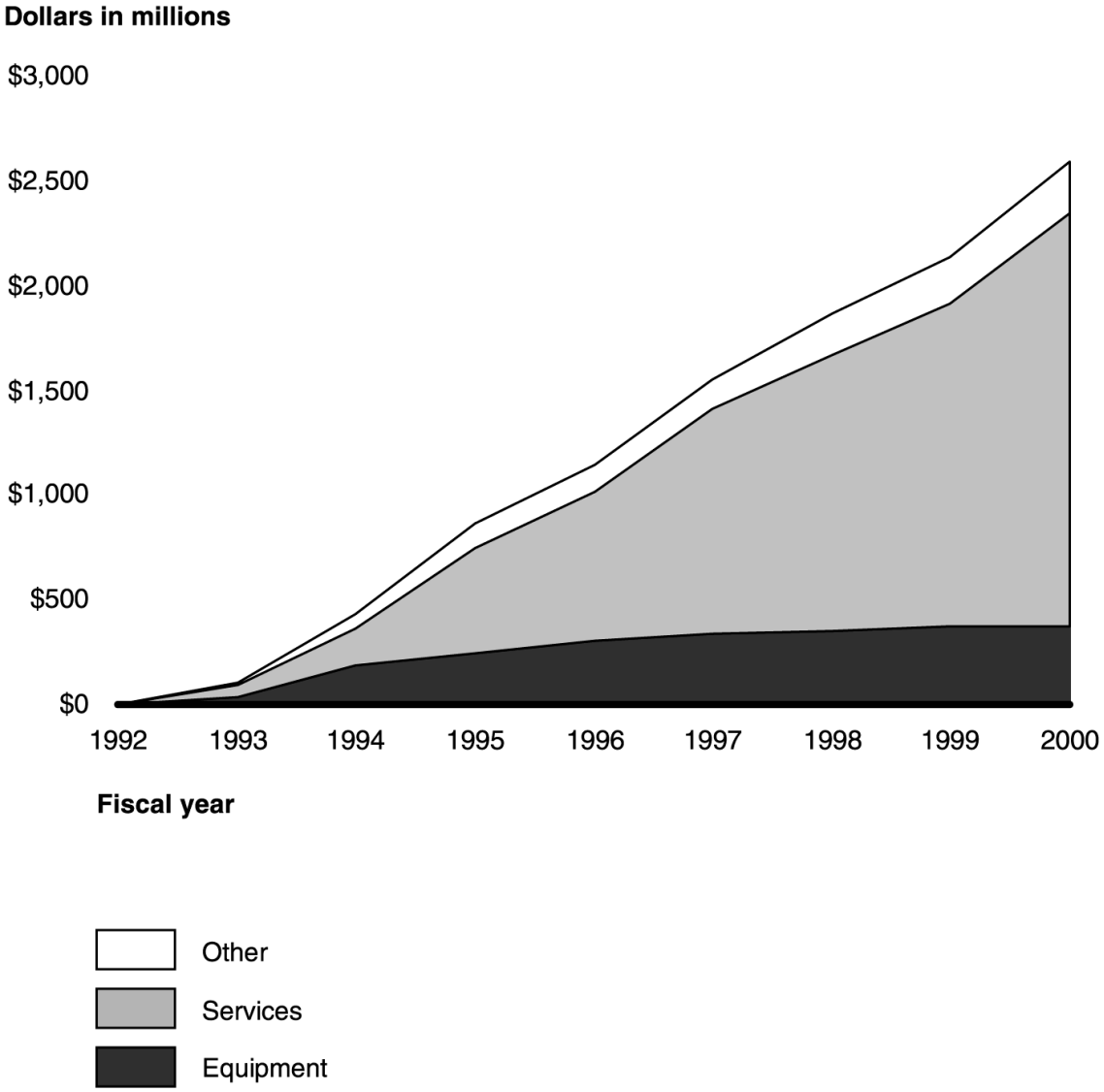
	Conversion of military technologies and
	capabilities into civilian activities
Kazakhstan	Strategic bomber elimination
	Export control
	Defense conversion
Russia	Intercontinental ballistic missile launcher
	elimination
	Solid rocket motor elimination
	SS-18 missile elimination
	Intercontinental ballistic missile launcher
	elimination and intercontinental ballistic
	missile/submarine-launched ballistic missile
	elimination equipment
	Liquid propellant oxidizer disposition systems
	Fissile material storage facility
	Supercontainers

	Export control
	Armored blankets
	Housing conversion
	Industry conversion
Ukraine	SS-19 missile liquid propellant disposition
	SS-19 missile neutralization and dismantlement facility
	SS-19 missile forces demobilization
	SS-24 missile early deactivation
	SS-24 missile silo launcher and missile elimination
	Government-to-government communications link
	Export control
	Housing conversion
	Industry conversion

Source: GAO analysis of DOD's 1997 and 1998 accounting reports.

APPENDIX 18

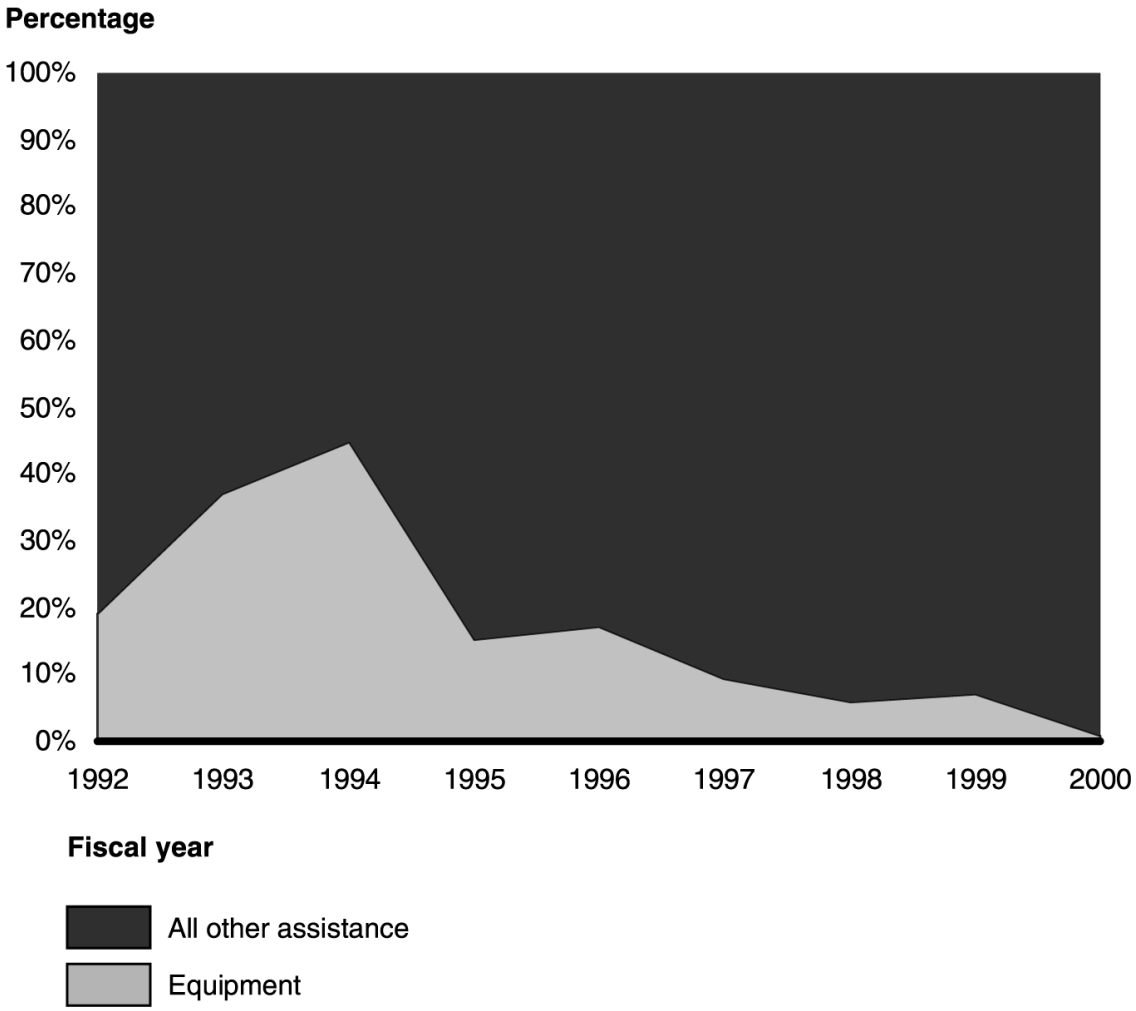
Figure: Cumulative CTR Obligations, Fiscal Years 1992-2000



Source: Defense Threat Reduction Agency.

APPENDIX 19

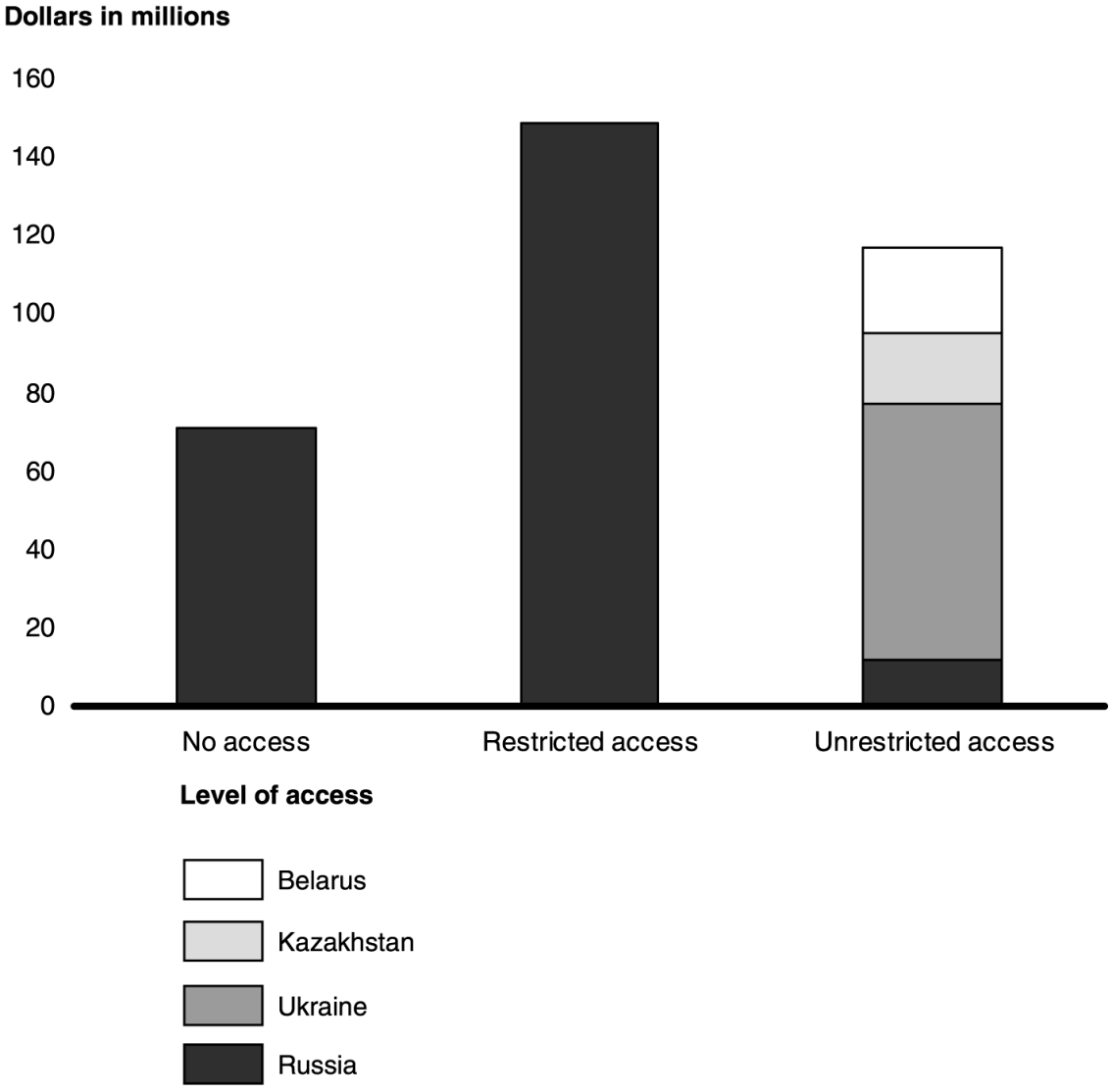
Figure: Percentage of CTR Obligations Provided as Equipment and All Other Assistance, Fiscal Years 1992-2000



Source: Defense Threat Reduction Age

APPENDIX 20

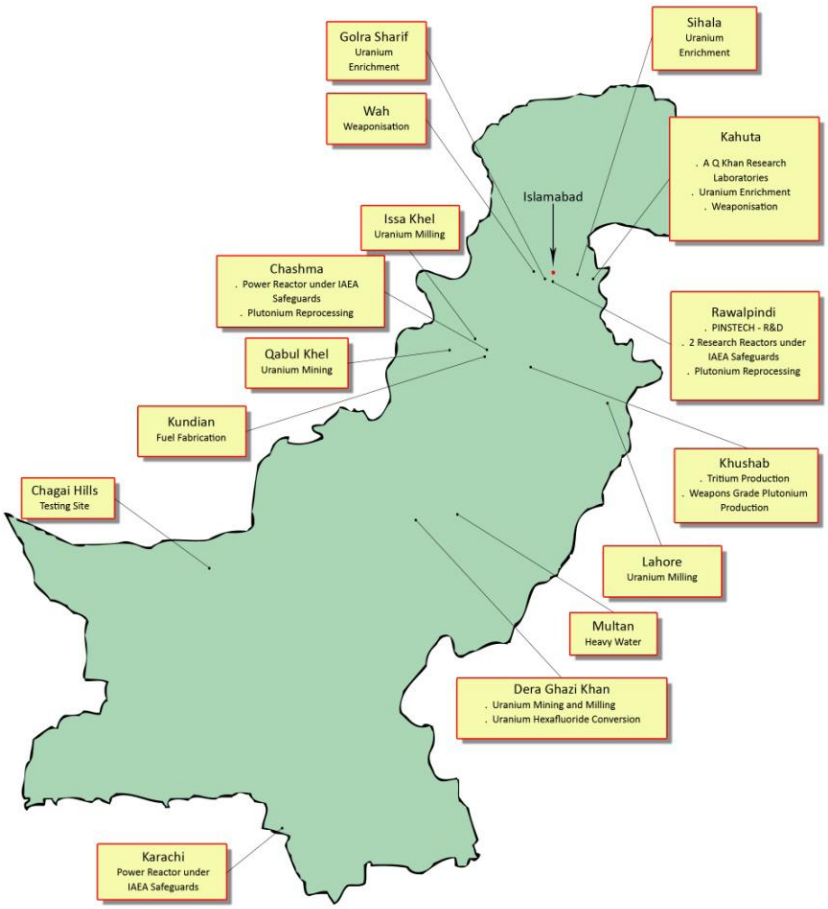
Figure: Value of CTR Equipment Impacted by Recipient Country and Level of Access



Note: Georgia also received about $700,000 worth of CTR equipment that falls within the category of unrestricted access. Russia received $3.1 million of equipment for a program that has been completed and is no longer subject to program management or audits and examinations. Moldova and Uzbekistan have not received any equipment.
Source: GAO analysis on the basis of Defense Threat Reduction Agency data.

APPENDIX 21

PAKISTANI NUCLEAR COMPLEX



PAKISTAN'S NUCLEAR COMPLEX
Note: Only those facilities specifically indicated are under IAEA safeguards