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“THE IAEA ADDITIONAL PROTOCOL: A NEW VERIFICATION REGIME? PERSPECTIVES FOR UNIVERSALIZATION”

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Dedication

This dissertation is dedicated to the memory of my mother, Arzik Arushanyan, a caring person, who devoted her life to wellbeing of her children. Her constant, unconditional love, kindness and support helped me throughout my life. She emphasized the importance of education and dreamed to see us well educated. She has been my role model for care, hard work, persistence and personal sacrifices and inspired me to set high goals and build confidence to achieve them.

***You will never be forgotten***
The views and opinions of author expressed herein do not reflect those of the IAEA or the Government of Armenia or any agency thereof.
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1 INTRODUCTION

1.1 Research Problem at Stake

The nuclear non-proliferation regime, which aims to deter the spread of nuclear weapons, faces considerable challenges these days. The nuclear tests conducted by the DPRK in 2013 and 2016, the unsuccessful outcome of the 2015 Review Conference to the Nuclear Non-Proliferation Treaty or the inability to start negotiations on a Fissile Material Cut of Treaty at the Conference of Disarmament can be considered as indicators of the manifold challenges currently faced. Moreover, in recent years, a number of serious non-compliance cases have been addressed by the IAEA Board of Governors. However, the international community has not remained idle and has developed a number of initiatives and instruments to counter these challenges. One of the most recent efforts is the Humanitarian Initiative that looks at nuclear disarmament from a humanitarian perspective and highlights the catastrophic consequences of these weapons.

In order to maintain confidence in the nuclear non-proliferation regime, the international community relies strongly on the IAEA safeguards regime, which is the only verification mechanism for verifying States’ compliance with their safeguards obligations entrusted by the NPT. To meet these expectations, the IAEA safeguards system need to be adaptive to changes in the nuclear landscape.

Furthermore, and taking into account the experiences of the IAEA in the early 1990s with the discovery of the illicit nuclear weapons programme in Iraq, States adopted the Model Additional Protocol in 1997 to strengthen the IAEA’s capability to safeguard and verify both declared and undeclared nuclear material and activities. Notwithstanding that the new verification standard of the IAEA has a voluntary nature, it is essential for strengthening the IAEA safeguards system, without which the Agency’s capacity to detect undeclared nuclear activities is incomplete.

At the same time, significant efforts are made to continually adapt and improve the IAEA safeguards system by introducing new approaches and concepts to meet new challenges and effectively and efficiently apply existing safeguards measures. Application of the State Level Approach and the State Level Concept serve as the conceptual basis for the design of verification activities for the State and the
implementation of IAEA Safeguards.

Taking a closer look at the instruments, which have been developed to tackle the spread of nuclear weapons and verify that nuclear material is not diverted from peaceful uses to develop a nuclear weapon, one can note different levels of adherence by States. While the NPT is close to universalization with 191 ratifications, the number of States with Comprehensive Safeguards Agreements has reached 182 and States having Additional Protocol in force are 127, with another 20 states having signed the document but yet have to bring it into force. Accordingly, and almost 20 years since the document has been negotiated, another 55 states with Comprehensive Safeguards Agreements haven’t adhered to this document that strengthens the implementation of safeguards.

Immediately the question “why” comes to one’s mind. Why haven’t all states signed and ratified the Model Additional Protocol? Will the number of the states grow with time or has it already reached the “maximum” one can realistically expect?
Indeed, the shown political hesitance to apply this regime evidenced through the slow adherence over time generates questions about States’ deeper, underlying political motives and the effectiveness of the Additional Protocol itself.

In view of that, can one conclude that goal of the AP has been achieved and can it be considered as an effective verification tool? Furthermore, what measures could to be taken to reach the universalization of the Instrument? Should a new criterion be adopted to make it a legally binding instrument? Looking at the Additional Protocol from an IR theory perspective, can it be considered as own regime? Analysis of these aspects is of significant importance for member states of the IAEA and International Organizations charged with the implementation of the verification provisions. These and many other questions are looking for their answers, which this research tries to
Research Aim, Research Question and Hypotheses

The research aimed to identify whether the IAEA Model Additional Protocol is a new verification regime. As part of this effort, this paper carries out comparative analysis of regime analytical components pertaining the NPT, the Comprehensive Safeguards Agreement and the Model Additional Protocol to observe changes, evolution or emergence of new principles and norms. It also contributes to a better understanding of the latest strengthened safeguards standard, its new rules and their impact in strengthening the NPT verification regime and the nuclear non-proliferation regime. Against this backdrop, the objective of the Model Additional Protocol and measures to achieve this objective are analyzed. Moreover, this dissertation targeted in helping to understand the prospects for the universalization of the Additional Protocol by conducting case studies of States, which are the most hesitant to ratify the IAEA Additional Protocol.

The main research question, which lies at the heart of this research, is given below.

Figure 4: Dynamic of Additional Protocol Ratifications
Source: IAEA, iaea.org
“Is the IAEA Additional Protocol a new verification regime and if yes, how effective is it and how does it shape behaviors of States?”

On the basis of the analysis of the theoretical framework below listed sub-questions facilitate addressing the central research question:

1. “What are the legal documents laying down the foundations of the IAEA safeguards regime?”
2. “What are the key measures, features and processes of the IAEA verification and safeguards regime under the existing safeguards documents?”
3. “What are the principles, norms, rules and decision-making procedures under the IAEA Model Additional Protocol, the Comprehensive Safeguards Agreement and the NPT, is there a change of the normative framework?”
4. “What impact does the IAEA Model Additional Protocol have on the IAEA safeguards regime and overall nuclear non-proliferation regime?”
5. “How robust is the IAEA safeguards regime, particularly in the light of the new verification standard (AP)?”
6. “Is it possible to reach the universalization of the Model Additional Protocol or its adherence by all States having the Comprehensive Safeguards Agreement?”
7. “How are the non-compliance cases tackled under the IAEA Model Additional Protocol and the Comprehensive Safeguards Agreement?”

Following hypotheses have been tested to explain the concentration and the course of the research.

1. The Model Additional Protocol is an evolution of the Comprehensive Safeguards Agreement in light of developments and lessons identified from clandestine nuclear programs and emphasizes very much on rules to strengthen the safeguards regime. Its principles and norms are rooted in the NPT and the IAEA Statute. Accordingly, the Additional Protocol is not a new verification regime but dynamic development of already existing regime and change within the regime affecting only the rules and procedures of the regime. Alternatively, The Model Additional Protocol is a new verification regime as alteration of the normative framework (i.e. principles and norms) of the existing safeguards regime resulted in the evolutionary change of the regime and development of a new verification regime.
2. The Model Additional Protocol shapes the behavior of adhering States in abiding with commonly accepted pattern of behavior and has been an effective instrument to detect undeclared nuclear activities and deter the spread of the nuclear weapon. Thus, it has a great impact on robustness of the safeguards regime and overall nuclear non-proliferation regime by providing credible assurances that nuclear material remains for peaceful purposes and there is no undeclared nuclear material. Alternatively, the impact of the Model Additional Protocol on the IAEA safeguards regime and the nuclear non-proliferation regime is not significant as adherence to the instrument is not universal and many States still remain outside of the Additional Protocol not following the commonly approved behavior and rules.

The central research question is addressed by applying the approach of comparative analysis of regime analytical components in the context the Comprehensive Safeguards Agreement and the Model Additional Protocol and drawing parallels with the NPT, namely:

- Principles
- Norms
- Rules
- Decision-making procedures.

The rational for selecting the above highlighted documents is based on the fact that all three documents address the same objective to deter the proliferation of nuclear weapons, by applying strong verification mechanism, which makes them comparable for the research. Second, the NPT and the Comprehensive Safeguards Agreement constitute the main basis for the IAEA safeguards regime, thus any kind of changes in the safeguards regime required close examination. Furthermore, and with understanding the peculiarities of each document, a number of provisions containing principles and norms can be found in each of them, which helps to address the research question.
1.3 Current State of the Research

The literature review and provided bibliography shows that there are numerous publications and research done on the nuclear non-proliferation regime, its verification mechanism, instruments and different aspects of the IAEA safeguards system. The number of publications focusing on the Model Additional Protocol is relatively small and they cover mainly the measures, which were introduced by the adoption of this new instrument.¹ Most of the publications provide knowledge on the content of the Protocol, its technical aspects, history and developments, which led to the negotiations of a new verification tool. These are, *inter alia*, books published in 2000 by Wolfgang Fisher on Nuclear non-proliferation and Safeguards: from INFCIRC/153 to INFCIRC/540 and beyond², a 2009 published book by John Carlson on the IAEA Safeguards Additional Protocol³, Theodore Hirsch book published in 2004 on the IAEA Additional Protocol: What it is and why it matters⁴, etc. They mostly contain policy recommendations how to strengthen the existing safeguards system, how to make it cost-efficient. However, the results of bibliographic searches indicate on the absence of scientific publication, which challenged the IAEA Additional Protocol as a new verification regime and no comparative analysis have been carried out pertaining the normative framework of the Comprehensive Safeguards Agreement and the Model Additional Protocol. Use of the terms such as “NPT verification regime”, “IAEA verification regime”, “IAEA safeguards regime”, “IAEA verification system” and “IAEA safeguards system” by practitioners and scientists in their publications are not theoretically grounded: one can’t identify whether talking about the IAEA safeguards regime or the IAEA verification regime or simply about the NPT verification regime we talk about the same regime or no. No definitions for these terms have been provided. Existing publications don’t shed the light on the use of these definitions based on the theory assumptions. Thus I assume that this research is a novel approach to the issue.

The issue of the significance of the universalization of the Model Additional Protocol was addressed in the IAEA publications, though scientific research on such prospects

¹ Main publications on the IAEA Additional Protocol are from the IAEA ex-officials and IAEA
³ Carlson, 2009.
based on the case studies were a few. Moreover, the literature review indicates that no contemporary publication has been found which explained underlying reasons for States to cooperate under the Additional Protocol. One can therefore conclude that the Model Additional Protocol as a latest verification instrument represents an issue, where relatively limited research has been carried out.

1.4 Research Contribution

As was mentioned above, very limited research on the given issues has been carried out stressing thus the appropriateness of the theme and properness of this research in this particular timeframe, when the debate to strengthen the safeguards system or make it more efficient with applying new concepts and approaches is underway. The empirical research findings on normative framework may trigger discussions within the academic and scientific circles on regime features of the Additional Protocol and its effectiveness as the latest and rigorous safeguards standard. It should contribute to a better understanding of safeguards measures, processes and rules of the Model Additional Protocol. An additional finding based on case studies of States that hesitant to join the Additional Protocol might generate debate on prospects of universalization of the instrument. Furthermore, research of all aspects of the Additional Protocol should be of interest of International Organizations with verification mandate, signaling the consequences as well as stabilizing or destabilizing effects that any changes or dynamics within the regime could result.

As the impact of the Additional Protocol on the IAEA safeguards regime and the nuclear non-proliferation has not been assessed in depth this research may contribute to ongoing efforts of researchers to further develop the topic. Moreover, the dissertation should provide an opportunity for academicians to use it as first-hand information taking into account the usage of the primary sources in the research. Hence, the research findings might provide an incentive for further research on the topic and policy implications to further strengthen the IAEA safeguards regime.

1.5 Limitations of the Research

First, as mentioned previously bibliographic search didn’t reveal publications, which
define the IAEA safeguards regime, the IAEA verification regime and the NPT verification regime and which constitutes their principles and norms, i.e. normative framework, upon which the respective regimes were developed. In some publications the NPT verification regime refereed to the IAEA safeguards, but failing to provide any theoretical explanation. Many assumptions have been considered while carrying out this research finally to draw a line between mentioned definitions. Hence all the analysis of normative frameworks of the hypothetically defined regimes (the IAEA safeguards regime, the IAEA verification regime and the NPT verification regime) is based on my interpretation of the theory. Harald Müllers book on Norm Dynamics in Multilateral Arms Control was greatly contributed to the analysis of regimes’ normative frameworks in this dissertation. My interpretation of the theory might be not accurate for some researches and may raise critical questions, but this is how this dissertation should contribute to further defining such significant terms and regimes.

Second, to understand the prospective of the universalization of the Additional Protocol case studies are carried out only for a few States, which haven’t Additional Protocol in place, but which are considered as significant in certain regional security context. Once State with ratified AP and another one with provisional implementation of AP also have been selected for case studies, taking into account significance of their cases. It might be certain States, which political motivations haven’t been taken into account and which could effect on the conclusions of this research on the issue of the universalization of the Additional Protocol. Based on only certain states the main findings can’t be generalized, however, they can be strong indicators. Furthermore, another issue that should be noted is the fact that Additional Protocol is not a stand-alone document and States can sign or ratify it if they have already the Comprehensive Safeguards Agreements in place. Hence, States, which haven’t the CSA can impact the universalization process, however they are out of the scope of this dissertation and are not addressed in this research, though it is undoubtedly of significant importance to understand underlying reasons of policy options of those States, which haven’t yet sign the Comprehensive Safeguards Agreement with the IAEA.

Third, as highlighted before the IAEA safeguards as a verification mechanism based on the NPT (i.e. a Treaty with different rights and obligations for its regime members, drawing a line between Nuclear Weapons States and Non-Nuclear Weapon States)
applies to States in different scope depending on the Safeguards Agreement in place, so effectiveness of the regime would be measured by the analysis of implementation of all types of Safeguards Agreements, however, this research doesn’t look into those aspects.

1.6 Research Method

A deductive approach is being followed in this research to test hypotheses. Hence, information in relation to the NPT, the Comprehensive Safeguards Agreement and the Model Additional Protocol are analyzed based on the theoretical assumptions of IR theories used in this dissertation as a theoretical base with a view to assess whether the mentioned documents have different normative frameworks or not.

Research is based on a qualitative research approach thus qualitative data analysis has been conducted throughout the research to test the hypothesis. Four types of data was collected and analyzed. Primary and secondary data sources have been used to gain in depth insight on already existing information and knowledge on the topic in hand.

Primary data analysis: Document analysis

As documents considered as a primary data\(^5\), their analysis constitute a crucial research method. Thus this research mainly rests on analysis of primary data. In facilitating my efforts, collection of the data was concentrated in main thematic areas:

- Regime theory
- Nuclear non-proliferation regime and the NPT
- Verification and safeguards concepts, measures and practices
- Safeguards legal base
- The Model Additional Protocol /history, negotiations, outstanding issues, non-compliance cases, etc./.

\(^5\) IAEA Director General’s statements, official IAEA statements, treaty texts, decisions, policy papers, guidelines, technical reports, statements of representatives of member states, Board of Governors meetings’ proceedings, DG’s reports, technical briefings, BG and GC resolutions and decisions, UN SC resolutions and other official documents have been used for this research.
For data collection purposes following utilities have been used:

- IAEA library at the United Nations Office in Vienna
- Information obtained with an immediate involvement with the subject matter experts, delegates, participation at the Board of Governors meetings and the General Conferences and during the evaluation of States implementation of their safeguards obligations /no classified data has been used/
- Utilization of the IAEA internal databases as well as use of commercially available databases and libraries available through the IAEA
- Use of publicly accessible data.

Secondary data analysis: Literature Review

Secondary data used for the purposes of this research represented a significant importance in order to have in depth and comprehensive understanding of the research object first. In addition it was used to supplement the primary data and its findings. Use of certain publications from Academic and Research Institutions\(^6\) enriched my understanding of the outstanding issues and provided additional insights on the topic.

Observations

Observations made while carrying out research as a Safeguards Analyst as well as all those observations I have made and recorded since 2009-2013 whilst attending the

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\(^6\) Publications and websites of following Research Institutions have been utilized for the purpose of this dissertation: the Acronym Institute, the Arms Control Association, the Belfer Center for Science and International Affairs, the Bochum Verification Project, the British American Security Information Council (BASIC), the Brookings Institution, the Carnegie Endowment for International Peace, Carnegie's Non-Proliferation Project, the Center for International Security and Arms Control (CISAC), the Center for Nonproliferation Studies of the Monterey Institute of International Studies (“The Nonproliferation Review” publication), the Cooperative Monitoring Center at Sandia National Laboratories, the Federation of American Scientists (FAS), Hanford Watch, the Institute for Science and International Security (ISIS), the International Association of Lawyers Against Nuclear Arms, the International Network of Engineers and Scientists Against Proliferation (INESAP), International Physicians for the Prevention of Nuclear War (IPPNW), the International School on Disarmament and Research on Conflicts (ISODARCO), the Los Alamos Study Group, the NGO Committee on Disarmament, the Nuclear Age Peace Foundation, the Nuclear Control Institute (NCI), the Peace Research Institute Frankfurt (PRIF), the Peace Studies Program at Cornell University, the PIR Center ((Center for Policy Studies in Russia) “Nuclear Control” publication), James Martin Center for Nonproliferation Studies, The Program on Science & Global Security, Pugwash Conferences, the Russian-American Nuclear Security Advisory Council (RANSAC) , the Stockholm International Peace Research Institute (SIPRI), the Henry L. Stimson Center, Geneva Center for Security Policy, US Congressional Research Service, UNIDIR, Vienna Center for Disarmament and Nonproliferation, The Stanley Foundation, Partnership for Global Security, the Nuclear Security Governance Experts Group (NSGEG), etc.
IAEA Board of Governors meetings and other official meetings and conferences have been considered in this dissertation.

Case Study

In addition to the data analysis another method is also used to give more credibility to the research. Case studies are carried out in the framework of this dissertation in order to understand underlying reasons, which keep States to remain outside of the Additional Protocol and don’t follow widely accepted pattern of behaviour.

The selection of the cases is done on the basis of their significance for this particular research object and illustrates the causal relationship of interest in a particularly bright way. As generalization would not be possible to reach by single case, multiple cases have been selected. For the purposes of this dissertation, those States have been chosen, which have significant nuclear activities and are important in certain respective regional context. Among them are those States that up to day didn’t sign the Additional Protocol. However, two cases were chosen taking into account their importance for the regime universalization. The first one is India, a Non-NPT State, whose AP entered into force only in July 2014, and the second one is Iran, which was implementing its AP previously, however, ceased its implementation in 2005 and under the Joint Comprehensive Plan of Action (JCPOA) it has taken commitment to start provisional implementation of AP starting from January 2016, though Iran hasn’t ratified it yet.

All selected states for case studies have the Safeguards Agreement in place both INFCIRC/153 and INFCIRC/66 type. DPRK hasn’t been chosen for case study as the country announced its withdrawal from the NPT in 2003 and didn’t implement any safeguards obligation.7

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7 According to the Comprehensive Safeguards Agreements with the IAEA, such agreements remain in force as long as the State is a party to the Non-Proliferation Treaty (iaea.org).
Figure 5: Selected States for case studies
Source: IAEA, iaea.org

From the Non-NPT States case studies for the following States are carried out.

1. India – India’s Additional Protocol entered into force in 2014.
2. Pakistan – didn’t sign the Additional Protocol
3. Israel—didn’t sign the Additional Protocol

Among the NPT states with significant nuclear activities and of interest for this research following States didn’t sign the Additional Protocol and research on them is conducted:

1. Argentina
2. Brazil
3. Egypt
4. Syria

Among the NPT states with significant nuclear activities Iran signed but didn’t ratify the Additional Protocol, however, it started provisional implementation of the provisions of the AP under the deal with P5+1.

1. Iran

1.7 Structure of the Dissertation

Throughout the research three categories of States are differentiated given the fact that
the Safeguards Agreements and the Additional Protocols differ from state to state\(^8\) and that IAEA applies “state-specific approach” to form States safeguards technical objectives and identify respective safeguards measures to be applied for each State individually taking into account “state-specific factors”. Those categories are: the Nuclear Weapon States (NWS), the Non-Nuclear Weapon States (NNWS) and the Non-NPT States. Parallels are drawn between the rights and obligations of all three categories of states better to understand the states self-interests, behaviors and regime effectiveness.

![Figure 6: Categories of states in the context of Safeguards Agreements](Source: IAEA)

This research composed of the following main chapters, which are briefly summarized below.

**Chapter I:** Introduction outlines the central research issue, the previous research done on the issue at stake, provides limitations of the research, underlines methods used in carrying out this research and overall research approach. It also highlights the contribution of this dissertation.

**Chapter II:** In this chapter analysis of theoretical framework is provided, which is essential to address the research question and operationalize the theory. Key definitions for the purpose of this dissertation are clarified. Explanations in regard of the basics of verification, i.e. verification mechanism, verification system and verification regime as well as verification measures and technologies, are provided. Based on clarifications of

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\(^8\) Distinction of the States results from the NPT, which defined two categories of States: Nuclear Weapon States and Non-Nuclear Weapon States. Those outside of the NPT defined in this research as Non-NPT States (NPT text).
definitions of theoretical importance provided, main terms pertaining to researched organization and regimes are outlined. Regime theory is used as a main theory for this research; however, main concepts of the regime underlined by neorealism, neoliberalism and constructivism are provided, their assumptions and arguments are opposed to central arguments provided by the regime theory. Research structure is developed based on the theoretical framework. NPT is briefly summarized and regime theory is operationalized in the context of the NPT. Legal frameworks of the NPT verification regime, IAEA safeguards regime and IAEA verification regime are provided, summarized and defined.

**Chapter III:** To give a clear understanding of different Safeguards Agreements and their scope, as well as the legal basis of the IAEA safeguards system, all agreements containing safeguards provisions are provided and analyzed. Main safeguards definitions, measures, objectives and their scope is given.

**Chapter IV:** Builds upon the theoretical framework and analyses the main researched object. Limitations and deficiencies of the Comprehensive Safeguards Agreement are outlined. This chapter provides brief introduction of the Model Additional Protocol, it’s history of negotiations and all measures contained in it. Furthermore, here operationalization of the theory is carried out based on Stephen Krasner’s regime definition. The Comprehensive Safeguards Agreement and the Model Additional Protocol principles, norms, rules and decision-making procedures are analyzed in order to address the central research question.

**Chapter V:** This Chapter looks to the possible prospects of the universalization of the IAEA Additional Protocol by carrying out case studies of States, which are considered significant for universalization purposes. Theory expectations of neorealism, neoliberalism and constructivism on the Additional Protocol adherence are highlighted. Moreover overall impact of the Additional Protocol to strengthen nuclear non-proliferation regime is outlined. Measures going beyond the Model Additional Protocol and concepts such as a State Level Concepts are briefly discussed.

**Conclusions:** Main findings of the research briefly presented in this chapter to answer the central research question. Furthermore, theoretical and policy implications acquired during the research are underlined. In conclusion, some recommendations are given for future research purposes.
2 THEORETICAL FRAMEWORK

2.1 Research Approach

In order to address the central research question of this dissertation it is important to develop the overall theoretical framework. For that purpose this chapter is the basis for further empirical research by looking into the concept of the regime from the perspectives of three theories of international relations. However, the regime theory is used as a central theoretical concept for this dissertation.

Taking into consideration that regime theory considers as a key approach for analyzing international regimes, main focus is paid accordingly to this theory.

Based upon the theory driven findings subsequent research criteria are elaborated. First of all, main definitions related to the regime theory, as well as terms used throughout the dissertation, which are significant for this research are exposed. Main researched International Organization and researched regimes are briefly discussed.

Second, the dissertation has insights into the development of the regime theory and general characteristics and assumptions of three theories of international relations on the concept of the regimes are presented, namely power-based, interest-based and knowledge-based theories displaying commonalities and differences in a comparative manner. Third, analysis of the regime theory is provided, main arguments on regime development, change, regime analytical elements, regime effectiveness and other aspects of regimes are illustrated. Regime theory is being tested in the dissertation in the scope of the NPT, the Comprehensive Safeguards Agreement and the IAEA Model Additional Protocol. Theory helps to identify regime features of the Additional Protocol, whether it corresponds to the definition of the regime and whether it meets the criteria of the regime components. Finally, knowledge gained during the analysis of theoretical framework of international regimes and international organizations is used for elaboration of the research approach and appropriate research criteria.

2.2 Important Terms and Elements Pertaining to Verification

2.2.1 Definition of Verification

Various definitions were used for the term “verification”, especially for arms control treaties, which are given in this subchapter. As such verification “provides assurance
that States execute and respect agreed commitments, thereby building confidence between them [...].

As defined in a “Handbook on Verification and Compliance” issued jointly by the Verification Research, Training and Information Centre (VERTIC) and the United Nations Institute for Disarmament Research (UNIDIR), “verification is the process of gathering and analyzing information to make a judgment about parties’ compliance or non-compliance with an agreement.” The U.S. Department of Energy (DOE) considers verification as measures, which give assurances or confirm that state’s declared activity is in place. The term “verification” itself means to determine the correctness of a fact, statement by a process of examination.

Another but similar definition elaborated in its reports a UN Panel of Government Experts on verification, where it is highlighted, “verification is a tool to strengthen international security. It involves the collection, collation and analysis of information in order to make a judgment as to whether a party is complying with its obligations. Such obligations may derive from treaties, agreements or arrangements or from decisions of competent multilateral organs such as the Security Council.”

The purpose of the verification is to provide assurances to the Treaty Parties or regime participants that members are implementing their treaty obligations effectively, which helps in its turn to build confidence among them. Verification greatly relies on political, financial and technical support of regime members. Verification is effective when its tools are good and continually advances its monitoring and relevant verification techniques and technologies.

2.2.2 Verification System, Mechanism and Regime

As of some scientists there should be no confusion between a verification, which is a process of technical fact finding, followed by legal evaluation and a broader compliance control, which includes follow up actions on verification outcomes, i.e.

mechanism of sanctions or other measures.\textsuperscript{14} In order to differentiate compliance control and verification, UNIDIR provides definitions of the “verification regime” and “verification system”, per se verification regime is:

“\textit{[t]he sum total of the arrangements for ensuring verification of compliance with a treaty, consisting of legal commitments, data exchange and notification arrangements, monitoring methods, communication, consultation and clarification mechanisms and an agreed method for making verification judgments. Sometimes also taken to include the compliance mechanism(s)}”;

whereas the verification system is:

“\textit{[t]he sum total of the elements which provide information for making a verification judgment, but not including the compliance mechanism for making that judgment.}”\textsuperscript{15}

Another term, which UNIDIR came up with, is the verification mechanism, which is “\textit{a particular means of verification that forms part of a verification system}.”\textsuperscript{16}

To sum up verification regime is more comprehensive and includes compliance mechanism and can come up with the judgment on states’ compliance, which can’t be done by a verification system, which incorporates only various verification tools and techniques.

Verification regime was defined also “\textit{...as a decision-making system designed to ascertain whether and to what extent a State fulfills its obligations under a Treaty}”.\textsuperscript{17}

Ideal verification regime supposed to make decisions only on those commitments, which are measurable and not ambiguous. Centralized, decentralized and collective decision making mechanisms of verification regimes have been identified. In some cases, a treaty can have no decision-making mechanism, which means no verification mechanism. IAEA is considered as a vivid example of a centralized verification regime, where independent international organization decides on the basis of collected data on State’s compliance. Though, it should be noted that, for example, the NPT doesn’t contain provisions on compliance, i.e. verification mechanism in the Treaty

\textsuperscript{15} UNIDIR/VERTIC (2003), p. 131.
\textsuperscript{16} UNIDIR/VERTIC (2003), p. 131.
\textsuperscript{17} Avenhaus / Kyriakopoulos (2006), p. 12.
2.2.3 Categories of Verification Regimes

Four categories of verification regimes have been identified:\(^{18}\)

**Unilateral verification**: Such verification includes national technical means and other forms of intelligence and surveillance carried out by certain states;

**Cooperative verification**: This type of verification requires a regime member to forego certain measures to disguise behavior or to take other steps to enhance transparency. Arms control treaty verification mechanisms usually contain such cooperative measures. Non-interference with verification tools is a key component of any cooperative regime. Cooperative measures represent early indicators of regime members’ changes in their interests;

**Multilateral verification**: This type of verification is carried out by a group of international experts. Roger Harrison brings an example of the verification mechanism under the NPT, overseen by the IAEA, as a multilateral verification. “Multilateral verification has the advantage of allowing concerted international action for enforcement of violations. It can also create new norms or strengthen existing ones. It has the disadvantage of requiring agreement between multiple international actors who may have differing interests or interpretations of events”;\(^{19}\)

**“Open” verification**: To this type of verification mechanism belongs verification by private observers or NGOs. Open verification has no enforcement element, except that of the public pressure. It can generate more obstacles in open and democratic societies where public pressure can be tolerated than in closed societies where it has little applicability.\(^{20}\)

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\(^{19}\) Harrison (2011), p. 10.

2.2.4 Verification Types

Verification is a political process, which ultimately comes up with an evaluation and finally judgment on states’ compliance with their treaty obligations. This mechanism can be used depending on the distribution of the power within the regime as well as depending on the members’ interests based on their political motivations. As such “positive” and “negative” verifications can be identified. The aim of the positive verification is to verify declared activities and assure that the state honours its international obligations, whereas negative verification aims to assure the absence of undeclared activities.

Reliant to the issue and political context verification can be done in a cooperative manner or it can be enforced on a state, i.e. in non-cooperative manner. Of course, a cooperative setting eases increased transparency, facilitates data collection and states’ compliance can be verified and confirmed without an extra effort. Voluntary actions such as clarifications and amplification of certain events, which are not part of the state’s obligations, generally facilitate verification. In the cases, when a cooperative verification environment is established “non-compliance, if it occurs, may be the
result of honest mistakes or misdirected actions, rather than a deliberate intention to be non-compliant.” 21 During a non-cooperative verification, the state acts not in a transparent manner; state behavior can undermine realization of the monitoring and data collection. When a state is not cooperative, anomalies can be signs of non-compliance and further measures would be needed to determine compliance or non-compliance. In both cases, uncertainties should be determined to meet state parties’ expectations.

The methods used to collect data for the sole purposes of verification can be characterized as cooperative and unilateral. “Cooperative measures are those in which the party being verified, as part of the agreed methodology, assists the verifier in order to facilitate the verification process. Examples include data exchanges, notifications and on-site inspections. Unilateral methods, such as the use of national technical means, require no such assistance by the party being verified.” 22

Well-designed verification mechanism can identify violation in a timely manner and provide ground for collective action to react on a case before it becomes a conflict. Verification can have a stabilizing effect if it establishes compliance with explicit and observable rules and regime members can make others accountable for their non-compliance. 23

2.2.5 Objectives of Verification

The overall objective of verification is detection of non-compliance, deterrence of violations and confidence building among regime members. 24 These three elements constitute the main objectives of verification regimes.

21 UN (1995); A/50/337, Chapter II, Art. 20.
22 UN (1995); A/50/337, Chapter II, Art. 19.
The central role of the verification is the detection of non-compliance. Early detection of non-compliance would allow the international community to act, thus not giving the violator opportunity to benefit from the breach. However, detection of the breach of obligations even after the event can still be important and can facilitate addressing the issue. Successful detection depends on the capabilities of the verification organization such as the verification techniques and technologies used during the monitoring, professional experts as well as financial means States invested for the success of the mechanism. Effective detection is determined by intrusiveness of detection means that regime members agree on.\textsuperscript{25}

Verification of compliance is the most significant and crucial issue in arms control treaties. If the Treaty is “unverifiable” it can prevent states to sign it.\textsuperscript{26} A viable verification system with a high degree of assurance can become an important element of national security. And on the contrary, if the verification mechanism is not reliable then the costs of implementing the treaty would not be justified in the context of their impact on their national security and at the same time non-compliance can be a serious threat to national security.\textsuperscript{27} Thus the regime should have a quick response mechanism envisaged for the cases of non-compliance.

If the verification system is stronger it is more likely to deter regime members from violation. No regime member can be absolutely sure whether the existing verification mechanism can ensure significant level of deterrence and a state, which violates the regime norms and rules, also can’t be sure whether its actions will remain undetected.

\textsuperscript{25} UNIDIR/VERTIC (2003), p. 2.
\textsuperscript{26} Avenhaus/Kyriakopoulos (2011), p. 10.
\textsuperscript{27} Avenhaus/Kyriakopoulos (2011), p.11.
or not. However, only the existence of the verification mechanism would provide certain level of deterrence.\textsuperscript{28}

The key role of the verification in building trust among nations is uncontested. Observance of the rules of the verification mechanism in place allows regime members to demonstrate their compliance and at the same time shapes the behavior of others to follow the formed behavior. Some treaties contain confidence-building provisions, which are good opportunities for regime members to show their compliance in a transparent way. Verification can play a significant role in monitoring compliance with confidence building measures.\textsuperscript{29}

Organizations or states are never sure how much verification is enough, should they already stop with the verification process or is there still need for further verification? The overarching aim of the verification mechanism mainly should be to measure at which extent the Treaty goals are reached. However, the nature of arms control regimes makes absolute verification a difficult, or even an impossible aim to accomplish. States behaving in support of their national interest would limit any intrusive disclosure about their defensive and offensive national capabilities. If a mechanism of punishment in terms of sanctions might be applied, then states will have a little stimulus to provide precise information.\textsuperscript{30} Though the results of the verification process can answer the question whether obligation was fulfilled or violated, it nevertheless can’t assure 100 percent of either non-compliance or compliance. Thus during the negotiations of the verification mechanism of a particular Treaty the key issue is “whether verification regimes must control capabilities by making noncompliance impossible, or whether they should have the realistic (but more intangible) objective of making defection less attractive than cooperation”.\textsuperscript{31}

2.2.6 Verification Elements

Though verification is mostly political taking into account contradictory positions and various interests of states, it contains technical elements and processes during the whole monitoring process. The basic elements of the verification system may

\textsuperscript{28} UNIDIR/VERTIC (2003), p. 3.
\textsuperscript{29} UN (1995); A/50/337, pp. 270-272.
Declarations of data—baseline, periodic and final;
Compilation, analysis and cross-checking of declared data and other information;
Verification of declared information, remote and/or in-field through continuous monitoring and/or on-site inspections;
Cooperative measures to make verification easier;
Clarification mechanisms in case of technical difficulties, open questions or inconsistencies;
Fact-finding missions or challenge type inspections.
Verification elements chosen is a reflection of the policy goals of the regime members, an outcome of trade-offs and existence of certain factors such as cost-benefit trade-offs, likelihood of violations, verification capability, etc.\textsuperscript{33} For verification purposes different verification techniques can be used. They categorized as remote or on-site, passive or active. Some examples of verification techniques are given in the below illustrated table.

<table>
<thead>
<tr>
<th>Type of techniques</th>
<th>Monitoring means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote monitoring</td>
<td>High resolution satellite imagery</td>
</tr>
<tr>
<td></td>
<td>Aircraft</td>
</tr>
<tr>
<td></td>
<td>Remotely-located ground stations</td>
</tr>
<tr>
<td></td>
<td>Environmental monitoring</td>
</tr>
<tr>
<td></td>
<td>Cameras</td>
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<tr>
<td>On-site monitoring</td>
<td>On-site inspections</td>
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<tr>
<td></td>
<td>On-site monitoring (visual observations)</td>
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<tr>
<td></td>
<td>Environmental sampling</td>
</tr>
<tr>
<td>Open source date</td>
<td>Internet, media, commercial databases</td>
</tr>
<tr>
<td></td>
<td>Scientific and Technological literature (S&amp;T databases)</td>
</tr>
<tr>
<td>Fact-finding missions</td>
<td>Elements of remote and on-site monitoring</td>
</tr>
</tbody>
</table>

\textit{Table 1: Verification techniques}
\textit{Source: UNIDIR/VERTIC (2003), p. 18 and IAEA}

\textsuperscript{32} UNIDIR/VERTIC (2003), p. 17.
Verification technology plays an important role in order to carry out successful verification activities and receive credible data. The better is the verification system the greater will be deterrence. Nowadays, a wide variety of technologies are being used by different verification regimes. For instance, IAEA as a verification organization applies various novel technologies for monitoring such as remote sensing, nano-composite semiconductor technology, laser induced breakdown spectroscopy, etc.

The verification regime has five interconnected components: treaty content, monitoring, data analysis, evaluation and resolution.34

2.3 Theoretical Framework

As it appears in the first research question, the IAEA Additional Protocol was challenged as a new verification regime. For better understanding of the researched object basics of verification has been described in the previous sub-chapter. This dissertation is dealing throughout the research with the nuclear non-proliferation regime and the IAEA safeguards regime, subsequently regime theory fits the best to

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the theoretical framework and it is applied as a theoretical embedding for the current research. Already for some decades international regimes have been studied to understand why states cooperate with each other, how they realize their interests via international cooperation, with what means and under which circumstances. My intention doesn’t go far to illustrate the history or how and when the regime theory was created as it is beyond the interest of my research and would not contribute to the main findings, but rather to understand institutionalized patterns of state behaviors. Three theoretical schools (power-based, interest-based and knowledge-based theories) have put forward their perceptions of the regime: how it forms and how it shapes behavior. Analysis shows that these three schools of International Relations compete with each other and illustrate that none of these schools is able to capture all fundamental dimensions of international regimes alone. Literature review clearly presents a strong disagreement among the theorists trying to argue, which school is better equipped to explain international regimes and other phenomena in international politics. Given the significance of the definition of the regime for this research, it is decisive to have an in-depth analysis of not only various definitions of the regime but also four particular terms and their definitions, which are co-related and central in the framework of the regime theory, though, need to be differentiated from each other, in order not to confuse. As many scholars associate regimes with institutions or vice versa, their widely adopted definitions need to be explained here. Definitions of the following terms are provided:

1. International Regimes
2. International Institutions
3. International Organizations,
4. International Agreements.

2.3.1 Definitions

2.3.1.1 International Regimes

How to identify whether the IAEA Model Additional Protocol is a new regime? In order to answer this question and in a broader sense to respond to the main research
question of this dissertation, first of all the main concepts, definitions and major arguments need to be explored. Second, the relationship between regimes, their effects and shaped behavior should be understood.

Neither realists nor the representatives of other schools were able to provide arguments that reasonably explained a complex, interdependent and dangerous world, therefore scholars were obliged to come up with new means and to explore new ways to intellectually organize and understand international activity.35

Best to explain if the given instrument is a regime, as a starting point, the second chapter starts looking to a few definitions of the “regime” as such defined by various scholars. An existing discrepancy and misperception of international regimes derives from ontological and epistemological differences among theorists, however, there are prevailing views and beliefs pertaining to international regimes. The most common belief is to equate regimes with patterned behavior. If there are regularity in behavior some norms, rules and principles should exist to account for it.36 However the existence of patterned behaviour alone “should not lead one to suspect that a regime lurks below the surface”.37 Though there are some definitions of international regimes, the widely accepted consensus definition exists. Despite that fact, there are dissatisfactions and disagreements with the consensus definition among the regime students. Some of them are supporters of “meta-regimes” (Krasner’s regime explanation), which consist of “principles and norms’ and others are followers of “regimes” (Keohane’s regime explanation), consists of “rules and procedures”. The German school regime students, for example, in their empirical work relied on consensus definition - the so-called “meta-regime”.

The consensus definition of “international regime” was agreed in 1982 conference and later elaborated by Stephen Krasner.38 According to him, regimes are:

“Implicit and explicit principles, norms, rules and decision making procedures around which actors’ expectations converge in a given area of International Relations. Principles are beliefs of fact, causation, and rectitude. Norms are standard of behaviour defined in terms of rights and obligations. Rules are specific prescriptions

\[\text{\scriptsize 36} \text{Puchala/ Hopkins in Krasner (1983), pp. 61-69.}\]
\[\text{\scriptsize 37} \text{Haggard/Simmons (1987), p. 493.}\]
\[\text{\scriptsize 38} \text{Hasenclever/ Mayer/ Rittberger (1997), p. 8.}\]
or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice. 39

This definition can be well illustrated by the non-proliferation regime. 40 In the following chapter, the non-proliferation regime is operationalized in the context of the Krasner’s definition. If we follow Krasner’s arguments regimes should be understood not as temporary arrangements but something more, which didn’t change with each move in power or interests.

Robert O. Keohane and Joseph Nye 41 expound regimes as “sets of governing arrangements” that include “networks of rules, norms, and procedures that regularize behavior and control its effects”. 42 It is important to mention that according to Keohane, international regimes are international institutions and should be studied as such. 43 Further in the dissertation the definition of international institutions is exposed and their parallels with regimes analyzed. Keohane further defines the concept of regime as follows: ‘Regimes are institutions with explicit rules, agreed upon by governments that pertain to particular sets of issues in international relations’. 44 This definition puts aside principles, norms and procedures, and turns to the concept of the rules, which is clearly in contradiction with Krasner’s consensus definition. So, Keohane pays attention only to explicit rules, whereas Krasner takes into account explicit as well as implicit principles, norms, rules and procedures.

Some other definitions of international regimes were provided by other scholars as well, including Ruggie, Haas, Stein, Young to name a few. Cognitivist (knowledge based theory of regime) argues that rationalist (neoliberal and realist) explanations of international regimes are incomplete. For instance, John Ruggie 45, representative of constructivism, refers to a regime as “a set of mutual expectations, rules and regulations, organizational plans, energies and financial commitments that have been accepted by a group of states”. 46 As an example of a regime he brings the international

41 Robert O. Keohane has greatly contributed to the development of the regime theory.
45 Ruggie contributed greatly to the emergence of the constructivist approach to international relations, which seriously considers the role of norms, ideas, and identities, together with other factors in determining international outcomes.
arrangement known as a safeguards regime, which aims at safeguarding civilian nuclear material, and obliges the states to “submit specified aspects of national behavior to the regime’s purview, prescribed rules and practices for national materials accounting, and regulations governing international inspection”.  

Ernst Haas, another representative of the constructivism school, debates that a regime encompasses a mutually coherent set of procedures, rules and norms. He describes regimes as “man-made arrangements (social institutions) for managing conflict in a setting of interdependence”.  

According to Oran Young, representative of the neoliberal school, “regimes are social institutions governing the actions of those interested in specifiable activities”, as such he defines regimes as “recognized patterns of behavior or practice around which expectations converge”. He clearly articulates also that the members of international regimes should always be sovereign states.

Coming to the definition of the regime by Arthur Stein, another scholar of the neoliberal school describes the regime as “the rules of the game”. He mentions that regimes are defined as international organizations. And that as long as international state behavior results from non-restricted and independent decision making, there is no international regime. “A regime exists when the interaction between the parties is not unconstrained or is not based on independent decision making”.  

Stein also argues that the regimes will not arise there when some actors obtain their most preferred outcome. However he thinks that there are situations, in which all the actors have an stimulus to avoid independent decision making: situations, that is, in which individualistic self-interested calculation leads them to prefer joint decision making because independent self-interested behavior can result in undesirable or non-optimal outcomes. He names these situations as “dilemmas of common interests” and “dilemmas of common aversions” and the regimes dealing with these dilemmas are not based on principles.

Looking to these entire definitions Susan Strange posits that the concept of regime can

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48 Neofunctionalist studied collective identities.
53 Stein et al in Krasner (1983), p. 120.
be so expanded as to intend quite steady distribution of the power to influence outcomes. She finds the concept of the regime as a misleading “that obscures basic economic and power relationships”.54

These various definitions of the regimes, which differ from each other in certain instances show that scholars are still trying to find the exact definition of the regime. Despite the fact that certain definitions of a regime were outlined, in this dissertation S. Krasner’s definition is taken as a basis for further analysis, especially during the analysis of regime’s analytical components.

### 2.3.1.2 International Institutions

There is no broadly accepted definition on international institutions. Generally, terms such as “regimes” and “institutions” are substituted; moreover some scholars treat the regimes and institutions as being the same concept. A huge research is devoted to the impact of international institutions on behavior and policies of dominant powers. Some studies looked to the norms, backed by institutions and to their role in affecting states’ behaviour. The institutions perceived as objects to constrain the actor’s behavior. Mearsheimer, representative of the Neorealist School, defines institutions as a set of rules, which lay down the behaviors for states’ cooperation as well as for their competition with each other. “They prescribe acceptable forms of state behavior, and proscribe unacceptable kinds of behavior”.55 He reasons that the rules of patterned behaviour are negotiated among the states; states mutually agree the high norms, which govern the behaviour. Mearsheimer refers then to Krasner’s explanation of the norms. Robert O. Keohane defines regimes as efficient institutions.56 International Institutions are “persistent and connected sets of rules (formal and informal) that prescribe behavioral roles, constrain activity, and shape expectations.”57

57 Keohane (1989), p. 3.
2.3.1.3 International Organizations

From literature review one can note some parallels and links between international organizations and international regimes, that’s why some clarifications are brought here on scholars perceptions about international organizations.

International Organizations are considered as tools with which states pursue their own interests in the best way and, in which policy options mainly reflect the interests of the most powerful states. “International Organizations are permanent institutions of conference diplomacy in which states may exchange information, condemn or justify certain actions and coordinate their national political strategies.”\(^{58}\)

According to realists international organizations are used by dominant states in order to enforce their power politics more efficiently pursuing their self-interest. Creation and the success of the international organization depend on hegemon, which owns the power resources.\(^{59}\)

Hasenclever/Mayer/Rittberger argue that terms such as “international regimes” and “international organizations” can’t be treated as the same and they are not co-existent. In many cases regimes will be accompanied by organizations established to support the regimes in different ways.\(^{60}\) For example, in case of the non-proliferation regime the IAEA assists the regime members to realize the NPT principle of verification.

Rittberger/Zangl/Kruck define International Organizations as a specific type of international institutions. According to them International Institutions divide into two categories: international organizations and international regimes. These two institutions “characterized by behavioral patterns based on international norms and rules, which prescribe behavioral roles in recurring situations that lead to a convergence of reciprocal expectations.”\(^{61}\)

\(^{58}\) Rittberger/Zangl/Kruck (2012), p. 4.
\(^{59}\) Rittberger/Zangl/Kruck (2012), p. 16.
To summarize both regimes and international organizations characterize by actors’ behaviors based on the norms and rules of a regime.

International Organizations are established as a result of convergence of actors’ interests and perceptions. But it doesn't mean that these organizations will have a short life as a result of the actors’ short time consensus. Organizations are able to learn and they do reflect not only "the initial convergence of actors’" interests as these interests can change in response to new knowledge.62 “The regime's leaders may have to forego their own short-term benefits to meet the short-term needs of their weaker partners”63. Rittberger/Zangl/Kruck suggested another definition of International Organization, according to which “International Organizations are international social institutions that are collective or corporate actors and can cover several issue areas of international relations”.64

From this definition one can conclude that international organizations have a broader framework than regimes and they should not ultimately cover only one issue area.

According to social constructivism, creation of international institutions in general and international organizations in particular, depends on whether there is a consensus over values and norms. “International Organizations are likely to emerge if the values and norms they represent are shared by participating societies”.65 Norms and values are important not only for establishment of the organization but for its design and structure.

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65 Rittberger/Zangl/Kruck (2012), p. 27
Despite certain similarities, certain observations insist not to identify regimes with international organizations. For instance, Keohane identified two main differences of regimes and international organizations, both of which can be considered as a type of international institution. The first difference is that regimes being no more than sets of principles, norms, rules, and procedures accepted by regime members, do not possess the capacity to act, whereas organizations can respond to certain events. The second difference is that regimes are limited in an issue area, whereas international organizations are not restricted.\(^66\) Another difference is that international organizations can act as actors but regimes have no “actor-like” qualities.

Though there is a linkage between these two institutions however their relations can take the following forms:\(^67\)

- International regimes consist of issue-area principles, norms, rules and decision-making procedures can be included in an international organization in which a few regimes can exist. Looking to this explanation, international organizations can be considered as more comprehensive than international regimes.\(^68\) Based on this explanation, regimes on the contrary, are more comprehensive. For example the nuclear non-proliferation regime includes several organizations, but this regime is based on principles, norms, rules and decision-making procedures enshrined in the NPT and not in a single International Organization.\(^69\)

- Lastly, international organizations can provide assistance to regimes. International Organizations can generate norms and “they can be a driving force behind the creation of new regimes”, they also can assist to strengthen effectiveness of the regime by providing implementation mechanism in order to monitor states compliance with regime norms and rules.\(^70\)

International organizations can differ from their function, in this context two types of organizations can be identified: programme and operational organizations. First types

\(^{67}\) Rittberger/Zangl/Kruck (2012), pp. 5-6.
are the programme organizations, which set norms and rules, and operational organizations are those, which implement norms and rules. For example the IAEA belongs to the type of organization, which mainly implements the norms and rules of the NPT. It was neither part of the negotiation process of the Treaty nor it was involved in the works of the NPT Review Conferences, however it is preoccupied with its implementation.\textsuperscript{71}

International organizations ensure a constant communication channel; they facilitate the process of information acquisition and exchange as well as conduct verification activities and simplify decision-making procedures.\textsuperscript{72} Regimes don’t have these features.

\subsection*{2.3.1.4 International Agreements}

According to the Legal dictionary Agreement is \textit{“A meeting of minds with the understanding and acceptance of reciprocal legal rights and duties as to particular actions or obligations, which the parties intend to exchange; a mutual assent to do or refrain from doing something; uncontract.”}\textsuperscript{73} Krasner points out that regimes should be seen and perceived \textit{“as something more than temporary arrangements”}, which are ready to change with the alterations of power or interest.\textsuperscript{74} Similarly, Keohane also notes that distinction between regimes and agreements should be made from an analytical point of view. Some scholars have seen agreements as \textit{“ad hoc”} and sometimes \textit{“one-shot”} arrangements, whereas one of the attributes of the regime is to facilitate the conclusion of such agreements. Contrary to Keohane’s observation that regimes facilitate agreement (cooperation between regime members), Young explains regime as an agreement, which means explaining regimes he explains an agreement.\textsuperscript{75} Regimes facilitate agreements by providing the necessary negotiated framework, with its rules, norms and decision-making procedures. In certain cases there will be no need for regimes, when demand for agreements is nil, the supply of the agreements is noticeably flexible and free, and agreements can be reached

\begin{footnotesize}
\begin{enumerate}
\item Rittberger/Zangl/Kruck (2012), p. 8.
\item Müller (1993), p. 30.
\item The Free Dictionary by Farlex.
\item Krasner (1983), p. 2.
\item Hasenclaver/Mayer/Rittberger (2002), p. 71.
\end{enumerate}
\end{footnotesize}
without cost. When these circumstances are not met then the demand for regimes will arise. Agreements are not suitable in cases when issue density is low.\textsuperscript{76}

\section*{2.3.2 Researched International Organization: International Atomic Energy Agency (IAEA)}

In response to the international community that development of nuclear energy could be used in the future for a nuclear weapon program IAEA was established in 1957. There was a need for an organization, which would be able to control that sphere. US President Eisenhower’s famous “Atoms for Peace” speech actually gave birth to the IAEA and shaped the IAEA founding document, the “Statute”. The Statute was unanimously adopted by 81 states in October 1956. After establishment of the organization, the political and technical environment faced many changes and the provisions and measures prescribed in the IAEA Statute, especially, relating to safeguards measures have not been sufficient to meet the new technological advances. Already in 1960 France and in 1964 China became nuclear nations raising growing concerns in the international community that soon further states would acquire nuclear weapons. Raising support for international legally bound undertakings to halt the spread of nuclear weapons finally resulted in the Treaty for Prohibition of Nuclear Weapons in Latin America (the Tlatelolco Treaty) in 1967 and then the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 1968. IAEA has been given the mandate under the NPT to sign Safeguards Agreements with state parties and verify their implementation\textsuperscript{77} (more detailed information on both Treaties is provided in subsequent parts, main provisions of the IAEA Statute covering the safeguards issues are presented together with all other documents, which comprise the legal basis for the Agency’s safeguards implementation).

**Governing bodies** of the IAEA are the General Conference and the Board of Governors. The General Conference consists of all member states, meets annually in September, and approves the budget and program of the organization, new members and makes decisions on other issues, which are brought for consideration by the Board of Governors, Member States and Director General. The Board of Governors consists


\textsuperscript{77} IAEA, www.iaea.org/about/history.
of 35 members, usually gathers five times in a year and considers and recommends to the General Conference the Agency’s program and budget, new memberships, approves Safeguards Agreements, appoints the Director General to be approved by the General Conference, etc.  

The IAEA Secretariat consists of a team with 2500 multilateral experts from various disciplines, whose mission is to run the Agency.

The IAEA’s three main pillars of work are safeguards and verification, safety and security and science and technology. As the last two areas are out of the interest and coverage of this dissertation, only reflections on the organization’s mission in the area of safeguards and verification are given in this research. The IAEA’s key mandate in the field of the main pillar, i.e. safeguards and verification, is to prevent the spread of nuclear weapons. The IAEA is considered as the world’s “nuclear watchdog”. Specially designated inspectors work to verify the safeguarded nuclear material in member states or states with Safeguards Agreements with the Agency in connection with the NPT. Verification activities are conducted in nuclear and related facilities under various types of safeguards agreements in more than 140 states (detailed

description and main provisions on all types of Safeguards Agreements are provided later in the dissertation). The results of the verification activities and all safeguards relevant information available to Agency are evaluated to draw safeguards conclusions for each state. In addition to safeguarding and verifying nuclear material, the IAEA contributes also to nuclear disarmament supporting in verifying weapon-origin and other fissile materials under Trilateral Initiative with Russia and US, which these two states released from their defense programmes.

2.3.3 Researched Regimes

In the context of this dissertation the NPT verification regime, the IAEA verification regime and the IAEA safeguards regime has the same meaning. As there are no publications, which carry out analysis of “IAEA safeguards regime”, “IAEA verification regime” and “NPT verification regime”, to draw a line between these terms, widely used in the literature, is difficult. Though many practitioners and authors tend to use all three mentioned terms, the literature review didn’t reveal any definition on the IAEA safeguards regime, the IAEA verification regime and the NPT verification regime, moreover there is no analysis of these regimes from a theoretical angle looking to the regime analytical components, or other characteristics of a regime. Usually terms like system, mechanism and regime pertaining to the IAEA safeguards and verification are used as synonyms, though as seen from the definitions provided by the UNIDIR they have different meanings and explanations. Taking into account the lack of such analysis, some analysis is carried out in this dissertation pertaining to these regimes. However, it should be highlighted that views on the NPT verification regime, the IAEA safeguards regime and IAEA verification regime and their comparison are my interpretation of the theory pertaining to these terms.

2.3.3.1 Nuclear Non-Proliferation Regime

The Nuclear Non-proliferation Treaty (NPT) entered into force in 1970 and constitutes

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the first official multilateral Treaty, which accepted the nuclear non-proliferation norm. The Treaty represents the only binding obligation to achieve the aim of disarmament by the Nuclear Weapon States and it is the core of the global regime of nuclear non-proliferation.

The key to development of the regime was US nuclear cooperation and their suggestion of verification of the peaceful use of nuclear material. The treaty initially didn’t include its verification mechanism; it was approved later in 1971. Non-proliferation regime is not only the NPT, it is more comprehensive and includes all nuclear weapon free zones, export control committees and arrangements for instance the Zangger Committee and the Nuclear Suppliers Group, IAEA safeguards system, international cooperation and other mechanisms with the aim to prevent nuclear proliferation.

The nuclear non-proliferation regime, or its verification should not be mixed with the NPT verification regime. As showed in Figure 13 the nuclear non-proliferation regime is very broad and incorporates several other international regimes including numerous Treaties and Arrangements. All these treaties in their turn have their verification mechanisms and regimes. For instance, the Comprehensive Nuclear Test Ban Treaty once in force (CTBT) prohibits nuclear testing, and contributes to the nuclear non-proliferation regime, however the NPT Treaty hasn’t such provision in its text and consequently the NPT verification regime, which is the IAEA safeguards, is not mandated to verify the CTBT and nuclear tests. The CTBT has its own verification mechanism.

Deriving from Article III of the NPT, verification, i.e. IAEA Safeguards should be applied to all transfers of nuclear material, which means observance by the NPT NNWS Parties of export control norm should be monitored and verified. Based on this norm an export-control regime involving several arrangements has been established (NSG, Zangger Committee, Wassenaar Arrangement, MTCR). For example, the Nuclear Suppliers Group (NSG) was established after the explosion in 1974 of a nuclear device by a NNWS, which revealed doubts that nuclear technology transferred for peaceful purposes could be abused. The NSG Guidelines (INFCIRC/254) has been developed to be applied to nuclear transfers for peaceful uses. NSG adopted a full-scope IAEA safeguards requirement for nuclear supplies. The NPT Review and Extension Conference (NPTREC) in 1995 confirmed the full-scope safeguards policy,
and reflected the belief of the world that this nuclear supply policy is an essential element to uphold collective nuclear non-proliferation commitments and obligations. The Zangger Committee, created in 1971, aimed to develop a "trigger list" of “source or special fissionable materials, as well as equipment or materials especially designed or prepared for the processing, use, or production of special fissionable material.” Under Article III.2 of the NPT these items should be subject to IAEA safeguards if supplied by NPT parties to any NNWS. In 1974, the Committee issued a Trigger List (INFCIRC/209), a list of items that would "trigger" a requirement for safeguards and guidelines governing the export of those items to NNWS not party to the NPT. According to those guidelines supply must meet criteria of a non-explosive use assurance, an Agency’s safeguards requirement, and a re-transfer provision. Since then the Trigger List has undergone six main revisions. This regime is of a voluntary nature, not bound by a treaty, and hence has no formal mechanism to enforce compliance. Some of these international arrangements and regimes within the nuclear non-proliferation regime have overlaps. As all NPT derived regimes are not of primary interest of this research, they are not illustrated here. Some explanations or descriptions are given only as examples.

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Figure 13: Components of nuclear non-proliferation regime

Source: Author

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81 NPT, Article III.2.
During the negotiations of the NPT three main principles emerged, which constitute the so called three pillars of the non-proliferation regime: those are nuclear non-proliferation, i.e. preventing the spread of nuclear weapons, nuclear arms control and disarmament, and the peaceful use of nuclear energy and states deal with their rights and obligations based on these tenets. IAEA is an organization given a mandate to verify States’ commitments on non-proliferation and peaceful uses of nuclear material. It is an implementing body for the NPT and should act in accordance with the IAEA Statute. Its Statute gives no preferences among two of the NPT norms: from one side the Agency encourages the peaceful use of the nuclear energy and from another side verifies non-diversion of the nuclear material for military purposes. However, if the threat of proliferation rises in any state or region, then non-proliferation norm becomes more valuable.

All conflicts in the regime are related to the inequality of the rights and obligations of Nuclear Weapon States and Non-Nuclear Weapon States. During the negotiations to establish a regime and afterwards Nuclear Weapon States were mostly putting their efforts on the non-proliferation pillar and looking to the other two pillars as secondary ones, when other developing states (NNWSs) were insisting on their right of peaceful nuclear program and disarmament of Nuclear Weapon States to balance the three pillars. And there have been and continues to be tensions between these two camps of states on “haves and have-nots”.

Many Non-Nuclear Weapon States agreed with the provisions of the NPT not to go nuclear in return that Nuclear Weapon States would reduce their nuclear arsenals, which they consider as dangerous and share with Non-Nuclear Weapons States their nuclear technology and knowledge. Non-Nuclear Weapons states underlined direct linkages between disarmament and non-proliferation: fewer nukes, less proliferation. Nuclear Weapon States in their turn refused to provide in NPT negative security assurances being afraid to hamper their nuclear doctrines. By not providing legally

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binding security assurances by NWSs, they made NNWSs more disadvantaged. In nuclear weapon free zones, however through adhering the Additional Protocols, Nuclear Weapon States provided legally binding negative security assurances to the states of those zones.

The Non-Aligned Movement (NAM) voiced constantly its anger with Nuclear Weapon States, which didn’t respect the “grand bargain” from their side, not really implementing their part of the obligations under the NPT, i.e. disarmament obligation. If members of the “grand bargain” believe that deals are implemented by all parties then a world without nuclear weapons would be possible to reach. But do all Nuclear Weapon States believe and are they committed to “global zero”? NAM is not optimistic in this question seeing the reluctance of the Nuclear Weapon States to get rid of their nuclear weapons or even ever honour the NPT Article VI (disarmament). Efforts of the group of states to push NWSs to honour their obligations so far brought no tangible results. Action plans of the NPT review conferences’ final documents on disarmament are not implemented. The 2015 Review conference again failed to adopt a consensus Final Document. If for the NPT verification and non-proliferation norms there are standards and rules of behavior that states have to observe such as the Safeguards Agreements and Additional Protocol, there are no established such rules and standards for the disarmament norm.

Not only the norms, which are pushed to be observed, are not equal, but the existence of two groups of states with different obligations and for one group of state with existing enormous verification mechanism put into the question the procedural legitimacy of the regime. For example states with the Additional Protocol – the highest verification standard, implementation of the rules of the standard become reality in certain cases and occasions by infringing their state sovereignty.

Dominant states (US), which always stressed more on non-proliferation norm time to time stress on disarmament norm; for example President Barack Obama in his speech

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in Prague in April 2009, followed with concrete suggestions on ratification of the Comprehensive Nuclear Test Ban Treaty, follow up treaty to the Strategic Arms Reduction Talks (START), etc. However these two important components of the non-proliferation regime have never become reality, mostly because of the opposition by the US.

The regime faces an issue of procedural inequalities as well. For example, norm development, implementation and enforcement decisions within the regime are not taken with all states. NAM states are represented in the Nuclear Suppliers Group (NSG) with a few states, which mean that export control norms are developed by developed states. IAEA Board of Governors consists of 35 members disproportionally represented as well.

States participate in nuclear non-proliferation regime in order to obstacle or prevent the increase in the numbers of states possessing nuclear weapons. Through this regime states are trying to guarantee their national security by preventing the rise of nuclear threats. However, states’ incentives to participate in this regime vary. Some are eager to develop nuclear energy for peaceful uses through cooperation, others to strengthen their security through the regime, etc. The NPT became the main source of the non-proliferation norm. Before the NPT there were no formally agreed positions or behaviors regarding the proliferation of nuclear weapons. The NPT grounded that base and established the norm of non-proliferation and subsequently the non-proliferation regime. Having the regime in place shapes the regime members’ behavior. Behavior of other states in our social environment influence and form our response to that issue. And if many actors behave in the same way that behavior becomes unquestioned and many believe that that is the right way to behave.

88 Remarks By President Barack Obama In Prague As Delivered, 2009.
2.3.3.2 The NPT Verification Regime

As was illustrated above the nuclear non-proliferation regime is comprehensive and includes various Treaties and Arrangements, which were negotiated and adopted after the entry into force of the NPT aimed at strengthening the nuclear non-proliferation norm and establishing a mechanism of effective and efficient control of the Treaty provisions. Some of these arrangements and regimes have their verification regimes. But how is the NPT verified? What does the NPT verification regime constitute from? According to the UNIDIR Handbook on Verification and Compliance the negotiation on verification and compliance mechanism of arms control regimes usually happens
during the negotiations of the main Treaty. However, the verification regime of the NPT has been established after the Treaty entered into force, as the verification mechanism was not included into the Treaty text. During the negotiations of the Treaty it would be difficult to achieve consensus on such intrusive verification mechanism. For the purposes of the NPT verification mechanism, in the treaty text, the Agency has been mandated to negotiate Safeguards Agreements with the NPT Parties in order to monitor Treaty compliance.\textsuperscript{90} Agency Safeguards Agreements, and more generally the IAEA safeguards system, are as such verification mechanism and verification instruments of the NPT. Though the terms “safeguard” and “verification” have different meanings, in the context of the NPT Safeguards Agreements they carry the same function.

One of the prominent arms control regimes is the verification regime of the non-proliferation of nuclear weapons, established under the NPT: Article III of the NPT constitutes the basis of the current verification regime. The Treaty requests the NPT State Parties to sign with the IAEA Safeguards Agreements for the purpose of verification. Obligations underlined in Article III.1 have to be verified; the provisions put forward verification regime of the Treaty, which should not rest on nuclear material accountancy only, but to include other verification measures to detect diversion of nuclear material.

\textit{Figure 15: Legal Framework of the NPT Verification Regime}

\textit{Source: Author}

\textsuperscript{90} UNIDIR/VERTIC (2003), p. 11.
The NPT verification regime is control oriented security regime, containing control mechanism (i.e. verification mechanism), which should greatly contribute in stabilizing expectations of regime members by providing necessary information.\(^{91}\) However, the NPT verification regime has different regime characteristics in contrast with the verification regimes of other arms control treaties such as the Chemical Weapons Convention (CWC), the Biological Weapons Convention (BWC) or the Comprehensive Nuclear-Test-Ban Treaty (CTBT) as this regime has different rights and obligations for its regime members. Here one can identify regime’s advantaged and disadvantaged members. Not all regimes resulted from the signature of the NPT has different rights and obligations for NWSs and NNWSs. CTBT can be demonstrated as a vivid example, upon entry into force of the Treaty the ban on nuclear tests will be applied to all state parties. On the contrary, the NPT verification regime, i.e. safeguards system is based on the Treaty Article III, which calls on NNWSs to conclude Safeguards Agreements with the IAEA, however doesn’t contain such provision for NWSs. This means that the NPT verification regime has different rights and obligations for its regime members.

2.3.3.3 IAEA Safeguards Regime

Ahead of the IAEA safeguards regime is the IAEA Statute. The norm of safeguarding the nuclear material was agreed with the adoption of the IAEA Statute on establishing International Atomic Energy Agency (Article 1), which came into force on 29 July 1957. In its Article III, A.5, the Statute envisages that safeguards measures needs to be applied in order to ensure that special fissionable and other materials under State’s supervision and control are not used for military purposes. Article III, B.2 requires control over the use of special fissionable materials. The Statute has established a safeguards regime with the founding norm of safeguarding special fissionable material against its military use. After the approval of the Statute, already mentioned safeguards documents were negotiated and approved, which contain rules and procedures on how implement the norm effectively (INFCIRC/26, INFCIRC/66). After adoption of the NPT, the Treaty became another fundamental legal source in

implementing the Agency safeguards measures and endorsing safeguards norm and verification norm. Though Agency’s safeguards system was established prior to the NPT, with the NPT the Agency received a new mandate and more authority in terms of verifying the peaceful purposes of nuclear material and activities and the overall Treaty compliance in support of the non-proliferation of nuclear weapons. The NNWS Parties took commitment to sign Safeguards Agreements with the IAEA and IAEA to provide credible assurances that States are honouring their safeguards obligations. Though the Non-Nuclear Weapon States that are party to the NPT have agreed to conclude Comprehensive Safeguards Agreements with the IAEA, the nuclear weapon States and the States, which are not party to the NPT, have no legal obligation to accept such safeguards under the Treaty.

During the time the norm of safeguarding “nuclear material” or more concise as formulated in the treaty “the source or special fissionable material” is evolved. The Agency’s measures and means in implementing its mandate in safeguarding and verifying the nuclear material were evolved with the time as well. To observe the safeguards norm more efficiently new legal documents has been elaborated. The evolution of the basic safeguards documents on which based the Agency safeguards system is illustrated below. They are briefly described in the next Chapter.

![Figure 16: Evolution of safeguards system](image)

Source: Author

The most advanced verification system controlling the weapons of mass destruction is the IAEA’s strengthened safeguards system.92 The IAEA safeguards are traditional Treaty monitoring mechanism, which includes nuclear material verification activities

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at nuclear facilities and locations outside facilities. As verification system, the safeguards system contributes to confidence building and deterrence.

The IAEA has no legal authority to physically prevent the diversion of the fissile material and even it is not the guardian of significant quantities of nuclear material. Agency’s mandate covers detection of the cases where state violates its obligations. In order to detect breakout or cheating safeguards should be efficient enough to detect in a timely manner the diversion or covert production of nuclear material.\(^93\) The political objective of safeguards can be defined as “…assurance: to verify that states are complying with their peaceful use commitments, and to assist states that recognize giving such assurance as being in their own interest to demonstrate their compliance to others”.\(^94\)

![Figure 17: Legal Framework of the IAEA Safeguards Regime](image)

As seen from Figure 17, the legal framework of the NPT verification regime (see Figure 15) and the IAEA safeguards regime is the same. Consequently, the principles, norms, rules and decision-making procedures contained in all these documents are identical. Thus there is no need to analyze regime’s analytical components for the NPT verification regime and the IAEA safeguards regime, as no new principles, norms, rules and decision-making practices can be identified in the same documents, they are all the same. Subsequently, the NPT verification regime and the IAEA safeguards regime are the same, though different terms are used to point out the same safeguards

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regime.

2.3.3.4 The IAEA Verification Regime

The norm establishing the IAEA verification regime is the same as in the case of the IAEA safeguards regime. The regime was established with the approval of the IAEA Statute: “the staff of inspectors shall also have the responsibility of obtaining and verifying the accounting referred to in sub paragraph A-6 of this article and of determining whether there is compliance with the undertaking referred to in sub paragraph F-4 of article XI, with the measures referred to in sub-paragraph A-2 of this article, and with all other conditions of the project prescribed in the agreement between the Agency and the State or States concerned”. However with the creation of the global non-proliferation regime and signature of the NPT, verification and safeguards norms, which constitute one of the norms of the Treaty once again has been legally recognized and endorsed with the NPT State Parties. All other Treaties, Agreements and guidelines developed and approved later are just evolution of the existing regime with more effective tools and mechanism to verify the regime compliance and to strengthen the existing regime. IAEA verification regime isn’t based on a new norm, but on norms already reflected in the Statute.

Modalities, forms and means of the verification should be provided by specific guidelines, as Treaty itself doesn’t contain chapter on verification. Agency’s Safeguards Agreements are those agreements, which lay down the rules of verification activities based on states’ rights and obligations. According to the Final Document of the Tenth Special Session, General Assembly resolution S-10/2, UN document A/RES/S-10/2, 30 June 1978 efforts should be made to elaborate such methods and procedures which are non-discriminatory and “do not unduly interfere with the internal affairs of other States[.]”

The Agency’s verification system aimed in detecting non-compliance. The detection capacities of the Agency’s verification system greatly depend on Safeguards’ Departments monitoring tools. It needs also enormous financial means, which should be taken by the regime members.

95 IAEA Statute, Article XII, C.
96 GA resolution S-10/2, A/RES/S-10/2 (1978), Para 92.
According to the IAEA safeguards glossary the IAEA safeguards considers as a verification system within the framework of non-proliferation policy applied to peaceful uses of nuclear energy. The verification regime is entrusted to the IAEA by its Statute, by the NPT and by the Tlatelolco Treaty. The authority to establish a verification system is provided by the Statute Article III.A.5. It should be underlined once again that in this dissertation the IAEA safeguards regime equates to the IAEA verification regime as findings of this research show that the term safeguards system and verification system in the framework of the IAEA safeguards has the same meaning, and regimes’ analytical components for both regimes are the same.

![Figure 18: Legal Framework of the IAEA Verification Regime](image)

*Source: Author*

As it is provided in the explanations of the terms in relation to the safeguards, the purpose of safeguards inspections is to verify compliance with the Safeguards Agreement. 97 Further in the research the IAEA safeguards will be refereed to the IAEA safeguards regime or the NPT verification regime.

The IAEA safeguards are not only a verification system but verification regime. As has already been clarified verification regime is all arrangements to ensure compliance with a treaty and it includes data exchange, monitoring, communication, consultation and clarification mechanism and most importantly compliance mechanism, i.e. judgment of members compliance with their obligations; whereas verification system

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97 IAEA Safeguards glossary.
doesn’t include compliance mechanism for making judgment. Since IAEA’s decision making bodies according to existing procedures and mandate have the right of the judgment of state’s compliance than existing safeguards are not only system but also regime according to the provided definition.

Verification activities usually should be designed on non-discriminatory basis, which means that all measures have to be applied for all regime members. And the key to the success of the verification regime is the explicit definitions of the treaty terms and items to be verified. Clear definitions reduce various interpretations and facilitate identification of a non-compliance case. Current Agency verification activities are designed for each State taking into account State specific factors, however main verification measures are the same for the States with the same Safeguards Agreement. However, verification measures are not applied to all States equally as the differentiations of NWSs, NNWSs and Non-NPT States already contains non-balanced approach and various Safeguards Agreements and different safeguards measures and approach.

In regard of clear definitions, for instance, the IAEA Additional Protocol, which comprises of comprehensive list of verification activities, contain clear definitions, descriptions and explanations of the terms used in the document in its Annexes I and II.

2.4 Theories of International Relations

After illuminating the central terms, which has theoretical importance for this research, three theories of international relations, which considered as the main schools of thoughts explaining international regimes are examined in this chapter. In order to operationalize the regime theory in my dissertation, the main tenets of international regimes from the prospective of the regime theory, neorealism and social constructivism are further identified in this part. Some assumptions and differences of the classical realism and neorealism are also clarified, however, not in details. Changes in world politics in 1970s, relative decline of United States power as an only

hegemon, showed that state-centric realist approaches are not adequate for analyzing that situation. Realist explanation of international relations was rejected as not conclusive and sometimes even as “misleading”, though realists tried to bring counter arguments in support of their theory. In that new world order liberals had expectations on more cooperative international system, which was in contradiction with realists’ pessimism on prospects of international cooperation. This gave a rise to a new debate: scholars with both realist and liberal traditions started to challenge these dilemmas. In 1975 John Ruggie introduced the concept of international regimes to international relations theory. This was the first attempt to conceptualize the regime theory. Later regime theory steadily emerged as a school of thought in international relations. Interest to international regimes by students of international relations increased during the last for decades. They started to ask questions on how “international institutions” affect state behavior in the issue area for which they have been created. Different theories have tried to explain some of these questions. Taking into consideration that alone realism or other theories were not able to provide enough arguments, which would explain an complex, interdependent and unsafe world, scholars had to reveal new ideas to organize and understand international activity. Nevertheless, substantive questions vis-à-vis “regimes” and “international institutions” are still continuing to be in the center of many scholars.

How do then international theories try to explain international activity? Before bringing main tenets of international theories in regard of international cooperation and regimes, brief description of main assumptions is clarified.

In view of the explanatory variables that neorealism, neoliberalism and constructivism highlight, they may be categorized as power-based, interest-based and knowledge-based approaches to international regimes. These three theories bring different assumptions on structures and actors in international relations. Realists emphasis power relationships and focus on how power and contemplations of relative power

100 Krasner (1983), pp. 7-8.
101 As seen in previous subchapter some scholars authenticate international institutions with international regimes.
influence the scope, and limit the effectiveness and robustness of international regimes; neoliberals focus their analysis on “constellations of interests” and stress self-interest as a motive for cooperation among states as well as for forming and complying with international regimes; and constructivists stress importance of “knowledge dynamics, communication, and identities” and underline that both perception of interests and the meaning of power capabilities is dependent on actors' causal and social knowledge.105 These schools of thoughts differ from each other with their degree of “institutionalism”106,107

<table>
<thead>
<tr>
<th>Central Variable</th>
<th>Realism</th>
<th>Neoliberalism</th>
<th>Cognitivism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Interests</td>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Weak</td>
<td>Medium</td>
<td>Strong</td>
<td></td>
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<tr>
<td>Theoretical orientation</td>
<td>Rationalistic</td>
<td>Rationalistic</td>
<td>Sociological</td>
</tr>
<tr>
<td>Behavioral model</td>
<td>Concerned with relative gains</td>
<td>Concerned with absolute gains</td>
<td>Role-player</td>
</tr>
</tbody>
</table>

Table 2: Differences of realism, neorealism and cognitivism
Source: Hasenclaver/Mayer/Rittberger (1997), p. 6

Regime theory belongs to the liberal institutionalism paradigm, so called neoliberal school of thoughts, referred as an interest-based theory and represents a key approach to analyze international regimes, while other schools of thoughts, i.e. neorealism and constructivism, bring the arguments of neoliberalism in arguing their positions. In this dissertation regime theory is referring to neoliberal school of thoughts and will be used as the main reference theory. Yet one theory is not explaining all phenomena of international relations, thus power-based and knowledge-based theories are used as substitutes in brining divergent assumptions and explanations. As scholars pointed out, none of these theories can alone expound all essential dimensions of international regimes.

The central research question and subsequent sub-questions of this dissertation are

106 Hasenclaver/Mayer/Rittberger explain “institutionalism” as a view on how international institutions matter.
explained with the help of central assumptions vis-à-vis regime theory, though other theories also used to expound certain activities.

2.4.1 Rationalist Approach to International Regimes

Before I start explanation of main assumptions of the regime theory, which, as mentioned, is the core theory for the purpose of this dissertation, I highlight main commonalities and differences between neorealism and neoliberalism and, particularly, their approaches to international regimes.

Both neoliberals and realists have rationalistic approach to international regimes. The most important agreement between these two schools of thoughts is “…a meta-theoretical tenet which portrays states as self-interested, goal-seeking actors whose behavior can be accounted for in terms of the maximization of individual utility (where the relevant individuals are states).” Consequently both foreign policies of states and international institutions have to be rebuilt as outcomes of calculations of benefit made by states.

One of the characteristics of rationalist theories on international regimes is that they usually don't problematize actor's perceptions or causal beliefs. Both neoliberals and neorealist underline the importance of different forms of uncertainty. For them the most central cause of uncertainty is international anarchy and the common pattern of such uncertainty is John Herz's “security dilemma”.

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Figure 19: Commonalities of Rationalist theories  
*Source: Hasenclever/Mayer/Rittberger (1997), pp. 23-29*

Neorealism and neoliberalism have three common views pertaining the role of states: ¹¹²

- States are the most important actors in international relations;
- States are rational, self-interested actors;
- States’ behavior is shaped by international anarchy, which is the main important source of uncertainty.

Keohane included in his book “After Hegemony” these three features of neo-realism, where he suggested a neo-liberal theory of international cooperation. ¹¹³ He seems to accept realism's assumption about the fundamental motivation of states, expecting states to behave as rational egoists, who act only to further their own interests. ¹¹⁴ He further explains his motivational assumption in the following way:

> “Rationality means that [actors] have consistent, ordered preferences, and that they calculate costs and benefits of alternative courses of action in order to maximize their utility in view of those preferences. Egoism means that their utility functions are independent of one another: they do not go or lose utility

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simply because of the gains or losses of others”.  

2.4.1.1 Differences of neoliberal and neorealist schools of thoughts

Despite of their commonalities, these two schools also have different views on certain aspects. For instance:

- Neoliberalism comes to different conclusion concerning the potential for international cooperation.  
- Neoliberals and realists have different approaches to the utility functions that states try to maximize. Neoliberals describe states as “rational egoists” worried mostly with their own benefits and losses. Realists, on the contrary, emphasize that utility function of states are moderately interdependent as an example gains resulted from mutual cooperation that a state's partners reach may weaken considerably the utility of this state, subsequently state’s desire to cooperate.  

Recent debates between neo-realists and neo-liberals have focused on the importance of relative gains orientations in international politics. The main two issues argued between these schools are: a) “what difference does relative gains seeking make for international interaction including cooperation and for the nature of efficacy of international regimes?” and b) “when are states concerned with relative gains?”

- In the context of the international regimes these two schools disagree on the nature of international cooperation and the role of the international institutions. Neoliberals posit that international institutions create a favorable environment for the convergence of state interest, which in its turn facilitates cooperation within the regime; and at least makes possible the cooperation, which in other circumstances wouldn’t be possible in an anarchical world system. On the contrary, neo-realists believe that regimes merely reflect distribution of power in the international system and any cooperation that is possible under the

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115 Keohane (1984), p. 27.
regime could be reached anyway and without regime.\textsuperscript{119}

- Another difference that these two theories emphasize is the significance of the power in order to establish a regime as well as impact of the regime’s normative base and power on international regimes.\textsuperscript{120}

\textbf{Figure 20: Differences of Rationalists theories}
\textit{Source: Hasenclever/Mayer/Rittberger, pp. 26-27}

While Hasenclever/Mayer/Rittberger don't want to argue that all differences between interest-based and power-based theories in international regime analysis are illusory and artificial, they believe that these differences have tended to be overstated and there is a considerable potential for an effective combination of ideas and views so far associated with alternative perspectives on international institutions.\textsuperscript{121}

It seems that new unified rationalist theory of regimes can be emerged based on a division of three types of contexts:

1. “Non-problematic social situations (constant sum and harmony situations), where rationalists expect regimes either to be absent or to have no consequences;
2. Mixed-motive situations with weak concerns about relative gains (neoliberals’ standard case);
3. Mixed-motive situations with strong concerns about relative gains (realists’ standard case).”\textsuperscript{122}

\textsuperscript{119} Mersheimer (1994), pp. 5-7.
\textsuperscript{120} Hasenclever/Mayer/Rittberger (1997), p. 26
\textsuperscript{121} Hasenclever/Mayer/Rittberger (1997), pp. 214-215.
2.4.2 Interest-based Theories of International Relations: Neoliberal Approaches to International Regimes

2.4.2.1 Regime Theory

Interest-based or neoliberal school of thoughts including neoliberal institutionalism (the Regime theory) represents the mainstream approach of analyzing international regimes. In this part the central assumptions of the Regime theory are illustrated. Robert O. Keohane is the author of the most elaborate theory on regime. With his book “After Hegemony” he greatly contributed to the development of the regime theory. In his works he displays that both realist and neoliberal institutionalism are valuable but incomplete thus there is a need for their synthesis. Keohane’s theory of regime, which otherwise called “contractualist” or “functional theory” of regimes focuses on the institutionalization of an international behavior, from this label “neoliberal institutionalism” has come into use. Impact of “neoliberal institutionalism” was so high that gradually Keohane’s theory was equated with “the regime theory”. However, Keohane himself believed that contractualism is not a comprehensive theory on regime.

As mentioned neoliberals analyzed regimes based on interest phenomena. Hasenclever/Mayer/Rittberger in their study of international regimes looked at different interest-based approaches (neoliberal-rationalist theories) to the study of regimes.

- Contractualism approach, which looks to the impact of international regimes on the capabilities of the actors to cooperate in situations like Prisoner’s Dilemma and provide functional clarifications for a regime creation and maintenance. This theory attributed to Robert O. Keohane.

- Situation-Structuralism, which widen the contractualism approach in considering all range of strategic situations, where cooperation between actors might be possible through establishing regime. This approach analysis also effects and impact of inclusion of various interests or games in creation of a regime. This

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123 Hasenclever/Mayer/Rittberger (1997), p. 27.
125 Hasenclever/Mayer/Rittberger (1997), pp. 27-44.
model attributed to Arthur Stein, Kenneth Oye, Duncan Snidal and Lisa Martin.\textsuperscript{126}

- Problem-structural approach considers the nature of the issues as a significant variable, which affects on the possibility of regime formation. This model of the regime theory developed in Germany and focused on the international security regimes (so called Tübinger Schule).\textsuperscript{127}

- Young’s model of Institutional bargaining is opposing both to power-based approaches as well as mainstream rationalist views of regime formation. This approach doesn’t accept the tenet that “actors are always fully aware of their interests and that preference formation is a process that is prior and exogenous to inter-state bargaining.”\textsuperscript{128}

2.4.2.2 Fundamental Assumptions of Regime Theory

The existence of reciprocal interests is a prerequisite for international cooperation, however neo-liberals insist that only mutual interest is not enough for cooperation, it doesn't explain the nature of such cooperation and international cooperation remains difficult to achieve. Mutual interest doesn’t mean that states interests are identical. Even when states have mutual interest, the lack of central authority “deters them from incurring the reciprocal obligations that cooperation demands”.\textsuperscript{129}

Keohane’s cooperation doesn’t mean harmony; harmony supposed to take place when interests are identical, whereas cooperation emerges when there are “conflicting and complementary interests”. Cooperation happens when states adjust their behavior to the existing or desired preferences of other states. Cooperation is states’ mutual adjustment as a result of policy coordination.\textsuperscript{130}

According to Keohane’s contractualism theory international cooperation materializes in mutually beneficial agreements and not in regimes or not only in regimes. The role of the regimes is to facilitate such agreements.\textsuperscript{131} Without central authority states fear that others will cheat on agreements. According to neo-liberals in order to reduce such

\textsuperscript{126} Hasenclever/Mayer/Rittberger (1997), pp. 44-59.
\textsuperscript{127} Hasenclever/Mayer/Rittberger (1997), pp. 59-68.
\textsuperscript{128} Hasenclever/Mayer/Rittberger (1997), pp. 68-82
\textsuperscript{129} Reus-Smit (2009), p. 215.
\textsuperscript{131} Hasenclever/Mayer/Rittberger (1997), p. 33.
fears, states establish international institutions to overcome these obstacles to cooperation.
Hurd argues that “[t]he demand for international organizations arises due to the unavoidable interdependencies between states, and their utility is measured by their contribution to managing them.” 132 Followers of regime theory consider cooperation via international organizations as rational. The central of this school of thoughts is that in international relations the interests of various state actors are “neither mutually exclusive nor harmoniously in agreement.”133 States are interested in reaching joint gains or avoiding joint losses through cooperation, but at the same time each state has an incentive to refrain from cooperation. Such an interest constellation makes states more interdependent, which means no state can act alone. Consequently, Keohane argues that even powerful states depend on other states.134 The controversy between neo-realists and neo-liberals is a debate between those who think that states are concerned with relative gains against those who think that states are interested in absolute gains.135 Contrary to the neorealist school, neo-liberals don’t agree that relative gains pose obstacle for international cooperation.

Neo-institutionalism emphasizes that international institutions and international organizations gaining more importance due to the raising comprehensive interdependent relationships in many issue areas of international politics.136 They acknowledge, like realists, the central role of the states, however, contrary to the realism, accept the role of other actors as well, such as the role of international organizations. International institutions can assist states to cooperate efficiently in order to pursue joint interests when these interests are “neither totally aligned nor mutually exclusive”.137 “International Organizations reduce uncertainty and transactions costs, stabilize states’ expectations towards one another and thus remove various obstacles to cooperation.”138 That is the reason that states desire to create and maintain international institutions. And it has no correlation whether any state, which participates in international institution, is a hegemon or no. Neoliberals believe that

international institutions could be preserved even during the absence of the hegemon. So does Keohane in his research, coming to a conclusion that even “after hegemony” cooperation proved to be possible.\textsuperscript{139}

According to neoliberal institutionalism the design and success of the international institutions depends on “constellation of interests”. Four types of interest constellations can be distinguished:\textsuperscript{140}

1. The creation of international organization is likely in “\textit{coordination game situations without distributional conflict such as a ‘stag hunt’ in which two hunters are obliged to cooperate in order to shoot the stag}”;
2. The establishment of international organization can be considered to be relatively likely in situations of “\textit{coordination games with distributional conflict (Battle of the Sexes)}”;
3. Creation of international organizations in “\textit{dilemma games without distributional conflict}” as in the Prisoner's Dilemma is less possible than in coordination game situations;
4. International organizations are less likely to emerge in “\textit{dilemma games accompanied by distributional conflicts}.”\textsuperscript{141}

\section*{2.4.3 Power-based Theories of International Relations: Realism (classical realism) and Neorealism (structural realism)}

\subsection*{2.4.3.1 Main Characteristics}

Classical realism portrays states as the most important actors in the international relations, who follow self-interest in an anarchical world. Main characteristics of this theory are the anarchical structure of the international system, permanent fight for the power among actors (i.e. states) and significant role of security interests in international relations.\textsuperscript{142}

As to realists the role of international organizations is not important, as they can’t stop states fighting for the power, they can’t change the nature of the human being as well

\textsuperscript{139} Keohane showed that despite of the fact that USA gradually lost its power and hegemonic position in 1970s; international institutions continued their functionality. Keohane (1984).

\textsuperscript{140} Koremenos et al. (2001); Snidal (1986); Stein (1983); Zangl (1999); Zurn (1992).

\textsuperscript{141} Rittberger/Zangl/Kruck (2012), pp. 21-23.

\textsuperscript{142} Mersheimer (1994), p. 9.
as anarchical structure of the world. Quite the reverse, powerful states use international organizations to force their power politics in pursuing their self-interest. They associate the success of the international organization with the existence of the hegemon, which has vast power means.\textsuperscript{143}

However, realists don’t reject the existence of cooperation between states. Mearsheimer, a strong advocate of realism, argues that it is hard to achieve cooperation in an anarchical world; however, once it is achieved it is difficult to sustain. As to him there are two main reasons, which hinder international cooperation: state concerns about cheating and relative gains considerations.\textsuperscript{144}

Fight for power can transform into the threat and use of force as there is no supranational authority in capacity to exercise an overwhelming power. The natural situation among states is war.\textsuperscript{145} States can survive in the anarchical world with all uncertainties only with self-help. Each state should guarantee its own security with the help of power maximization thus they find themselves in the situation of security dilemma. They try to increase their security by expanding their power, which is seen by other states as a threat to their national security. This creates an atmosphere of distrust; states compete with their military arsenals seeking power and find themselves in conflicts.\textsuperscript{146}

Kenneth Waltz, one of the most famous representatives of neorealism (or structural realism), published his Theory of International Politics in 1979, where he tried to find a systemic theory, which could explain war and peace in international relations. Neorealism mostly adopts main assumptions of the classical realism school.\textsuperscript{147} Nevertheless, neorealism doesn’t agree with the realism in assuming that it’s human nature, which persuades states to struggle for the power. They believe that states adopt “security-oriented policy” due to the anarchical structure of international relations.

The most important assumption of the neorealism is that states are the key actors in international relations, whereas other societal actors are left out.\textsuperscript{148} Consequently, the main object of the analysis of neorealism is the structure of international system.

\textsuperscript{143} Rittberger/Zangl/Kruck (2012), p.16.
\textsuperscript{144} Mersheimer (1994), p. 12.
\textsuperscript{145} Waltz (1979), p. 102.
\textsuperscript{146} Rittberger/Zangl/Kruck (2012), p.16.
\textsuperscript{148} Rittberger/Zangl/Kruck (2012), p. 15.
Fundamental statements of neorealism are the following:\textsuperscript{149}

- International politics is a completion of units (i.e. states), without limitations other than impose changes in game and players conveniences;
- States should rely only on those means, which they can generate and on those arrangements they are able to make for themselves.

In his neorealist theory Waltz posits that power on the state level is dispensed hierarchically, contrary to that in the international level it is allocated horizontally. He believes that international system composed of units, i.e. security seeking states. States as units are the second measurement of structure. Security seeking states incline to pattern each other at the unit level, which results in balancing behavior. \textit{“Assuming states tend to replicate due to balancing”} thus as to Waltz the second dimension structure falls out. Concerning the third dimension of the structure, Waltz's theory sums up that the number of big powers in the international relations largely determines the distribution of capabilities. He thinks that there is a linkage among the number of big powers and how countries act in the international world, for example, why states acquire arms, establish alliances, etc.\textsuperscript{150}

Waltz believes that states, which associated with units don’t differ by the functions they perform.\textsuperscript{151} One of the most criticized analyses of the neorealism is the assumption that domestic political systems of the states are not relevant for analysis. Waltz posits, \textit{“...state arrives at policies and decides on actions according to its own internal processes, but its decisions are shaped by the very presence of other states as well as by interactions with them.”}\textsuperscript{152}

Though functions of the units in the anarchic system are not different, their capabilities to perform the same tasks are far different. Following Waltz theory the most stable system is the bipolar one, as it is easier to make power calculations, uncertainty is less and both powers can improve imbalances by internal means instead of the external ones.\textsuperscript{153} On the contrary multipolar structure is more uncertain and instable. It is hard to forecast the present and future relations of forces. Concerning the unipolar system, it poses threat to all states accept of the hegemon power, as a result states establish

\textsuperscript{149} Honghua (2011), p.1.
\textsuperscript{152} Waltz (1979), p. 65.
\textsuperscript{153} Waltz (1979), p. 168.
coalitions to fight the overwhelming threat.\footnote{Schörnig (2010), p. 77; Lampalzer (2014), p. 39.}

\section*{2.4.3.2 Neorealist Assumptions vis-à-vis International Regimes}

“\textit{Realist theories of regimes emphasize relative power capabilities as a central explanatory variable and stress states' sensitivity to distributional aspects of cooperation and regimes.}”\footnote{Hasenclever/ Mayer/Rittberger (1997), p. 84.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure21}
\caption{Realist approach}
\textit{Source: Hasenclever/Mayer/Rittberger (1997), p. 84}
\end{figure}

Neo-realists contend that states have to guarantee “\textit{other states do not benefit from cooperation in international organizations than they do themselves because absolute gains translate into a loss of power if international cooperation leads to superior gains for other states.}”\footnote{Grieco (1988); Rittberger/Zangl/Kruck (2012), p. 17.} Consequently states pursue relative rather than absolute gains, which possess obstacles for international cooperation. Anarchic strain towards balancing and contra cooperation are reinforced by the relativity of power. It is less a matter of absolute resources how much one has that of relative capabilities. As explains J. Donnelly “\textit{acing an unarmed man, a tank is pretty powerful. The same tank facing a squadron of carrier-based attack jets is not very powerful at all.}”\footnote{Donnelly (2005), p. 39.} “\textit{The relativity of power requires states to “be more concerned with relative strength than with absolute advantage.”}\footnote{Waltz (1979), p. 106.}
Neo-realists conceive that anarchical structure of international system dictates maximization of power thus international organizations are mostly ineffective. With this assumption they agree with the followers of classical realism that international organizations are not efficient. International organizations designed first of all to reflect the interests of powerful states. Neo-realists believe that decision-making procedures of international organization are set in a way time to time to give certain privileges to the most powerful states (special voting rights). They are skeptical about the cooperation between the states and consider the role of the international regimes as limited. Taking into account these arguments “interstate cooperation is almost impossible to achieve, even if it promises gains for those states that do cooperate, as it is always assumed that today’s friend may become tomorrow’s enemy.”

Waltz believes each actor in the balance of power may try to maximize his power; each fails because of the similar efforts of others.

“When faced with the possibility of cooperating for mutual gain, states that feel insecure must ask how to gain will be divided. ... “Will both of us gain?” but “Who will gain more?” If an expected gain is to be divided, say, in the ration of two to one, one state may use its disproportionate gain to implement a policy untended to damage or destroy the other. ... Instead, the condition of insecurity - at the least, the uncertainty of each about the other's future intentions and actions-works against their cooperation.”

Hegemonic stability theory is one of classical examples of power-based theory, which explains changes in international regimes. Joseph Grieco, a convinced realist, was a founder of power-based theories of regimes based on hegemonic stability theory. This theory explains the existence of efficient international institutions with a “unipolar configuration of power in the issue-area in question.” Concerning regimes realists come to a conclusion that only with the existence of a strong hegemon regimes can be successful, which means robust and resilient. Hegemonic stability theory is in large

159 Rittberger/Zangl/Kruck (2012), p. 16.
162 Hasenclever/Mayer/Rittberger (1997), p. 84.
theory of international regimes. Robert Crawford underlined that this theory is “the most parsimonious, common, and explicitly realist explanation of regime creation”.163 The regime theory emerged in opposing the limits of the hegemonic stability theory hypothesis. Neoliberals undervalued relative power capabilities in regimes. However, even Keohane, who criticized the theory of hegemonic stability in his book “After Hegemony”, accepted that hegemony often plays a significant role for creation of international regimes.164

According to hegemonic stability theory “1) regimes are established and maintained by actors who hold a preponderance of power resources (relevant to the issue are in question) and that 2) regimes decline (i.e. decrease in strength or effectiveness) when power becomes more equally distributed among regime members [...]”.165 Keohane agrees that some rationality exists in an unassertive option of the first suggestion of the theory of hegemonic stability, according which hegemony can facilitate a certain type of cooperation, however there are no many arguments and reasons proving that “hegemony is either a necessary or a sufficient condition for the emergence of cooperative relationship”.166 However in his book he brings the limitation of the hegemony for the study of cooperation. Keohane emphasizes “the hegemon plays a distinctive role, providing its partners with leadership in return for deference; but unlike an imperial power, it cannot make and enforce rules without a certain degree of consent from other sovereign states”.167 And in order that his preferred rules lead the behaviour of other states, hegemon should invest a lot of resources in institutions.

Keohane argues “hegemony itself reduces transaction costs and mitigates uncertainty, since each ally can deal with the hegemon and expect it to ensure consistency for the system as a whole. The formation of international regimes can ensure legitimacy for the standards of behavior that the hegemon plays a key role in maintaining.”168 Keohane gives an example of American hegemony explaining that American leaders didn't build hegemonic regimes just by instructing weaker states to behave in a way

they want but they had to find mutual interests with weaker partners and they had to adjust themselves in addition to demanding others to conform to their design. They had to invest their resources in order to establish institutions. They met some frustrations on the way of institutions building.\textsuperscript{169}

According to Hasenclever/Mayer/Rittberger the theory of hegemonic stability rejects the capability of states to be involved in (large-scale) joint action: “\textit{no regime emerges in an issue-area, unless the group is privileged such that the collective good can be supplied by independent action}”. The theory’s skepticism towards international cooperation is one of two features of the theory, which place it straight into realist tradition.\textsuperscript{170}

Though hegemonic stability theory insists that regimes can’t be created or maintained until there is no hegemonic leadership in the issue-area, there are findings, which disapproves this hypothesis. Keohane is sure that international regimes depend on the availability of common or complementary interests perceived by political actors and doesn't matter if hegemon exists or no. This helps common action to produce joint gains rational. Following Keoahane's theory hegemon can assist in producing shared interest by rewarding for cooperation or punishing for defection. But such rewards and punishment can be established without hegemon as well. “\textit{Outcomes must be determined by relatively small number of actors that can monitor each other's compliance with rules and practices and that follow strategies making other governments' welfare dependent on their continued compliance with agreements and understandings}”.\textsuperscript{171}

\section*{2.4.4 Knowledge-based Theories of International Relations: Constructivism}

\subsection*{2.4.4.1 Main Characteristics}

Constructivism is the knowledge-based school of thoughts on study of international regimes used in this research. This theory emphasizes ideas and knowledge as explanatory variable to the study of international politics. Followers of this school have

\textsuperscript{171} Keohane (1984), pp. 78-79.
heavily criticized interest-based theories of studies of international regimes and took reverse position to rationalistic assumptions. Constructivism started to dominate in theoretical discussions in 1990s, as a result of debates between neorealism and neoliberal institutionalism. As these two schools of thoughts were not able properly explain end of East-West conflict, theorists have been looking for new explanations and new disciplines in order to come up with new theories. After the end of cold war debate between rationalists and constructivists emerged. Some representatives of this school worked at the meta-theoretical level such as Wendt, but others tried to find conceptual and theoretical explanations via “systemic analysis of empirical puzzles”.  

The term “Constructivism” is derived from the phrase “socially constructed”. Constructivists see the social reality as an outcome of the knowledge. Everything what taken place around us is interrelated with our knowledge and views of society. Alexander Wendt, a constructivist scholar, wrote his article “Anarchy is what states make of it” in 1992, where he brought analytical arguments contradicting the realism assumptions on anarchical system. His book “Social Theory of International Politics” (1999) further contributed to his previous articles and the development of this theory. Wendt criticized Waltz’s international structure. Wendt’s central argument is the opposition to neorealist position, which says that anarchical system leads to self-help. As to Wendt self-help depends on states interaction. If states find themselves in self-help situations, it is because of the process and not the structure. Identities and interests of states are revealing during the interaction. If for neo-realists states prior to interaction already know what they want, for Wendt it is the interaction with states that “create and instantiate one structure of identities and interests rather than another; structure has no existence or causal powers apart from process”.  

“Social construction” in international politics is different to “materialism” approach (neorealism and neoliberalism), according, which material objects have immediate influence on results. Wendt posits that material power and state interest are primarily shaped by ideas and social interaction. Hence, states in an anarchic system can own military and other capabilities, which can be perceived as a threat by other states; however hostility and arms races are not unavoidable outcomes. Social interaction

between states can also result in friendly relations of anarchy.\textsuperscript{175} “Anarchy is what states make of it”.\textsuperscript{176} He argues that a central assumption of constructivist social theory is that “people act toward objects, including other actors, on the basis of the meanings that the objects have for them”. Actors behave in a different way towards foes and friends and anarchical system and distribution of power alone can’t give the states the notion, who is who. The distribution of power may affect states’ calculations, but how it affects it depends on “inter-subjective understandings and expectations” as well as on distribution of knowledge.\textsuperscript{177} Understanding of the way, how actors develop their interest is critical in order to understand international political phenomenon on which rationalists didn’t pay enough attention. In order to explain interest formation they look to social identities of states and individuals.\textsuperscript{178} To summarize, constructivism focuses on the origins of states’ interest. Identities are the foundation of interests. Actors do not have a set of interests, which are formed out of social context. Contrary, they identify their interests in “the process of defining situation”.\textsuperscript{179} A state may have multiple identities such as "sovereign," "imperial power," and so on. Each identity is a characteristically social definition of the actor and these identities create the structure of the social world.\textsuperscript{180}

In summary, Wendt follows systemic analysis, he centers the interaction between states in the international system and neglects the role of domestic factors. “Institutionalized norms and ideas define the meaning and identity of the individual actor and the patterns of appropriate economic, political, and cultural activity engaged in by those individuals”.\textsuperscript{181} Actors’ identities and interests are shaped by normative structures via imagination, communication and constraint.

Another constructivist scientist Martha Finnemore, instead of looking at the states’ social interaction, concentrates on the norms and how they affect states’ interests and identities. State behavior results from interest and identity, which are defined by the

\textsuperscript{175} Fietta, p. 4.  
\textsuperscript{176} Wendt (1992), p. 395.  
\textsuperscript{177} Wendt (1992), p. 397.  
\textsuperscript{178} Reus-Smith (2005), p. 197.  
\textsuperscript{179} Wendt (1992), pp. 399-417.  
\textsuperscript{180} Wendt (1992)  
\textsuperscript{181} Meyer/Boli/Thomas (1987), p. 12; Reus-Smith (2005), pp. 197-198.
norms of international society and which in their turn communicated to states through international organizations. International organizations dictate the actors what their interests should be.182

Constructivism can be categorized in three forms:

**Systemic constructivism:**183 this approach follows Waltz’s analysis and concentrates on the interaction between unitary state actors, while disregarding states’ domestic politics and their role in identity and interest formation. Though Wendt neglects links between states’ identities and interests and domestic norms, he draws a division line between social and corporate identities of a state.184

**Unit-level constructivism:**185 this approach takes different stand from “systemic constructivism”. Per se it focuses on the interaction of domestic social and legal norms as well as on identities and interests of states. It pays no attention to the role of international norms in shaping states’ identities and interests.186

**Holistic constructivism:**187 this approach tries to connect systematic and unit-level directions trying to explain how state identities and interests are established. Holistic constructivism includes domestic corporate identities of states and internationally driven identities into “a unified analytical perspective that treats the domestic and the international as two faces of a single social and political order.”188

2.4.4.2 Constructivist Assumptions vis-à-vis International Regimes

Contribution of constructivism can be assessed as complementary to neoliberal mainstream theory of regime analysis, by “adding a theory of preference formation”.189

“Cognitivism” term is yet another word of the Constructivism theory on international regimes. Cognitivism brings other views and approaches pertaining international regimes than traditional theories. It focuses more on criticizing the existing theoretical approaches rather than developing a new one. It emphasizes knowledge, ideas, value and other

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182 Finnemore (1996)
183 Alexander Wendt is a representative of “systemic constructivism” approach.
184 Reus-Smith (2009), p. 223.
185 Peter Katzenstein represents this direction.
187 John G. Ruggie and Fredrich Kratochwil are representing this approach.
subjective factors’ significance for regimes. According to this theory subjective factors such as culture and norms play significant role in the regime formation and dynamic. Furthermore, it emphasizes importance of the process, which is not only equal value as structure but even sometimes dictates the structure. And finally it underlines state identity and national interest.

Knowledge-based approaches of international regimes have divisional line and depending on how critical they are to rationalism they divide into “weak” and “strong” cognitivism. Despite of the differences they both stress the view that rationalists don’t pay enough attention to the state behavior taking as granted identities and interests.

**Weak cognitivism:** They accept state as a rational utility-maximizer, where the utility depends on knowledge. Weak cognitivism in studying regime tries to fill the gap in interest-based theory by providing the theory of interest change. Assumptions of the weak cognitivism:  

- Need for international regimes depend on states’ perception of international problem, which results from their causal and normative beliefs. Interests are not given and need to be analyzed as a function of decision-makers perception of the world; decision-makers should reduce uncertainty via information; actors before developing shared rules at least should have an agreement on issue in question, “otherwise, convergent expectations among independent actors in an international issue-area would be impossible, and cooperation would be doomed to failure”.

![Figure 22: Central assumptions of weak cognitivist in study of international regimes](image)

*Source: Hasenclever/Mayer/Rittberger (1997), pp. 140-154*

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Strong cognitivism: Strong cognitivism develops alternate rather than supplement theory of analyzing regimes. States should not be considered as establishing regimes in order to maximize some utility. They should be seen as role-players, whose identities depend on international institutions. They see regimes as important characteristics of international politics. Regimes considered as prerequisites of rational choice. State identity depends on regimes and identity place important role in establishing and further maintaining of it. Robustness of the regime according to this school of thoughts can been considered greater than those that put forward by neoliberals.

According to Wendt institutionalization is a process of adopting new identities and interests. Institutions can be cooperative or conflicting. As to Wendt institution is a structure or set of identities and interests with their formal norms and rules. Such structure motivates actors to participate in collective knowledge. Institutions considered as cognitive entities and they can’t operate without states’ understanding how the world works. But it doesn’t mean that institutions are just „beliefs“. As collective knowledge, they are experienced as having an existence "over and above the individuals who happen to embody them at the moment".

A constructivist analysis of cooperation focuses on how the expectations produced by behavior affect identities and interests. „The process of creating institutions is one of internalizing new understandings of self and other, of acquiring new role identities, not just of creating external constraints on the behavior of exogenously constituted actors. ...[t]he process by which egoists learn to cooperate is at the same time a process of reconstructing their interests in terms of shared commitments to social norms”. This transforms an interdependence of outcomes into interdependence of utilities or common interest organized around the norms in question. As these norms are bound with actor’s commitments to their identities they will hardly alter. From constructivist point of view "the cooperation issue," basically is cognitive rather than behavioral

192 Scholars such as Harald Müller, John Gerard Ruggie, Alexander Wendt, Friedrich Kratochwil and Thomas Franck contributed to this approach.
Kratochwil and Ruggie summarize international regimes as “principles and shared understandings of desirable and acceptable form of social behavior...[regimes] embody shared social knowledge, and they have both a regulative and a constitutive dimension.” Regimes require that states behave in accordance with principles, norms and rules as well as they help establish a common social world by setting the meaning of behavior. Regimes shaped the mode how states understood one another’s actions. It makes sense of states’ actions in a particular issue area, which otherwise would be seen as unrelated sequence of actions.

2.4.5 International Regimes

Regime analysts are mostly interested in the origins of the regimes, their structure, and their influence on regime members, their robustness and change. They also study the impact of regime principles and norms on the patterned behavior of regime members, members’ compliance and deviance from norms and principles as well as process of rewards and punishment. Political scientists analyze likewise, which members of the regime are advantaged and which disadvantaged. Answers and analysis of all these questions have significant importance in order to answer the central research questions of this dissertation as well as to approve or reject the proposed hypothesis. Consequently in this subchapter detailed illustration of theorists’ views and assumptions in relation to these questions has been brought.

2.4.5.1 Regime Formation and Development

In the literature on international regimes several ways of regime formation are exposed. Young claims that his study of international regimes brought to the conclusion that international regimes are formed in three ways: “spontaneous, in which regimes emerge from the converging expectations of many individual actions; negotiated, in which regimes are formed by explicit agreements; and imposed, in which regimes are initially forced upon actors by external impositions.” He further notes that spontaneous regimes don’t involve conscious coordination among participants, do not require concise agreement on the part of subjects or perspective subjects. There is no a “conscious design” and even “explicit awareness” in forming spontaneous orders and the process how such regimes form is not well understood.

It should be mentioned that opposing to Young’s assumption on spontaneous regimes, Keohane doesn’t agree that international agreements or international regimes are created spontaneously.

Contrary to spontaneous regimes, Young posits that negotiated regimes characterized by “conscious efforts to agree on their major provisions, explicit consent on the part of individual participants, and formal expression of the results.” Negotiated orders, i.e. regimes, divide into two types: “constitutional” contracts and “legislative bargains”. In the case of “constitutional contracts” those who should be subject of the regime are directly involved in the negotiations already during the process of regime development. In contrast, during “legislative bargains” those likely to be subject to a regime don’t take part in the negotiations directly but only represented in the relevant negotiations. Negotiated orders distinguish also as comprehensive negotiated and partially negotiated regimes. In order to understand negotiated regimes theoretical models of bargaining needs to be analyzed. In international relations mostly negotiated orders prevail.

Imposed orders do not contain precise agreement on the part of subordinate actors, and they mainly functioning efficiently in the absence of any formal expression. Imposed regimes differ from negotiated and spontaneous regimes in a way that they are raised

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and imposed by dominant actors and don’t suppose the agreement of non-powerful actors. Such regimes act efficiently even in the absence of formal manifestation. “Imposed orders are deliberately established by dominant actors who succeed in getting others to conform to the requirements of these orders through some combination of coercion, cooptation, and the manipulation of incentives.”

But does the regime formation type bring different results and outcomes? Young’s observations show that only negotiated regimes can lead “to results that are little better in terms of equity”. Nevertheless, during the negotiations unequal distribution of the bargaining power affects the outcome. Even if negotiations supposed to be fair, there is always a room for unequal conduct of the bargain. But when the issue comes to the outcomes in terms of regime stability or their capacity to adjust to changing environmental conditions, Young believes that only spontaneous regimes run into more or less severe problems, while negotiated and even imposed regimes better resist to social change.

![Figure 24: Types of Regimes](source: Young et al in Krasner (1983), pp. 99-113)

### 2.4.5.2 Causal Variables of Regime Formation

Regimes do not emerge by themselves, but as Young posits human beings are creating them. Summarizing the theories on international regimes, Krasner brings main causal

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variables, which result in the development of the regimes. When established, regimes themselves affect behaviors and outcomes.

The set of causal variables, which give rise of the regimes are egoistic self-interest, political power, norms and principles, usage and custom and the knowledge:\(^{210}\)

- The egoistic self-interest is the reason for the existence of international regimes. Egoist is concerned with the behavior of others only in case that behavior can affect the egoist’s utility;
- Power is used to increase the values of specific actors. Power in the service of common goods and power in the service of particular interests;
- Norms and principles that have an influence in certain issue-area but have no connection to that issue-area also can be regarded as explanations for creation, persistence and dissipation of regimes;
- Usage is the regular patterns of behavior based on real practice. “Usage leads to shared expectations, which became infused with principles and norms”:\(^{211}\)
- Knowledge becomes a good basis for cooperation by illuminating complex interconnections that were not previously understood.\(^{212}\)

Krasner believes that interest and power are the most noticeable causes. However he didn’t reject impact of the knowledge. “If regimes matter, then cognitive understanding can matter as well.”\(^{213}\) Nevertheless, Krasner thinks that knowledge itself is not sufficient to explain either the creation or the functioning of a regime at the same time interests and power cannot be expelled as well.\(^{214}\)

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2.4.5.3 Regime development

**Interest based perspective**: The most dominating clarification of the regime formation and its existence is the egoistic self-interest. Krasner brings example of spontaneous and negotiated regimes as regimes based on egoistic calculations. Interest based theories and regime theory point out the interest as a main reason of the regime formation. Regimes facilitates realization of actors’ interests collectively.\(^{215}\)

The confidence created by old regimes can also help to create new regimes. Regimes seldom revealed from chaos, rather they built on one another.

According to Keohane's functional perspective, regimes are created by states as instruments to achieve certain (selfish) goals. This argument explains not only regime formation but maintenance as well. Regimes reduce transactions costs, costs associated with the negotiation, monitoring, and enforcement of agreements. One of the main functions of the regimes is to facilitate cooperation just by providing states with information or reducing the information costs.\(^{216}\) Keohane mentions that international regimes should not be considered as elements of new international order. They can be considered “as arrangements motivated by self-interest: as components of systems in which sovereignty remains a constitutive principle”.\(^{217}\)

International regimes in practice don't replace the bargaining but they authorize certain types of bargaining for certain purposes. They facilitate negotiations leading to mutual beneficial agreements among governments.\(^{218}\) “Regimes also affect incentives for compliance by linking issues together and by being linked together themselves.

Behavior on one set of questions necessarily affects others' actions with regard to other matters. From time to time ad hoc agreements are insufficient to coordinate actors’ behavior thus the need for the regime rises.

Young's model of regime formation is grounded on “institutional bargaining”, which according to him is more realistic than power-based models. He emphasizes that regime formation in international policy normally centers on integrative (or productive) bargaining. Young argues that regime creation is in many cases subject to “unanimity rule”. The identity of the parties taking part in negotiations sometimes can be not clear in the beginning of the negotiations and may itself be an issue of a debate, but once the issue is settled, each of the remaining actors enjoys a de facto veto power in the subsequent negotiation process. Presence of explicit and efficient compliance mechanisms brings to the success of the negotiations between self-interested and autonomous actors. "Institutional bargaining is likely to succeed when effective leadership emerges; it will fail in the absence of such leadership."

A regime would more likely to be created if it is more efficient. This explains why with rising levels of interdependence between states and societies, the number of international regimes has grown as well. Haas is of view that “regimes are designed to manage complexity and complexity increases with interconnectedness.” Similar arguments bring Puchala and Hopkins underlining that “regimes are more likely to arise under conditions of complex interdependence”.

Stein posits that regimes are emerging as actors omit independent decision making in order to solve dilemmas of common interests and common aversions together. These are the main two circumstances under which actors see the reason for cooperation and prefer it to their not restricted individual choice. States choosing that path as in both cases outcomes, which they achieved working or cooperating together is preferable to those that can be achieved independently. It is in the interest of actors to create arrangements to “shape their subsequent behavior and allow expectations to converge,

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221 Hasenclever/Mayer/Rittberger (1997), pp. 73-74.
thus solving the dilemmas of independent decision making”. He then clarifies that to solve dilemmas of common interests need collaboration and regimes dealing with the issue of common interests should specify strict pattern of behavior and ensure that no one cheats. Such collaboration needs a level of formalization. He brings the example of SALT Agreements as a pattern of institutionalized collaboration. Such agreements should define cheating very clearly, insuring that it will be observable, and specify verification and monitoring procedures. In such arrangements the level of incentives of individual’s cheating is high.

Though certain issues can be solved via coordination, not necessarily for such coordination to become formalized or institutionalized. As argued Stain, coordination is not required to include regimes. Coordination may only need the building of rules. If these rules are not informed by any adjacent principles or norms, they will not obey to the definition of regimes provided by Krasner. Common aversions need cooperation and they are created only to insure that particular outcomes to be avoided. “Such coordination is difficult to achieve when, although both actors least prefer the same outcome, they disagree in the choice of preferred equilibrium.”

Regimes are all reactions to problems of coordination among groups of people and outcomes of regularities of human behavior. “While any given regime will reflect the behavior of all those participating in it, individual actors typically are unable to exercise much influence on their own over the character of the regime.” Countries active in specific issue-area where they have interest, should share common interests, which is possible to realize only via cooperation. Of course the theory doesn't apply for all cases and situations. Common interest is important but not the prerequisite for cooperation. According to Keohane cooperation, is mutual modification that occurs “as a result of process of policy coordination”. Presuming mutual benefits doesn't always imply to presume that regime participants' interests are

alike. But it is to assume the existence of mixed-motive situation and it is not interests (preferences over outcomes) that are accustomed when states cooperate but policies (preferences over actions). According to functional theory common interests do not automatically lead to cooperation, this is one of the main assumptions of this theory. However, having this assumption, scholars when explaining it follow different paths. For instance, Keohane explains regimes as they facilitate agreements (cooperation), Young explains regime as agreements thus explaining regimes is explaining a type of agreement. According to contractualist theory regimes facilitate international cooperation, which would be impossible or difficult to achieve otherwise. They cooperate by not changing actors' interests and values or by changing their incentives to act. Thus changing “the calculations of advantage that government make”.

Various scholars explain regime establishment with pointing out different conditions. Keohane analyzing international cooperation distinguish two aspects, which result in the creation of the regime: “imposition of constraints” and “decision-making”. Constraints mainly are imposed by environmental factors such as geography and by powerful actors. Regime could be considered as established and maintained voluntarily, however actors, which were weak, could join the regime under the fear of invasion or economic collapse, in such circumstances this can’t be looked as voluntary action. According to Keohane the “constraint-choice approach draws attention to the question of why disadvantaged actors join international regimes even though they may receive fewer benefits than regimes are simply imposed.” It is obvious when adhering to certain regime each actor calculates whether it is better to be within or outside the regime having in the mind the prior constraints. Powerful actors may impose constraints on weaker actors before the regime, with the creation of a new regime or threaten them if they refuse to follow the hegemonic scheme.

Regimes are not costless as pointed out Krasner: “If regimes were costless to build, there would be little point in constructing them. In this case, agreements would also be

costless. Under these circumstances, governments could wait until specific problems arose, then make agreements to deal with them; they would have no need to construct international regimes to facilitate agreements. It is precisely the costliness of agreements, and of regimes themselves, that make them important. The high costs of regime building help existing regimes to persist.”

Governments joining regimes thinking that it is beneficial for them, sometimes complying with the rules of the regimes though the costs of complying outweigh the benefits. Keohane argues that governments may comply with regimes rules and principles in case they are worried to do a precedent or believe that their reputation is at stake. Governments don't want to create bad precedents because they are afraid that their own violations will encourage other governments to violate the regimes rules even if there is no specific punishment for that violation. Egoistic governments may follow rules and principles of international regimes because of their reputation and not establishing the precedent as well. Each time governments seem to have incentives to violate the rules and principles of the regime, “they could calculate whether the benefits of doing so outweigh the costs, taking into account the effects of rule-violation on the system as a whole”.

As Ernst Haas posits that "What matters is process. The actor's perceptions of reality result in policies that shape events; these effects create a new reality whose impact will then be perceived all over again, ad infinitum”. He sees the processes as "patterned behaviors of actors from which the analyst can draw summary conclusions of trends." He further explains, "changing perceptions of values and interests among actors are thus associated with changed behavior".

Different processes and regimes will be established for at least certain period and will be considered as rational in response to different perceptions of national interest, which can be altered as a result of new information or change of the values. Such

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243 Haas in Krasner (1983), p. 57
collaboration among states expresses no more than the convergence of such interests.246

2.4.5.4 Preconditions for Regime formation

Though Keohane and Yang start from the point that the presence of zone of agreement is a necessary, they believe that it is not a sufficient condition for cooperation.247 As of Keohane in order that governments value regime for facilitating agreements at least one of below listed conditions should be applied.248

- Absence of legal framework founding liability for actions;
- Information is costly, and not sufficient;
- Positive transaction costs.

As already pointed out only convergence of actors’ interests doesn’t lead to the establishment of the regime. Different factors affect the prospects of the regime development.249

![Diagram: Factors influencing the prospects of Regime formation](image)

**Figure 27: Factors influencing the prospects of Regime formation**

*Source: Lampalzer (2014), p. 29*

**Cost-benefit ratio:** The possibility that the regime will be created is higher when the costs of creating and preserving of the regime is lower and benefits, which could result in case of the regime establishment and maintenance, larger.250

**Strength of the enforcement process:** Chances for cooperation will be limited where

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enforcement processes are not strong and “cheating bring gains”.\textsuperscript{251}

**Issue density:** Enlarged issue density will also increase the need and urgency for regime and it will prompt more extensive regime.\textsuperscript{252}

**Amount of states affected in an issue area:** As more states involved in regime as increased is the need for compliance mechanism to be established within the issue area.\textsuperscript{253}

### 2.4.5.5 Regime functions

Puchala/Hopkins analyzing the norms of colonial regime and food regime concluded that regimes exist, actors are guided by the norms in various issue areas, regimes explain international behavior, which can be pushed beyond goals, interests and power. Regimes mediate between goals, interest and power from one side, and behavior from another side. They can be tools, which rationalizes the rule of powerful by increasing their preferences to the status of norms.\textsuperscript{254}

Agreeing with the Karsner’s definition of the regime they conclude that “regimes constrain and regularize the behavior of participants, affect which issues among protagonists move on and off agendas, determine which activities are legitimized or condemned, and influence whether, when and how conflicts are resolved.”\textsuperscript{255}

Regimes carry important functions, which are listed below.

**Facilitate cooperation:** “Major function of international regimes is to facilitate the making of specific agreements on matters of substantive significance within the issue-area covered by the regime. International regimes help to make governments’ expectations consistent with one another.”\textsuperscript{256} International regimes are useful for member states as they allow governments to achieve objectives that would be difficult

\textsuperscript{251} Burchill (2009), p. 67; Lampalzer (2014), p. 28.
\textsuperscript{253} Zangl (2010), pp. 142-143.
\textsuperscript{254} Puchala/Hopkins in Krasner (1983).
\textsuperscript{256} Keohane in Krasner (1983), p. 150.
to achieve without regimes.\textsuperscript{257}

\textit{Constrain and regularize behavior}: As of Keohane international regime is created in order to regularize not only the behavior of the regime members but also behavior of those who are outside of the regime. Based on this assumption he explains the purpose of non-proliferation regime, particularly establishment of the nuclear “suppliers’ club”, which has been designed to keep nuclear material and knowledge from spreading to potential nuclear powers.\textsuperscript{258}

\textit{Reduce transaction costs}: International regimes affect transaction costs making it cheaper for states to negotiate agreements as they provide a well-established negotiation environment with explicit procedures, transparency on negotiating parties as well as strategic objective to be reached. And it is easier to conclude agreements within a regime than outside it. Regimes make more possible for conclusion of international agreements as they reduce transaction costs.\textsuperscript{259}

\textit{Reduce uncertainty and risks of making agreements}: Reduction of mutual uncertainty is one of the significant regime functions as uncertainty is the major obstacle for international cooperation. Thus reducing the mutual uncertainty regimes facilitate states joint work for mutual advantage. Keohane and Young find uncertainty as essential factor for regime formation. For Keohane uncertainty and possibility of joint gains motivates states to create regimes, which later serve to reduce uncertainty. For Young uncertainty is a condition for regime formation, which may decrease during the operation of the regime but it is not one of the regime's purposes and doesn't targeted to stabilize the regime.\textsuperscript{260}

Regimes sometimes include also international organizations, whose secretariats play a role of not only mediators, but also as providers of unbiased information to all member states more or less on equal basis and assist states to attain collective benefits.\textsuperscript{261} “By reducing asymmetries of information through a process of upgrading the general level

\textsuperscript{257} Keohane (1984), p. 62.
\textsuperscript{259} Keohane (1984), p. 90.
\textsuperscript{260} Hasenclaver/Mayer/Rittberger (1997), p. 73.
\textsuperscript{261} Keohane (1984), p. 94.
of available information, international regimes reduce uncertainty[,] ...Regimes provide information to member, thereby reducing risks of making agreements."²⁶²

**Provide information:** Regimes facilitate *collection and dissemination of information*. That’s why information collection and distribution considered one of the most important functions of any regime. Norms and rules cannot alter without the inclusion of this function²⁶³.

**Create linkages:** International regimes’ principles, norms, rules, and institutions establish linkages among issues, which provide regime members with inducements to reach mutually beneficial agreements instead of having countless separate agreements.²⁶⁴

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**Figure 28: Key functions of international regimes**  

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**2.4.5.6 Regime Features**

Regime features can be important in identifying the regime and the patterned behavior.

Puchala and Hopkins in their study pointed out most significant five particular features of the regime:\(^{265}\)

1. Regime is a prevailing behavior. Observance of principles, norms, and rules form a behaviour. But it is known that regimes themselves are subjective. Regime exists as regime members’ understandings, anticipations or persuasions about legitimate, proper or moral behavior. Regime can be formed in relation of both geographic and functional concerns;

2. International regime contains views concerning respective procedures for making decisions. Questions on regime include who can take part in the regime, what interests govern or are given priority, and what rules serve to protect and preserve the supremacy in decision making;

3. Key principles it advocates should be included in the description of a regime. It is worthwhile to bring the hierarchies among principles and the projections for norm enforcement. These allow the potential for change;

4. Each regime has its major players, who are in a practice the main actors within it. States’ Governments are the principal official members of most international regimes, it doesn’t matter whether it is an international, transnational or even subnational organization, they can essentially participate on a legitimate base. In practice regime members are usually bureaucratic units or individuals, who act on behalf of the their government by creating, implementing and acting in compliance with norms;

5. Regime exists in every applicable issue are in international relations, where there is an obviously patterned behavior. In cases when there are a patterned behavior some kinds of principles, norms and rules should exist to account for it. Such patterned behavior sometimes is a result not of a voluntary consensus among all regime members but reflection of the views and policy implications of dominating powerful actors. Established regime doesn’t usually serve the common or individual interests of each regime member very well or even at all.\(^{266}\) “Slave states”, as an extreme example, understand the norms and principles of a bondage regime, although they do not accept them.


2.4.5.7  Regime Characteristics of Theoretical Importance

Puchala and Hopkins based on their observance of various international regimes provide four characteristics of regimes, which can be important for the theory:²⁶⁸

- **Specific vs. diffuse regimes**: Regimes can be ranging from specific, single-issue area to diffuse, multi issue areas. They may be categorized by the number of participants, which adhere to regime norms or principles. There is no international regime, which is universal, despite the fact that many try to have as more universal adherence as it is possible;

- **Formal vs. informal regimes**: The regimes, which are endorsed by international organizations and maintained by councils, boards, characterized as “formal” regimes. In contrast some “informal” regimes, established and maintained by convergence or consensus in objectives among regime members, enforced by mutual self-interests and “gentlemen’s agreements”, and observed mutually. Observance by Puchala and Hopkins of certain regimes, however, made them to conclude that the level of formality of the regime does little to do with the level of the effectiveness of the regime in terms of compliance with the regime norms and principles by their participants. Regimes over time tend to become more formal;

- **Evolutionary vs. revolutionary change**: Regimes mostly have tendency to be changed in two different ways: Evolutionary change happens when regime norms are preserved instead principles are changed. In case of the revolutionary change norms are overturned in order to change principles. Qualitatively evolutionary change occurs because of changes in information available to elites or emergence of a new knowledge. These changes are within the procedural norms and doesn’t accompany with changes in the distribution of

power among regime members. Evolutionary change is specific for “functionally specific regimes”. Revolutionary change is more common characteristic of diffuse regimes, which are highly politicized or biased. The majority of regimes operate to the advantage of some regime members and to the disadvantage of others.\textsuperscript{269} “The disadvantaged accept regime principles and norms (and diminished rewards or outright penalties) because the costs of noncompliance are understood to be higher than the costs of compliance. But disadvantaged participants tend to formulate and propagate counter regime norms[].”\textsuperscript{270} If and when the power system changes, the normative contents of dominating regime fall into risk. Power transition results in regime transformation. Change in power distribution also changes. Previously not favored participants become powerful and dictate new norms in favour of their national interests;

\textbf{Distributive bias:} All international regimes considered being biased. They create hierarchies of values, stressing some of them more and disregarding others. Regimes rewarding the advantage of some and the disadvantage of others, “and in so doing they buttress, legitimize, and sometimes institutionalize international patterns of dominance, subordination, accumulation, and exploitation”.\textsuperscript{271} Usually regimes serve to the interests of strong and dominant members. Regime effectiveness and mode of transformation can depend on the level of the bias. “Fairer” regimes may have a longer life than those, which “call for side payments to disadvantaged participants.”\textsuperscript{272}

\textsuperscript{269} Puchala/Hoopkins in Krasner (1983), pp. 63-65.  
\textsuperscript{270} Puchala/Hoopkins in Krasner (1983), pp. 63-65.  
\textsuperscript{271} Puchala/Hoopkins in Krasner (1983), p. 66.  
\textsuperscript{272} Puchala/Hoopkins in Krasner (1983), p. 66.
2.4.5.8 Analytical Components of International Regimes

In their analysis of international regimes scholars point out analytical components of international regimes, which presence would show the existence of the regime. In the consensus definition on the regime, Krasner brings four analytical regime components, which are operationalized in this research. Regime formation, change, transformation and even dismantlement largely depend on these analytical components.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles</td>
<td>beliefs of fact, causation, rectitude</td>
</tr>
<tr>
<td>Norms</td>
<td>Standards of behavior in terms of rights and obligations</td>
</tr>
<tr>
<td>Rules</td>
<td>Prescriptions or proscriptions of action</td>
</tr>
<tr>
<td>Decision-making practices</td>
<td>Prevailing practices</td>
</tr>
</tbody>
</table>

Figure 30: Analytical components of regimes  
Source: Krasner (1983), pp. 2-3

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Given the significance of four analytical components of the regimes throughout the research, these components are analyzed in the context of the NPT, the Comprehensive Safeguards Agreement and the Model Additional Protocols.

According to Krasner, regimes must embody principles and norms as well as rules and decision-making procedures. Otherwise, as Keohane points out, international regimes would be difficult to differ from any usual pattern of action in international politics that create common expectations about behavior.

According to Ruggie the idea that the four regime components should be coherent, and that coherence indicates regime strength, is problematic. The base of this notion is that when mechanism is in place, actors just remain programmed by it. But he disagrees with the notion that emphasizes “actors not only reproduce normative structures, but they also change them by their very practice, as underlying conditions change, as new constraints or possibilities emerge, or as new claimants make their presence felt.”

Simultaneous changes in all four components of regime can happen only seldom, and in the most cases they stayed coherent. However, robustness of the regime has no connection with how coherent are regime's four components.

Finlaysan/Zacher give following explanations of given analytical components of regime:

**Principles** of a regime are not part of a regulatory framework; they highlight and provide amplifications for state’s acceptance of behavioral prescriptions and proscriptions and they don’t constitute policy guidelines in an issue area;

**Norms** are providing basis of the regime as they form the general obligations and rights that are to guide states’ behavior in designing decision making procedures and formulating and implementing rules. There are two types of norms: substantive and procedural. Substantive norms provide standards for forming behavioral prescriptions and procedural norms guide states how to plan and use decision-making mechanisms. States as usual attach great importance to certain norms than to others. Norm importance for states can change by time. Thus the evolutions of regime’s rules can be explained by changes in the importance of its norms. One should distinguish norms

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derived from traditional structure of international politics such as sovereignty norms or norms derived from international interdependencies in particular issue area such as interdependence norm. According to Finlaysan and Zacher this division is very important. Depending which norm from these two norms dominates in an issue area, one can judge about the level of regime autonomy. In case sovereignty norms dominate in an issue area, then one can’t attribute a great deal of behavioral impact to the regime as it just reflects “politics as usual”;

**Rules and decision-making** are the most observable dimensions. They constitute the regime's programs. The decision-making or procedural mechanism defined takes part in various types of decisions, which is necessary for the establishment and implementation of the rules. As posit Finalysan/Zacher norms and procedural mechanisms together constitute the decision-making framework of a regime. All four analytical components of international regimes contain “injunctions about behaviour.”

### 2.4.5.9 Norms and Principles

As Ruggie describes: “*Norms can be thought in limited instances as “causing” occurrences. Norms may “guide” behavior, they may “inspire” behavior, they may “rationalize” or “justify” behaviour, they may express “mutual expectations” about behaviour, or they may be ignored.*”

In a procedural component of a regime are the norms that provide guidelines as to how decisions are to be made. Norms and principles are defining characteristics of any regime. Norms and principles that influence the regime in particular issue area but has no connection to the given area also can be considered as explanations for the formation, maintenance and dissipation of regimes.

Diffuse norms and principles condition behavior in a certain issue area. In international relations the most diffuse principle is the sovereignty. It is not an analytical assumption, but it is a principle, which affects the behavior of actors. Krasner points

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out that in those areas, where sovereignty is not applied are governed by untenable regimes or even by lack of regimes. Sovereignty appoints states as the only actors with unlimited rights to act in the international arena. \(^{283}\) Krasner summarizes, that “if the constitutive principle of sovereignty were altered, it is difficult to imagine that any other international regime would remain unchanged”\(^ {284}\).

The multilateralism norm, which is a collective decision making, signifies with the willingness of states to take part in conferences, where rules are being adopted, to allow multilateral surveillance. The regime members accept the fact that they have a legitimate interest in each other’s policies and behavior. \(^{285}\) Norms don’t live in isolation, they are or mutually supportive or in conflict. Rule making can be seen as the struggle between conflicting norms. The victory or defeat of a given norm is the views, priorities and strengths of the regime members. \(^{286}\) Norms need not “exist” in a formal sense in order to be valid. Neither the violation of the norm even their “nonexistence” necessarily refutes their validity. \(^{287}\)

### 2.4.5.10 Rules

Institutions are concerned with the implementation of the rules. Regime rules can limit the actions of others. Rules and norms are not distinguished from each other greatly. Both rules and principles can affect expectations and values. In a strong regime the connection between principles and rules are likely to be tight. As three components of the regime are closely connected it is difficult to conclude whether changes in rules constitute changes of regime or “merely changes within regimes necessarily contain arbitrary elements”. \(^{288}\) Keohane defines principles of regimes as commitments that regime members are anticipated to follow. \(^{289}\)

### 2.4.5.11 Decision-Making

Following the opinion of regime scholars the main aspects of decision-making are creation of the rules and implementation of these rules. Decision-making procedures


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are rather of operational nature with the aim to further postulate regime characteristics among them also implementation. Rule implementation can consist of monitoring of state behavior, interpretation of the rules and dispute settlement.

2.4.6 Regime Dynamic: Transformation and Change

2.4.6.1 Theoretical Approaches

Certain international regimes are often weak and fragile and they go through changes frequently: their rules are altered; they are rarely enforced automatically, and they are not self-executing. Regimes are often subject to negotiations and renegotiations. Looking to the literature on regime development and change one can identify four theoretical approaches on regime change: structural, game-theoretic, functional, and cognitive. These approaches address different aspects of regime change and variance. Except of cognitive theory other three theories of regimes are state-centered.

**Structural** theorists’ main explanation of the regime change is the hegemonic model, according to which hegemonic powers give rise of international regimes. Krasner gives the definition of hegemonic system as “one in which there is a single state that is much larger and relatively more advanced than its trading partners”. According to this model regime strength relies on the international distribution of state power. It connects the regime formation and maintenance to existence of hegemon actor and the weakening of regime regulatory framework to a declining hegemon. It disregards domestic politics, other actors and the type of activity being regulated. Hegemon enforces regime rules with certain sanctions. Hegemonic stability theory was challenged as is couldn’t explain the structure of regime dynamics. And it is doubted the assumption that regimes are cooperative institutions.

**Game-theoretic** tradition underlines that actors are mainly restricted by the structure of

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292 Hegemonic model of regime change developed in the works of Krasner, Gilpin and Kindleberger.
the interstate game. It was used to explain the cooperation, which occurs in anarchic structure, which lack supranational authority to impose compliance. Game theory can deal with higher level of complexity. Games can be extended to Meta or super-games. Game theory explains the condition under which regimes can arise as an instance of cooperative behavior. It also explains the conditions, which lead to compliance by actors, but it encountered problems in explaining scope, organizational form and change.\textsuperscript{296} Game theoretic studies of regimes mostly have focused on Prisoner’s Dilemma. This dilemma is interesting as it can result cooperative behavior under realist conditions. This theory has been used to explain how cooperation develops in anarchy without supranational authority, which could enforce compliance.\textsuperscript{297}

\textbf{Functionalists} also accept rational actors, but they include factors such as market deficiencies, transactions, information costs and uncertainty. This theory explains behavior or institutions in the contexts of their effects. It underlines how facilitating role of regimes assist them understand common interests. Functionalists assume that if regime is designed to information and transaction contest among regime participants then the rewards for their compliance will strengthen the regime. Functional theories underline how the facilitating role of regimes helps them realize common interests but they do not explore how regimes may institutionalize inequalities. According to this approach in case regimes become dysfunctional it will not result into regime change or weakening of the regime.\textsuperscript{298} Regime or cooperation can arise as an unintended consequence of cooperation. The benefits of the regimes are that it provides incentives to particular forms of cooperation such as forums where reputation of the actors play their role or various games can be linked. Functionalists believe that regimes have significance in motivating and explaining state behavior. Actors are motivated by benefits provided by regime and reputational issues in regard of the existence of rules. Functionalists fail to distinguish between institutions and organizations, they fail to explain why regimes emerge in some issue-areas however in some they don’t, they fail to explain why some regimes create formal organizations while others not.\textsuperscript{299}

\textsuperscript{296} Haggard/Simmons (1987), p. 505.
\textsuperscript{298} Haggard/Simmons (1987), p. 508.
\textsuperscript{299} Haggard/Simmons (1987), p. 508.
**Cognitivists** focus “on the inter-subjective meaning structures that bind actors together, they necessarily see a looser fit between structural constraints, interests, and choices”.³⁰⁰ As for cognitivists there is no constant national interest and no “optimal regime”. Cognitive theories explore what structural, game-theoretic, and functional approaches bracket. The core cognitive assumption is that cooperation cannot be explained without taking into account ideology, the values of actors, and their beliefs on interdependence of issues and existing knowledge on goals realization. According to cognitive approaches cooperation is affected by perception and misperception, the capacity to process information and learning.³⁰¹ This approach is important to explain the content of the regime rules and why they develop.

**2.4.6.2 Dimensions of Regime Change**

As studies show regimes are not constant institutions, as they face changes and transformations during the time. Such changes happen due to different factors. Many theorists failed to explain in a comprehensive manner what they mean by regime change or regime transformation.³⁰² They tried to explain some variables, at the same time failing to address all of them. The majority of regime theorists try to explain the phenomena of the regime change, meantime trying to find out the causes leading to the regime weakness or break down. Haggard/Simmons define four dimensions of the regime change and transformation.³⁰³

**Strength:** Strength is measured by the level of compliance with regime rules and norms, especially in cases where short-term self-interests are in conflict with regime rules;

**Organizational form:** Regime rules may appeal to regime members to share information or to abstain from definite actions, for example, abstain from nuclear testing. But majority of the regimes may have no necessary administrative system in place for conflict settlement, information collection and distribution or surveillance. Such actions require more developed organizational systems. In case of highly

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³⁰² Term “transformation” used to mark significant changes in regime’s structure of rights and rules, the nature of compliance structure and social choice mechanism.
institutionalized cooperation Haggard and Simmons argue that “theories resting on assumptions of anarchy are highly misleading: black boxing organizational structure and processes will lead to simplistic predictions.” Another dimension of organizational variance is the principles governing representation with “one nation, one vote” principle. Most universal regimes are based on this principle. However, there are regimes based on discriminatory membership, but the principles of membership have significant distributional consequences as they have their influence on international agendas and resource distribution.

**Scope**: Scope refers to the variety of issues covered by particular regime. Haggard/Simmons argue that theorists pay too less attention to the changes in the scope of the regime and believe that such an ignorance can rise misleading characterization. They assure that one of important causes of regime change is the “externalities associated with inadequate scope.” Such externalities can bring to regime change.

**Allocational mode**: Regimes can validate diverse social mechanisms for resource allocation. “…allocation involves direct control of resources by regime authorities and will demand more extensive, and potentially autonomous, organizational structures.”

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**Figure 31: Four dimensions of regime change and transformation**

*Source: Haggard/Simmons, pp. 496-498*

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2.4.6.3 Underlying Reasons for Regime Change and Transformation

In view of difficulties to establish international regimes, it is rational to modify the existing ones than abandon unsatisfactory ones and to try to create new ones. Thus regimes tend to evolve rather than to die. Governments that are in sympathy with the principles and rules of the regimes will try to keep the regimes even when doing so requires “sacrifices of myopic self-interest”.\(^{308}\)

The conditions which lead to regime establishment and which has been reflected by its structure change over time, which often makes the regime no more attractive for some or even all of regime participants. According to hegemonic stability theory such an external change can lead to dissolution of the regime or at least revision of the regime norms and principles.\(^{309}\) On the contrary, contractualists believe that regimes would remain unchanged even if the initial circumstances, which resulted in the establishment of the regime, would change.

It is difficult to introduce planned changes in institutions as they undergo fast changes very seldom; however, it doesn’t mean that regimes as social institutions can never change. They are never static. Continuous transformations with the regime happen because of its own dynamic and due to alterations in their political, economic and social environments. However, in order to forego planed changes within the regimes, it is necessary not only demolish the existing institutions but also coordinate expectations around a new focal point. Changes always mean new arrangements and for actors to construct new procedures and patterned behavior and at the same time to be ready to accept unknown outcomes. Any efforts to change or modify international regime can produce troublmaking results, which hasn’t been foreseen by those members who suggested and forced the new changes. It means that there is always a risk that social engineering eventually will produce negative outcomes instead of planned positive ones.\(^{310}\)

Regimes are preserved as long as the interests that produced them persist. The same causes, which result in regime formation, also explain regime maintenance, transformation, change, and dissolution. Regimes can be affected by many factors such

as changes in interest, new members, and new patterns of interdependence, changes in world power and other factors.^{311} Many scholars closely link regime change with power and interest. Stein posits that those who make a direct link between structure and regimes come to the conclusion that changes in the distribution of power lead to regime change. Stein believes that the change of the interest doesn’t always lead to the change in the regime or regime dissolution. Knowledge also can lead to the regime change without changes in the distribution of power.^{312}

As Young explains regimes, which according to him are types of social institutions arise as a response to a coordination problem or situations, where pursuit of interests can lead to socially unwanted results. Regime transformation can be a result of internal contradictions. Second factor, which leads to regime transformation, is shift in underlying structure of the power. Regimes are never impartial in relation to their influence on the interests of regime members. Thus powerful members will enforce the most possible pressure in order to develop regime in favour of their interest. Consequently alterations in the distribution of the power will be resulted in changes in international regimes though not immediately by progressively. It can occur through change of power directly in the issue area or in some cases more globally in the change of power structure in the international system. As there is no consensus on definition of the power raises question. Such a type of regime transformation is not well received at present. But Young believes that because of the absence of such a definition the role of the shift in power in regime transformation should not be deemphasized.^{313}

For diffuse regimes, the relevant power structure is the global political-strategic balance and for functionally specific regimes, relevant power comprises command over explicit resources within particular issue-area. “Principles such as sovereignty may extend from the diffuse state system to affect or be part of the features of these specific regimes as well.”^{314}

Imposed regimes are doubtful to be preserved for a long time if there is a decline of power of the dominant regime member or members. However, as stated by Young both

negotiated and spontaneous orders replicate the predominant structure of power in society. Regimes are never unbiased in relation to their impact on the interests of participating states. Powerful actors will make all their efforts to impose their interests in bargains.\footnote{Young in Krasner (1983), p. 108.}

As already been mentioned not only the changes of the interest or power structure would produce regime change but other factors as well. Young postulates that regime transformation can happen also because of other “exogenous factors”, such as technological development and growth of knowledge.\footnote{Young in Krasner (1983), pp. 109-110.}

\begin{center}
\begin{tabular}{|c|c|}
  \hline
  Changes in actors’ interests among the states and in states & Internal contradictions \\
  \hline
  Changes in distribution of power and resource constellations & Other factors for Regime transformation \\
  \hline
  Technological advancements and growth of knowledge, which may bring changes in existing rules and procedures & \\
  \hline
\end{tabular}
\end{center}

\textit{Figure 32: Underlying reasons for regime transformation}


In subchapter on regime characteristics revolutionary and evolutionary changes in regimes were elaborated in detail. To summarize, when regime principles are changed but norms are maintained regime forego evolutionary change. Evolutionary change is the consequence of new information and knowledge, it happens as a result of cognitive learning and altering of goals among dominant powers. Distribution of power among regime actors doesn’t alter during the regime’s evolutionary change. When norms are overturned with the aim to change principles then revolutionary change of the regime occurs. This pattern of change happens more often as a result of changes in the structure of power. In case there are not important changes in the structure of the international power, regime change can happen when dominant elites try to maintain their status and their supervision of the regime by eradicating “dysfunctional” behavior

\begin{thebibliography}{9}
\bibitem{Young1983} Young in Krasner (1983), p. 108.
\end{thebibliography}
or in the substantive performance or in the decision procedures of a regime. This occurs when learning and new technology raises new or modified goals.\textsuperscript{317}

Analyzing regime dynamics one can perceive two different dynamics, which may have either a stabilizing or destabilizing effect:\textsuperscript{318}

- A destabilizing regime dynamic of the regime is frequently triggered by regime participants’ contradictory positions on the priorities within the regimes, lack of political support or even opposition towards regimes articulated by dominant participants;
- A stabilizing regime dynamic can be termed as an adaptive learning process in response to events.\textsuperscript{319} The adaptation process can take place both within and outside of the regimes and aimed to meet the new requirements.\textsuperscript{320}

2.4.6.4 Keohane’s and Nye’s Models of Regime Change

Keohane and Nye bring four models of regime change:\textsuperscript{321}

First model is the \textit{economic model} according to which economic and technological alterations raises economic correlation and governments are no longer in position to struggle with the increased number of transactions or new forms of organization. Already formed institutions, rules and procedures will be threatened with ineffectiveness and collapse. Governments will be involved in growing economic interdependence; they will become more vulnerable and sensitive. Governments will allow economic interdependence to grow, and they will cooperate to establish new international regimes by forming integrated policy responses. Consequently, regime change will be result of “\textit{a process of gradually adapting to new volumes and new forms of transnational economic activity. Governments will resist the temptation to disrupt or break regimes because of the high cost to economic growth.}”\textsuperscript{322}

\begin{itemize}
  \item \textsuperscript{317} Puchala/Hopkins in Krasner (1983), p. 90.
  \item \textsuperscript{318} Lampalzer (2014), p. 33.
  \item \textsuperscript{319} Becker/Müller/Seidler-Diekmann (2008), p.68; Haas (1980).
  \item \textsuperscript{320} The reform of the safeguards regimes can be considered as an internal adaption process as a reaction to external events: Iraqi nuclear program, DPRK, etc. External adaption can be considered establishment of export/import control groups and mechanisms.
  \item \textsuperscript{321} Keohane/Nye (2001), pp. 34-35.
  \item \textsuperscript{322} Keohane/Nye (2001), pp. 34-35.
\end{itemize}
to this model regimes will respond to economic and technological change, regimes will not disintegrate entirely, but they will be reconstructed to adjust new economic and technological changes and conditions. However, only economic growth is not a sufficient explanation of regime change.\textsuperscript{323}

The second model of the regime change is based on overall \textit{power structure}-when the power of states change, the rules of international regimes will be changed as well. Overall power structure model linked with leadership and hegemony. International regimes established by hegemonic states will benefit the most from the regime but meantime they often pay the costs in order to maintain those regimes. The strong makes the rules; regimes should be consistent with the interest of most powerful ones in the system. Changes in international economic relations can be explained by shifts in military power. “Because military power is dominant when constraints on its costs are removed, wars tend to create regime change. When overall power in an international system becomes dispersed, international regimes break down. When power becomes more concentrated, new regimes, favorable to the powerful states, will be developed.”\textsuperscript{324}

Third model is the \textit{issue structure model}. There is hierarchy of issues and military issue is the dominant one. States, which are strong in a particular issue area, will dictate and make the rules for that issue area. A basic assumption of this model is that, though states will draw linkages among issue-areas, such linkages will be unsuccessful. “Within each issue area one posits that states will pursue their relatively coherent self-interests and that stronger states in the issue system will dominate weaker ones and determine the rules of the games.”\textsuperscript{325}

This model is less powerful than overall structure model, as there is a need for more information, not only the overall structure of military or/and economic power, but how that power is distributed by issue-area. “Regime change occurs because of the difference between the influence and benefits under an existing regime and the

\textsuperscript{323} Keohane/Nye (2001), pp. 34-35.
\textsuperscript{325} Keohane/Nye (2001), pp. 43-44.
expectations of dissatisfied states about the effects of new rules.”326
And the last fourth model is **International Organization Model**: international organizations connecting governments at various levels develop norms prescribing behavior in certain situations. International Organizations, Keohane and Nye describe as multilevel linkages, norms and institutions. Norms and institutions are hard to alter, if they have been already developed and established. These institutions are being established concerning the distribution of power capabilities among actors, but the process linked with the international organization itself limits the actors’ capabilities to apply these abilities. Power over results becomes organizationally determined by procedural limitations associated with the institution, and is not directly determined by the crude power of the states in the specific issue area. International organizations provide a context where regimes operate. They can also affect the regime. Though this model has important factors, which don't contain other models explaining the regime change, it has some important limitations as well. It doesn't predict how regimes will change from single variable such as international structure. This model can apply under the complex interdependence conditions.327 According to this model’s assumption regime will be constant, which means that it will not forego disrupting policy changes.328 “Regime participants will manipulate each other's sensitivity dependence for their own gain; and they may make marginal policy shifts to improve their vulnerability positions. But there is a limit to their manipulation vulnerability interdependence; if they change policy too much, the regime itself will be challenged and destroyed.”329 The breakdown and or weakening of the regime can be explained by changes in the norms and organizational processes of world politics. Keohane and Nye illustrating their four models of regime change, at the same time underline the weaknesses of all models, in doing so and in order to explain regime change they try to combine all these four models.

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As a result of regime dynamic, one can ascertain two kinds of regime change in case the four regime components as per Krasner’s definition (i.e. principles, norms, rules and decision-making procedures) are being altered.

“Changes in principles or norms are changes of the regime itself, whereas all other changes – changes in rules and decision making procedures are changes within regimes, provided that principles and norms are unaltered”.  

Krasner argues that changes in principles and norms are changes of the regimes. For instance, when principles and norms are not acceptable any more for regime members, change to a new regime should be expected otherwise it simply could lead to disappearance of the regime from an issue-area. The reasons for the rise and fall of regime norms to be found in the shifting power resources and policy objectives of regimes members, particularly the most influential ones. Nonetheless, changes of norms’ significance are not necessarily result in regime change. On the contrary, changes in the rules and procedures can be considered differently. Some authors see the changes in rules as changes in within the regime. And the important thing is whether the changes in rules lead to changes in norms and principles. Such assessment is usually very difficult to do.

From theoretical point of view it is essential to distinguish between regime weakness and regime change. “If the principles, norms, rules, and decision-making procedures of a regime become less coherent, or if actual practice is increasingly inconsistent with

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principles, norms, rules, and procedures, then a regime has weakened.”

Krasner sums up that change within the regime means changes of rules and decision-making procedures, but not changes of norms and principles; change of a regime is alteration of norms and principles; and weakening of a regime includes incoherence among the components of the regime or inconsistency between the regime and related behaviour.

![Figure 34: Regime change forms](source: Krasner (1983), pp. 3-4)

### 2.4.7 Regime Effectiveness and Robustness

The effectiveness of a regime varies from one issue-area to another. Regime effectiveness measures with two ideas: regime is effective to the extent its members abide by its norms and rules and regime is effective to the extent that it attains certain objectives or executes certain purposes. As Puchala and Hopkins conclude “effectiveness in terms of compliance with rules and procedures of any given regime depend largely upon the consensus or acquiescence of participants. [...] it is self-interest, broadly perceived, that motivates compliance”. Sometimes actors comply with the norms of the regime contrary to their self-interest. Puchala and Hopkins explain this phenomenon with the fact that sometimes they value the regime itself. Regime robustness refers to the staying power of international institutions in the face of external challenges and to the degree to which previous institutional choices limit

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common decisions and behavior in later periods.\textsuperscript{337} Strength and autonomy of regimes are analyzed in the context of the importance of interdependence norms.

### 2.4.8 Types of Regimes

Scholars identify two regime types: \textit{control oriented} and \textit{insurance regimes}. There is a notion that all significant regimes are control oriented. Such regimes are more ambitious, but meantime they ensure the regime effectiveness. Regime members can control others’ behavior via institutionalized behavior. In doing so they decrease the harmful consequences arising from regime member’s individual actions as well as from uncoordinated actions.\textsuperscript{338}

“A control-oriented regime should be supported by a coalition that has an effective power in the issue-area being regulated and whose members have sufficient incentives to exercise such power.”\textsuperscript{339} For example, here we can state that the IAEA safeguards regime is control oriented. Control oriented regimes according to Keohane try to guarantee two kinds of consistency: internal and environmental. Regime members’ organized examples of behavior belong to the internal regularity. Here all the main actors of given area are members of the regime.\textsuperscript{340}

On the contrary, international regimes, which are established and targeted to share risks, appeared less frequently than those, which are established to monitor certain events.\textsuperscript{341} Those are the insurance regimes. Keohane refers to economic literature, which identifies another approach to the issue of the risk. “Instead of expanding to control the market, firms or individuals may diversify to reduce risk or may attempt to purchase insurance against unlikely but costly contingencies.”\textsuperscript{342} In areas where regime members can’t control at reasonable cost, insurance and diversification are relevant strategies. However, actors apply these strategies if they cannot effectively apply control to its environment. In order to insurance regimes have sense the risks should be specific to individual member. “If the catastrophic events against which one

\textsuperscript{337} Hasenclever/Mayer/Rittberger (1997), p. 2.
\textsuperscript{338} Young (1983), pp. 98-99.
\textsuperscript{339} Keohane (1983), p. 150.
\textsuperscript{341} Keohane (1983), p. 169.
\textsuperscript{342} Keohane (1983), p. 168.
wishes to insure are likely (should they occur at all) to affect all members simultaneously and with equal severity, risk sharing will make little sense.  

Both regimes when fighting with the risks and uncertainty have different advantages and responsibilities. Control-oriented regimes are more ambitious and they should be supported by a group of members with strong power in the issue area and with strong incentives to apply their power. When this is not applied then insurance regimes would be better strategy. When hegemony decreases then increase of insurance regimes can be noticed. It can be explained of absence of desire of hegemon states to approve control-oriented strategies.  

2.4.9 Security Regimes  

Many authors including Jervis, Keohane, Haas, Puchala and Hopkins underlined the importance of the issue area when forming the regime. It was proved that establishment of the regimes in security area is more difficult than in other issue areas because of the security dilemma, wider competitiveness and bigger ambiguity. Though the focus of the regime theory originally was the political economy, theorists started to study security policy issues during the Cold War. Robert Jervis argues that security area is different from other areas and as incentives and obstacles for establishing security regimes are greater in the security area because of the “security dilemma”. Thus as for him regimes especially in security area have more worth but at the same time they are more difficult to achieve, as actors are afraid that others will breach the mutual understanding. Jervis posits that individual actions are more costly and dangerous thus security regimes are valued more. Moreover, uncertainty in security area is greater: states in many cases don’t know who their enemies or allies will be. If we look to history, during some wars there were different predictions, which were not realized. However, to rule out that such dynamic can’t be applied for other areas will be wrong. Though security regimes supposed mutual restraint and limitations on unilateral actions, decision makers don’t consider them as an attractive policy option.

Robert Jervis illustrates four main differences of the regimes in security and non-security areas:

- Security issues involve greater competitiveness;
- Offensive and defensive security intentions often lead to the same behavior;
- Stakes are higher in security areas;
- Uncertainty is greater in security areas. Detecting what others are doing and measuring one’s own security are difficult.  

![Diagram of security regime features](image)

**Figure 35: Features of security regimes**


But is it possible to create a security regime everywhere? As of Jervis in order to form a regime in security area following conditions have to be present:\[348\]

- Major actors should prefer more regulated environment than an environment where all actors perform independently. It means that all states at certain level should be satisfied by status quo;
- States should be certain that for other actors mutual security and cooperation has the same value;
- Even if all great powers would be in favour of the status quo, security regimes cannot be established when some states are certain that security is guaranteed only

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by wars and expansions;

- Wars and states’ pursuit of their security individually should be seen as costly. If actors consider the war as a better choice they will not establish a regime to prevent it. In the context of above, Jervis explains this condition of forming regime: “if states think that building arms is a positive good (e.g., because it supports domestic industries), there will be no incentives to cooperate to keep arms spending down.”

![Diagram showing key conditions for security regime creation](image)

*Figure 36: Necessary conditions for forming security regimes*

*Source: Jervis et al in Krasner (1983), pp. 176-178*

### 2.4.10 Do Regimes Matter or Do Regimes Make Any Difference?

One of significant issues of theoretical importance is whether regimes make any difference or in other words do they matter? Regimes can’t be formed by themselves and they can’t disappear of their own. Once a regime is created it affects agreed behavior and outcomes. Establishment of a regime has its purpose and objective.

There is no common agreement that regimes do matter. As already mentioned despite the fact that some theoretical assumptions such as realism suggest that international regimes are not important, regimes often have significant impact on countries interdependence. As illustrated, regime theory, neorealism and constructivism alter in their degree of “institutionalism” (the degree to which international institutions matter). Three main approaches can be identified on regimes’ impact. According to conventional structural views regimes are “useless, if not misleading”. Modified

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structural advise that regimes may matter, but only under equally limiting conditions. And Groten school considers “regimes as much more pervasive, as inherent attributes of any complex, persistent pattern of human behavior.”

Realist Strange has reservations on the value of the regime believing that regimes have little or no impact, even having doubt on regime existence. Keohane and Stein posit that regimes may have an influence when desirable outcomes are not possible to achieve via “uncoordinated individual calculations of self-interest.” Regime theory scholars believe that institutions have significant role in international politics. The number of issue-areas where regimes can impact and matter is growing. For instance, Krasner explains regimes as intervening variables between basic causal variables and outcomes and behaviors. It means as regimes formation has causal explanation then they do have influence on behavior and outcomes. However regimes can’t be relevant for zero-sum situations in which states maximize the difference between their utilities and those of others. Regimes include interstate relations, where among political and economic interests, moral interest is also plays a role. In such relations state policy choices are result of external and domestic pressure. In such policy options national and international organizations shape state behaviors and “norms of dominant societies” have their impact on state actions.

2.4.11 Compliance with International Regimes

According to Donnelly not the threat of sanctions that force states to comply with regime norms, but the humanitarian and ethical norms. Even if there is no enforcement mechanism in place states violation is always an issue of ethical norms. However absence of insurance mechanism, such as verification it is difficult to cooperate. Procedures on non-compliance cases are important for cooperation. Sanctions against the regime member, because of its non-compliance with regime components are an issue of collective action. Such an actions emphasize the effects of reputation being

inside of the regimes. According to Keohane

"International regimes help to assess others' reputations by providing standards of behavior against which performance can be measured, by linking these standards to specific issues, and by providing forums, often through international organizations, in which these evaluations can be made."

This helps regimes to shape the reputations of the regime members. This raises the costs associated with non-compliance in any specific situation and, thus makes cooperation more likely.

Despite the fact that International regimes are decentralized institutions, this doesn't intend absence of mechanisms for compliance. Regimes provide rules and procedures for sanctioning. Though governments sometimes violate international rules, they often comply with them. Keohane argues that governments’ compliance with regimes rules, which is in contradiction with its self-interest, is not possible to explain by realism. Though governments on the contrary of their egoistic self-interest often comply with regime rules. Keohane explains this phenomenon with arguments that, as regimes are difficult to establish, it is wiser to observe the rules of the regime than to dissolve it.

For instance, the only measure to force state, which has covert nuclear activity to forgo its nuclear ambitions, is to impose sanctions. Sanctions range from economic activities to military ones. Economic sanctions in the cases of non-compliance with the non-proliferation regime norms, showed their ineffectiveness. They sometimes fail to be a stick to enforce the state to comply with its obligations. The last years we see that the sanctions against Iran and DPRK bring no positive results. Both economic and military sanctions are costly both because of financial and human forfeits. Given to the ineffectiveness of negative sanctions, tendency of positive sanctions are growing, which are building trust. When state is promised to get a reward in case of compliance with regime norms.

2.5 Operationalization of the Theory in the Context of the NPT

2.5.1 Analysis of Regime Analytical Components Pertaining to the Non-Proliferation regime by Harald Müller

The analytical components of the regimes, which are principles, norms, rules and decision-making procedures, are fragile as they can be in a conflict with the norm of the sovereignty and self-help. Besides these two norms, i.e. sovereignty norm and self-help norm, can limit the degree of confidence towards the international agreements. Müller brings the example of nuclear non-proliferation regime as a good example to look to the main four components and definition of the regime. According to him this regime has following principles:

**Principles:**

1. *A principle which connected the proliferation of nuclear weapons to higher possibility of nuclear war*
2. *A principle that accept the compatibility of a nuclear non-proliferation policy with the development of nuclear energy for peaceful purposes*
3. *A principle stating connection between horizontal and vertical nuclear proliferation*
4. *A principle of verification*

**Norms:**

Norms of the non-proliferation regime directs and shapes the behavior of regime members to produce joint results, which are in harmony with the goals mentioned in the principles. Müller brings the example of such norms:

1. *Universalization norm*
2. *Non-proliferation norm*
3. *Nuclear disarmament norm*
4. *Nuclear verification norm*
5. *Prohibition norm*
6. *Nuclear export norm*

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363 Müller (2013), p. 52-55
7. Safeguard norm
8. Security assurances

Rules
Some norms turned into very detailed and concrete regulations and rules, for example the norm of verification or nuclear export, which gives us possibility to identify compliance behavior of regime members. However, some norms, which would put obligations on NWSs, are less regulated because of the failure to reach agreement on rules regarding for example a timeframe of disarmament.\(^{365}\)

Procedures
Procedures form an integral part of the nuclear non-proliferation regime. However Müller points out that the regime should not be equated with the Nuclear Non-Proliferation Treaty (NPT), as this treaty is the base of the regime, which supplemented with various other documents such as the Statute of IAEA, London Suppliers Guidelines, Safeguards rules INFCIRC/66, INFCIRC /153, INFCIRC /540 and others.\(^{366}\)

2.5.2 Operationalization of the Theory in the Context of the NPT

The dissertation has already provided a brief illustration to the fundamentals of the nuclear non-proliferation regime and Müller’s assumptions on the regime analytical components pertaining to non-proliferation regime. In theoretical framework different assumptions on regimes by chosen theories of international relations were underlined. This part builds upon these general findings and describes regime components in a concrete context of the NPT through operationalizing principles, norms, rules and decision-making procedures of the treaty. As underlined in the previous chapter, Krasner defined regimes as “sets of implicit or explicit principles norms, rules, and decision making procedures around which actors’

\(^{366}\) Müller (2013), p. 54
expectations converge in a given area of international relations”.

“Principles are beliefs of facts, causation and rectitude. Norms are standards of behavior defined in terms of rights and obligations. Rules are specific prescriptions or proscriptions for action. Decision-making procedures are prevailing practices for making and implementing collective choice.”

Taking into account Krasner’s definition in this subchapter and next chapter theory is operationalized, which makes it possible to ascertain commonalities and differences among selected regimes.

2.5.2.1 Principles of the NPT

As per Krasner’s definition “principles are beliefs of facts, causation and rectitude”.

Principles are essential to develop a collective vision on the issue and they are the prerequisite for institution building. As the principles of the regimes, according to theorists, mostly appear in the Preamble part of the Treaties, below table contains analysis of the Preamble part of the NPT containing the principles of the Treaty. Though these principles are not those described by Müller, but my interpretation of the Preamble part and operationalization of the selected theories respectively. In general, agreement on the principles is a key precondition for developing norm and commonly accepted behavior.

<table>
<thead>
<tr>
<th>N</th>
<th>Principles / Preamble</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-proliferation of nuclear weapons</td>
</tr>
<tr>
<td>2</td>
<td>Safeguarding the flow of source and special fissionable materials</td>
</tr>
<tr>
<td>3</td>
<td>Benefiting from peaceful application of nuclear technology for peaceful purposes</td>
</tr>
<tr>
<td>4</td>
<td>Preventing the spread of nuclear weapons</td>
</tr>
<tr>
<td>5</td>
<td>Cooperating to further develop application of atomic energy for peaceful uses</td>
</tr>
</tbody>
</table>

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It is noteworthy to mention that the long-term aim of the treaty reflected in the Preamble Part is the prevention of dissemination of nuclear weapons, the cessation of manufacture of nuclear weapons, complete disarmament under strong and efficient international supervision. International control with means of safeguarding the flow of source and special fissionable materials are the main guarantee of the effective implementation of the Treaty provisions.

2.5.2.2 Norms of the NPT

Per Krasner’s definition “norms are standards of behavior defined in terms of rights and obligations.” Norms are closely linked to the overarching regime principles and they considered as second analytical component of the regime. When developing norms for a specific regime, regime members can draw upon a broad set of general procedures that are contained in rules, best practices, and conventions and can be valid to a large number of policy areas. As principles, norms can be classified as explicit and implicit ones.

Explicit norms: Explicit norms are those written norms, which can be found in the operative paragraphs of the Treaty in terms of states obligations and rights. Below table illustrates all obligations and rights of the NPT parties and they constitute the explicit norms of the NPT.

<table>
<thead>
<tr>
<th>Obligations under the</th>
<th>NNWS</th>
<th>NWS</th>
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<th></th>
<th>Prohibition Norm</th>
<th>Non-proliferation Norm</th>
<th>Prohibition Norm</th>
<th>Non-proliferation Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Not to receive the transfer of nuclear weapons or other explosive devices (Article II).</td>
<td>Not to transfer to any recipient nuclear weapons or other explosive devices (Article I).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Not to manufacture or acquire nuclear weapons or other explosive devices (Article II).</td>
<td>Not to assist, encourage or induce any NNWS to manufacture or acquire nuclear weapons or other explosive devices (Article I).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Not to seek or receive any assistance in manufacture of nuclear weapons or other explosive devices (Article II).</td>
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<td></td>
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</tr>
<tr>
<td>4</td>
<td>Undertake to accept safeguards (Article III.1).</td>
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<tr>
<td>5</td>
<td>Not to provide source or special fissionable material, equipment to NNWS unless they are subject to the safeguards (Article III.2).</td>
<td>Not to provide source or special fissionable material, equipment to NNWS unless they are subject to the safeguards (Article III.2).</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Accept safeguards on international exchange of nuclear material and equipment (Article III.3).</td>
<td></td>
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<tr>
<td>7</td>
<td>Conclude Safeguards Agreement (Article III.4).</td>
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<tr>
<td>8</td>
<td>Ensure on non-discriminatory basis benefits of any peaceful applications of nuclear explosions to NNWSs (Article V).</td>
<td>Ensure on non-discriminatory basis benefits of any peaceful applications of nuclear explosions to NNWSs (Article V).</td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>Pursue negotiations for nuclear disarmament and stop of nuclear arm race (Article VI).</td>
<td>Pursue negotiations for nuclear disarmament and stop of nuclear arm race (Article VI).</td>
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</table>

**Table 4: Obligations of NWSs and NNWSs under NPT**

Source: The NPT
### Rights of NWSs and NNWSs under the NPT

<table>
<thead>
<tr>
<th>Rights the under NPT</th>
<th>NNWS</th>
<th>NWS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td><strong>Economic and technological development norm</strong>&lt;br&gt;✔ Right for economic and technological development (Article III.3).</td>
<td><strong>Economic and technological development norm</strong>&lt;br&gt;✔ Right for economic and technological development (Article III.3).</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td><strong>International Cooperation Norm</strong>&lt;br&gt;<strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right of international cooperation in the field of peaceful nuclear activities (Article III.3)</td>
<td><strong>International Cooperation Norm</strong>&lt;br&gt;<strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right of international cooperation in the field of peaceful nuclear activities (Article III.3)</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td><strong>Economic and technological development norm</strong>&lt;br&gt;<strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;<strong>International Cooperation Norm</strong>&lt;br&gt;<strong>Safeguards Norm</strong>&lt;br&gt;<strong>Verification Norm</strong>&lt;br&gt;✔ Right for international cooperation in the field of peaceful nuclear activities (exchange of nuclear material and equipment according to safeguards provisions) (Article IV).</td>
<td><strong>Economic and technological development norm</strong>&lt;br&gt;<strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;<strong>International Cooperation Norm</strong>&lt;br&gt;<strong>Safeguards Norm</strong>&lt;br&gt;<strong>Verification Norm</strong>&lt;br&gt;✔ Right for international cooperation in the field of peaceful nuclear activities (exchange of nuclear material and equipment according to safeguards provisions) (Article IV).</td>
</tr>
<tr>
<td></td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right to develop research, production and use of nuclear energy for peaceful purposes (Article IV.1).</td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right to develop research, production and use of nuclear energy for peaceful purposes (Article IV.1).</td>
</tr>
<tr>
<td></td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right to facilitate and participate in exchange of equipment, materials and scientific and technological information for peaceful use of nuclear energy (Article IV.2).</td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;✔ Right to facilitate and participate in exchange of equipment, materials and scientific and technological information for peaceful use of nuclear energy (Article IV.2).</td>
</tr>
<tr>
<td></td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;<strong>International cooperation norm</strong>&lt;br&gt;✔ Right to benefit from any peaceful applications of nuclear explosions to NNWSs based on multilateral and bilateral agreements (Article V).</td>
<td><strong>Peaceful use of nuclear energy norm</strong>&lt;br&gt;<strong>International cooperation norm</strong>&lt;br&gt; ✔ Right to benefit from any peaceful applications of nuclear explosions to NNWSs based on multilateral and bilateral agreements (Article V).</td>
</tr>
<tr>
<td></td>
<td><strong>Disarmament norm</strong>&lt;br&gt;<strong>Non-proliferation norm</strong></td>
<td><strong>Disarmament norm</strong>&lt;br&gt;<strong>Non-proliferation norm</strong></td>
</tr>
</tbody>
</table>
Right to conclude regional treaties to assure total absence of nuclear weapons in their territories (Article VII).

Right to withdraw from the Treaty (Article X).

Right to propose amendments to the Treaty (Article VIII).

Table 5: Rights of NWSs and NNWSs under the NPT
Source: The NPT

According to the provided analysis of states obligations and rights in the above-drowned tables as per Krasner’s definition, explicit norms of the non-proliferation regime based on the NPT Treaty are as follows:

<table>
<thead>
<tr>
<th>N</th>
<th>Explicit Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Non-proliferation norm</td>
</tr>
<tr>
<td>2</td>
<td>Prohibition norm</td>
</tr>
<tr>
<td>3</td>
<td>Disarmament norm</td>
</tr>
<tr>
<td>4</td>
<td>Safeguards norm</td>
</tr>
<tr>
<td>5</td>
<td>Verification norm</td>
</tr>
<tr>
<td>6</td>
<td>Export control norm</td>
</tr>
<tr>
<td>7</td>
<td>Non-discrimination norm</td>
</tr>
<tr>
<td>8</td>
<td>Peaceful use of nuclear energy norm</td>
</tr>
<tr>
<td>9</td>
<td>International cooperation norm</td>
</tr>
<tr>
<td>10</td>
<td>Economic and technological development norm</td>
</tr>
</tbody>
</table>

Table 6: Explicit norms of the NPT
Source: Author

In this context prohibition and non-proliferation norms have the same function and are addressed in the same articles of the Treaty, the same roles play both safeguards and verification norms. Safeguards should be accepted “for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty [...].” NPT encompass a verification norm, which should be based on agreements to be negotiated with the IAEA, in accordance with the Statute of the IAEA and the Agency Safeguards

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372 NPT, Article III.1.
system. The said is valid for safeguards norm as well. Thought there is no explicit use of “export control” wording in the Treaty, however exchange of nuclear material and equipment under international control, and to forbid all states to transfer (export) special nuclear materials and technology without the IAEA verifying that these items will be used for peaceful purposes only (Article III.2), resulted in development of export control systems to ensure control over such exchanges.

Non-proliferation regime contains a norm of the economic and technological development of its regime members, which highlights the rights, especially of NNWSs, to take part in exchange of scientific and technological information, equipment and materials and to develop peaceful nuclear energy and, general principle, to benefit from peaceful applications of nuclear technology, which can been seen as an inducement for all those regime members, which has no nuclear program to obtain and enjoy the benefits through peaceful use of nuclear energy. This norm provides positive security guarantees to NPT Parties.

It should be noticed that all conflicts in the NPT are conflicts of contradicting norms such as peaceful uses of nuclear energy and disarmament norms and unequal rights and obligations of NWSs and NNWSs. As seen in the tables NNWSs have far more obligations according to the Treaty than NWSs, meantime it should be highlighted that they both have the same rights.

Progress of the NPT was reviewed during the Review conferences. Disagreements between these two groups of states barred adoption of consensual Final document at four review conferences, the last being held in 2015.

**Implicit norms of the NPT:** Implicit norms as non-written standards of behavior didn’t find their reflection in the Treaty text, however, they are those that need to be accepted and honoured by international community and they are equal for both NWSs and NNWSs. Implicit norms were subject of lengthy negotiations and were accepted by all parties. For example, non-nuclear weapon States tried to guarantee their security taking into account that military disadvantage could make them vulnerable to nuclear

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371 NPT, Article III.1.
pressure. As security interests of various states or group of states were different, it was difficult to find a wording to reflect security assurances, which would meet the needs of all states. Thought security assurances haven’t been found their place in the Treaty text, it was suggested that security assurances take a form of UN Security Council resolution, supported by statements of US, Soviet Union and United Kingdom. Not providing legally binding security guarantees by NWSs, the Treaty put the NNWSs in more disadvantaged situation.

<table>
<thead>
<tr>
<th>N</th>
<th>Implicit Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Universalization norm</td>
</tr>
<tr>
<td>2</td>
<td>Non-discrimination norm</td>
</tr>
<tr>
<td>3</td>
<td>Security assurances norm</td>
</tr>
<tr>
<td>4</td>
<td>Sovereignty norm</td>
</tr>
</tbody>
</table>

Table 7: Implicit norms of the NPT
Source: Author

2.5.2.3 Rules

In line with Stephen Krasner’s definition, “[r]ules are specific prescriptions or proscriptions for action” and they constitute the third regime analytical component. Rules are formalized guidelines to be observed by regime members. They further define and strengthen the norm implementation. For better compliance with the regime principles and norms, regime members make every effort to outline the rules as accurate as possible. The formalized rules guide actions and behaviors of the regime members and clearly point out violations and non-observance of the prescribed actions. States’ compliance with the regime norms becomes obvious taking into consideration the specific nature of the rules. Consequently, development and agreement on regime rules during the negotiations taking into account diverging interest of states is challenging to reach. In comparison with other arms control treaties such as CWC or CTBT, which contain Annexes with detailed verification rules, the non-proliferation regime rules were not negotiated together with the Treaty text, as controversy of

374 At the time of signature of the Treaty only these three NWSs signed the NPT.
interests were very high. The Treaty in its Articles III.1, III.3 and III.4 laid basis for regime rules. Moreover, the NPT provided mandate to the IAEA to negotiate the regime rules in accordance with the IAEA Statute and already established safeguards system. Special timeframe of 180 days was provided to commence the negotiations on safeguards agreements, i.e. regime verification rules and mechanism.

The below given table recaps the main areas, where specific rules have been established under the NPT.

<table>
<thead>
<tr>
<th>Rules applied or established under the NPT</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ IAEA Statute (provisions on safeguards)</td>
<td>✓ Should be applied under the NPT (compliance rules)</td>
</tr>
<tr>
<td>✓ All rules contained in Comprehensive Safeguards Agreements INFCIRC/153</td>
<td>✓ Should be signed under the NPT</td>
</tr>
<tr>
<td>✓ All rules contained in Model Additional Protocol INFCIRC/540</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
<tr>
<td>✓ All rules contained in INFCIRC/66</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
<tr>
<td>✓ EURATOM Safeguards Agreement with IAEA INFCIRC/193, INFCIRC/193/Add.8, INFCIRC/263, INFCIRC/290</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
<tr>
<td>✓ NSG export guidelines</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
<tr>
<td>✓ Zangger Committee Trigger list</td>
<td>✓ Not legally binding under NPT</td>
</tr>
<tr>
<td>✓ Wassenaar Arrangement</td>
<td>✓ Not legally binding under NPT</td>
</tr>
<tr>
<td>✓ The Missile Technology Control Regime</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
<tr>
<td>✓ UNSC resolution 1540</td>
<td>✓ Not legally binding under the NPT</td>
</tr>
</tbody>
</table>

Table 8: Rules under the NPT
Source: Author.

The main rules for verification of effective implementation of the NPT reflected in Comprehensive Safeguards Agreements INFCIRC/153, which was negotiated after entry into force of the Treaty and all non-nuclear weapon state parties to the NPT have to negotiate and sign them under the NPT. As scientific and technological developments advances rules evolves with the time to meet the new challenges and situations in order to ensure effective implementation of the Treaty. The Model Additional Protocol INFCIRC/540, NSG export guidelines, UNSC resolutions 1540 and 1887 are the new rules, which were adopted for regime efficiency. Research object of this dissertation the Model Additional Protocol for non-nuclear weapon States as
well as nuclear weapon States is analyzed and explained in details in forthcoming chapter. In their turn the Agency developed more detailed guidelines and manuals for implementation of various types of Safeguards Agreements, Subsidiary Arrangements, etc.

Following the logic of analysis of the nuclear non-proliferation regime by Müller INFCIRC/153 and INFCIRC /540, i.e. the Comprehensive Safeguards Agreement and the IAEA Additional Protocol, can’t be considered as a regime, as they constitute only rules and verification modalities of the NPT. Detailed analysis and operationalization of the regime theory in the context of these two instruments is provided at the later stage. All the rules in relation of the inspections, other verification activities will be described together with the Comprehensive Safeguards Agreements and the Model Additional Protocol.

2.5.2.4 Decision Making Procedures

Lastly, decision-making procedures are the fourth analytical component of the regimes. As per Krasner’s definition “[d]ecision-making procedures are prevailing practices for making and implementing collective choice.” Regimes upon creation can’t take into account all future dynamics; however they leave a room for flexibility to adjust to new challenges, new developments and new information and to some extent cover possible advances within the issue area.

<table>
<thead>
<tr>
<th>Decision Making procedures under the NPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amendments to the NPT (Article VIII.1)</td>
</tr>
<tr>
<td>Review of the Treaty (Article VIII.3)</td>
</tr>
<tr>
<td>Decision Making Bodies /Conference of the Parties of the Treaty (Article VIII.3)</td>
</tr>
<tr>
<td>IAEA Statute</td>
</tr>
</tbody>
</table>

*Table 9: Decision-making procedures under the NPT*

*Source: NPT*

It is noteworthy to mention that in case of the proposed amendments not only majority votes of all the Parties to the Treaty required, but all votes of all NWSs and all Parties,

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which at the moment of the circulation of the amendment are member of the IAEA Board of Governors.

However decision making procedures under the NPT are not conclusive for overall non-proliferation regime as the regime itself contains some other decision making procedures other than those prescribed in the NPT. The IAEA Board of Governors, as a decision making body and mandated authority for safeguards implementation under the NPT, has its procedures reflected in the IAEA Statute, which applies for non-proliferation regime. Though the NPT contains no provisions on compliance cases the issue covered by the IAEA Statute. Article XII of the Statute on Agency safeguards envisages procedures for non-compliance cases up to reporting to the Security Council and the General Assembly of the United Nations. The IAEA Statute foresees mechanism to settle conflicts in relation to the interpretation or application of the Statute. The General Conference and the Board of Governors are authorized, subject to approval of the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal issue arising within the scope of the Agency's activities. In general, decisions on non-proliferation regime norms and rules development, implementation and enforcement are taking place in institutions were developing states are underrepresented, for example the IAEA Board of Governors is the institution for safeguards norms and rules development, or Nuclear Suppliers Group for export control norms and rules development. That is the reason that Non-Aligned Movement (NAM) calls for adoption of the universal legally binding export control instrument. The highest enforcement mechanism, the UN Security Council, is overrepresented by developed world together with NWSs with veto power. This setting makes developed world to develop its rules and norms and doesn’t provide equal opportunities for NAM States to participate in decision-making procedures.

2.6 Adopted Research Structure

In order to operationalize already provided theoretical framework for this dissertation, analysis of regime’s analytical components in the context of the NPT, the

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377 NPT, Article VIII.2.
378 IAEA Statute, Article XVII.
Comprehensive Safeguards Agreement and the Model Additional Protocol is needed. Three main research aspects pertaining to the IAEA safeguards regime can be defined, which compose the overall research framework of this research and assist in addressing the main research question.

**Analysis of IAEA Safeguards legal framework**

In order to acquire basic understanding of the IAEA safeguards system and verification mechanism, and overall overview on verification in arms control basics of safeguards and verification is described in brief. Second, to get a better understanding what constitutes basis for safeguards implementation, legal framework of the safeguards, starting from its establishment is provided. Examination of these aspects aims to answer the following sub-questions: “What are the legal documents that laying down foundations for the IAEA safeguards system?”; “What are the key measures, features and processes of the IAEA verification and safeguards system under the existing safeguards documents?”.

**Analysis of the Model Additional Protocol**

In order to get a better knowledge about the Model Additional Protocol, the process of the emergence of the Additional Protocol, its history, negotiations, different views expressed during the negotiations, political context, changes of regime members’ interests and measures contained in it are explored. Comparative analysis of underlying principles, norms, rules and decision-making procedures of the Comprehensive Safeguards Agreements and the IAEA Additional Protocol allows assessing whether there was a change in the principles and norms of the existing regime, or development of new principles and norms overthrowing others.

Likewise, safeguards and verification activities and measures under the Comprehensive Safeguards Agreement INFCIRC/153 and the Additional Protocol INFCIRC/540, their inter-relation and comparison and examined. Largely, looking to the all characteristics, functions, analytical components, evolutionary and revolutionary change of the regime in a comparative matter with INFCIRC/153, this chapter intends to answer the central research question: “Is the IAEA Additional Protocol a new verification regime and if yes, how effective is it and how does it shape behaviors of States?” as well as sub-question: “What are the principles, norms, rules and decision-making procedures under the IAEA Model Additional Protocol, the Comprehensive
Safeguards Agreement and the NPT, is there a change of the normative framework?”

**Universalization of the Additional Protocol**

The last aspect analyzed in this dissertation is the prospects for universalization of the Additional Protocol with carrying out case studies. Significant cases for universalization of the INFCIRC/540 are examined. Furthermore, different assumptions on the Additional Protocol adherence as per three selected theories of international relations are underlined. Impact of the Additional Protocol on the IAEA safeguards regime and the nuclear non-proliferation regime is explored. This chapter aims to answer the following sub-questions: “What impact does the IAEA Model Additional Protocol have on the IAEA safeguards regime and overall nuclear non-proliferation regime?”; “How robust is the IAEA safeguards regime, particularly in the light of the new verification standard (AP)?”; “Is it possible to reach the universalization of the Model Additional Protocol or its adherence by all States having the Comprehensive Safeguards Agreement?”.

**2.7 Findings**

This chapter aimed at defining the theoretical base for this research. As a first step key terms and definitions for this dissertation were explored. In order to understand researched regimes basics of verification were described. Main researched organization as well as international regimes significant for this research were exposed. Secondly, main assumptions of neorealism, neoliberalism and constructivism were examined and their arguments on regime theory as well as existence of international regimes were exposed. Thirdly, assumptions in regard of regime formation, functions, characteristic, analytical components, change, robustness from the point of view interest based theories on international regimes with the emphasizes on Regime theory (i.e. neoliberal institutionalism) were illustrated and contrasted with power based and knowledge based theoretical assumptions. Regime’s analytical components were operationalized in the context of the NPT. As an outcome of analysis of theoretical framework, the research framework has been elaborated. The central findings emerging from the study of theoretical framework are briefly summarized underneath.
Verification aims at making judgment on compliance

“Verification is the process of gathering and analyzing information to make a judgment about parties’ compliance or non-compliance with an agreement.”\(^{380}\) It provides assurances to regime members that Treaty obligations are observed and thus building confidence among them. Verification relies on regime members’ political, financial and technical support. Verification regime is the total of all arrangements aimed at ensuring verification of compliance with a treaty, which comes up with verification judgment.

Verification system consists of elements to collect information for drawing verification conclusion but it doesn’t include compliance mechanism. As IAEA verification aims at making judgment on States compliance, it should be considered as a verification regime. Verification regimes may have centralized, decentralized and collective decision making mechanisms. The IAEA has a centralized verification mechanism. Categories of verification regimes vary from unilateral, cooperative to multilateral and open verification. One of the examples of multilateral verification regimes is the IAEA safeguards regime, which has multilateral verification mechanism.

Verification is a political process

Verification comes up with an assessment and judgment on states compliance. The positive verification is targeted to verify declared activities, whereas the negative verification to assure the absence of undeclared activities.

Well-designed verification mechanism can early detect violation

Voluntary actions such as clarifications and amplification on open questions, which are not part of states’ obligations, facilitate verification. Cooperative verification increases transparency, facilitates data collection and states compliance can be verified without additional efforts.

Verification is aimed at detection of non-compliance, deterrence of proliferation and confidence building among regime members

Early detection of non-compliance would allow the international community to act in a

timely manner. Successful detection depends greatly on verification techniques and technologies used.

**Verification of compliance is the most significant issue in arms control regimes**
States would not sign the Treaty if it has no viable verification system. If the system is not trustworthy then the costs of Treaty implementation can’t be reasonable. The overarching aim of the verification should be measuring whether the Treaty goals are met or not. Nevertheless, absolute verification in security regimes is difficult to achieve.

**Definition of a regime**
According to Krasner’s consensus definition regimes are “implicit and explicit principles, norms, rules and decision making procedures around which actors’ expectations converge in a given area of International Relations”\(^3\). Regime is a set of governing arrangements regularizing behavior. They are social institutions established with the purpose of managing conflict in an interdependence setting.\(^2\) Both sovereign states and non-state actors can be members of regimes. In areas where state behavior is a result of unrestricted and independent decision making, there is an absence of international regime. Regimes are more than temporary arrangements.

**Regimes are efficient Institutions**
Institutions are set of rules, which lay down behaviors for states’ cooperation and competition. They prescribe and proscribe acceptable and unacceptable state behavior.\(^3\)

**Similarities of regimes and international organizations**
Some regimes are accompanied by international organizations established to assist the regime. Both international organizations and regimes have the same characteristics and they both shape the behavior of their members. However, regimes don’t have the function to act and they are limited in an issue area, whereas organizations can respond to events and they are not restricted within a specific issue-area. Contrary to

international organization, regimes can’t act as an actor. Regime can include several organizations being based on principles, norms, rules and decision-making procedures enshrined in one treaty. International Organizations can initiate establishment of a new regime, and assist in strengthening effectiveness of the regime.

*Differences of regimes and agreements*

Regimes are different than agreements. Agreements are an “ad-hoc” arrangement, whereas regimes provide a framework to negotiate agreements.

*IAEA is the main verification organization entrusted by the NPT*

IAEA was created to control the nuclear field. In the light of the changes and new developments, measures provided in the IAEA Statute, particularly, those relating to safeguards were not sufficient to meet technological advances. With signature of the NPT, IAEA has been given a new mandate to verify implementation of the norms and rules of the NPT by its Parties. Board of Governors and General Conference are the decision-making bodies to deal with the non-compliance cases. IAEA’s main mandate in the field of verification is to prevent the spread of nuclear weapons. Being a “nuclear watchdog” Agency’s inspectors verify safeguarded nuclear material in nuclear facilities and locations outside facilities to draw safeguards conclusion on state’s compliance with their safeguards obligations.

*The NPT is the core of the global nuclear non-proliferation regime*

The NPT constitutes the first multilateral Treaty, which accepted the nuclear non-proliferation norm. Non-proliferation regime doesn’t contain only the NPT, it is much more comprehensive and includes various Treaties and Arrangements such as NWFZs, Safeguards Agreements, NSG, etc. All these instruments in their turn have their verification mechanisms. Based on the NPT several regimes including export control, nuclear test ban and missile technology control regimes have been established. Some of these regimes have overlaps in their control lists and functions.

*The nuclear non-proliferation regime has three main pillars*

The nuclear non-proliferation regime was established in 1968. It shapes the regime members behavior to respect the nuclear non-proliferation norm. The Main pillars of the NPT and nuclear non-proliferation regime are nuclear non-proliferation, nuclear
arms control and disarmament and peaceful use of nuclear energy. All conflicts in the NPT are related to the conflicting norms and the inequality of the rights and obligations of Nuclear Weapon States and Non-nuclear Weapon States. Many NNWSs agreed not to go nuclear in return that NWSs would reduce their nuclear arsenal, share nuclear technology and knowledge and provide security assurances.

**NNWSs underline immediate linkages between disarmament and non-proliferation**

Efforts of the Non-Aligned Movement States to push NWSs to honour their disarmament obligation brought so far no tangible result. Contrary to other norms of the NPT, there are no established rules and standards for observance of the disarmament norm.

**The NPT verification regime, IAEA safeguards regime and IAEA verification regime have the same function and they are identical**

These terms used in publications refer to the same regime. No research and theoretical analysis of these regimes are available.

The verification mechanism of the NPT hasn’t been included in the Treaty text and has been established after entry into force of the Treaty.

**One of the noticeable arms control regimes is the verification regime of NPT**

NPT Article III constitutes the basis of the NPT verification regime. Treaty requests NNWSs to sign with the IAEA Safeguards Agreements. Though IAEA safeguards regime was established upon introduction of safeguards and verification norms in the IAEA Statute and evolved with adoption of the Tlatelolco Treaty, the NPT has given the Agency a new mandate to verify the peaceful purposes of nuclear material and activities and overall Treaty compliance in support of the non-proliferation of nuclear weapons. The NPT once again endorsed safeguards and verification norms. The IAEA safeguards should to be applied in order to ensure that “special fissionable and other materials” are not used for military purposes. IAEA’s Safeguards Agreements are those documents, which lay down the rules for the IAEA safeguards regime.

Though NWSs have no legal obligation under the NPT to accept safeguards they concluded Voluntary Offer Agreements (VOA) with the IAEA and placed some nuclear material and facilities under the safeguards.
**IAEA safeguards are not only a verification system but a verification regime**

IAEA decision-making bodies have the right to judge on state’s compliance with their obligations. Hence, IAEA safeguards are not a system but a regime.

**Neorealism, Neoliberalism and constructivism**

No international relations theory alone was able to explain the interdependent world. Realists emphasise power in affecting the content and the strength of regimes, neoliberals underline self-interest as an incentive for cooperation and for establishment and compliance with regimes; and constructivists stress importance of knowledge and identities and underline that both interests and power capabilities are dependent on actors’ causal and social knowledge.\(^{384}\) These three schools of thoughts differ in their level of institutionalism.

**Rationalist approach to regime**

Neoliberals and realists have rationalist approach to regimes, describing states as most important actors, self-interested and goal-seeking aiming in maximization of individual utility. They emphasize the importance of uncertainty, and consider the anarchy as a main source of uncertainty. They have different assumptions on international cooperation. For neoliberals states are rational egoists preoccupied with absolute gains. Institutions create a favorable environment for convergence of state interest, which facilitates cooperation within the regime. Realists on the contrary are preoccupied with relative gains and believe that regimes don’t reflect distribution of power in the international system, thus any cooperation, which is possible under the regime can be realized without regime as well.\(^{385}\)

**Underlying reasons for international cooperation from neoliberal and neorealist perspective**

Neoliberals assume that mutual interest is a prerequisite for international cooperation, but central authority is important for them to fulfill their reciprocal obligations. Cooperation is possible when there are conflicting and complementary interests, and

\(^{384}\) Hasenclever/Mayer/Rittberger (1997), pp.1-2, 211.  
states adjust their behavior to existing or desired preferences of others. Even powerful states depend on others. International organizations as non-state actors facilitate cooperation, reduce uncertainty and transaction costs. Cooperation is possible even in the absence of the hegemon.

Neorealists believe that international system comprised from security seeking states, where distribution of capabilities depends on the number of big powers. Institutions are not efficient, the role of the regimes is limited, and interstate cooperation is difficult to achieve. Only with the existence of the hegemon regimes can be successful (i.e. robust). International organizations tend to reflect the interests of powerful states.

**Constructivist assumptions on international regimes**

Constructivism opposes rationalistic assumptions underlining that self-help doesn’t result from anarchical system. Self-help is a result of states interaction, which exposes states identities and interests. State behaviour is shaped by interest and identity defined by norms of international society and communicated to states by international organizations. Material power and state interest are also shaped by ideas and social interaction. Constructivism focuses on the origins of state interest and ignores the role of domestic factors. Knowledge, ideas, value and other subjective factors such as culture and norms, play significant role for the regime formation and dynamic. States are role players and their identity depends on international institutions. Institutions are set of identities and interests with their formal norms and rules motivating states to take part in collective knowledge. Regimes are “principles and shared understandings of desirable and acceptable form of social behaviour.”

**Ways of formation of international regimes**

Regimes can be formed in three ways: spontaneous, negotiated and imposed. Security regimes are the negotiated ones and resist to social change better. However, unequal distributions of the bargaining power can sometimes affect the outcome.

**Causal variables of regime formation**

Regimes can be result of different causal variables, such as egoistic self-interest, political power, norms and principles, usage and custom and the knowledge. Interest

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and power are the most obvious causes. Regimes are formed as instruments to achieve certain goals. Imposition of enforcement and decision-making can result in regime formation.

**Preconditions for regime formation**

In order states to develop a regime one of these criteria need to be meet: absence of legal framework founding liability for actions; information is costly and not enough, acceptable transaction costs.

**Regime functions**

Regimes facilitate cooperation, constrain and regularize behaviour, reduce transaction costs, uncertainty and risks of making agreements, provide information and create linkages. Regimes can be specific or diffuse, formal or informal, result of an evolutionary or revolutionary change and distributive biased.

**Regimes analytical components**

Regimes can be identified by their analytical components: principles, norms, rules and decision-making practices. Changes of rules and decision-making procedures considered as changes within the regime, alteration of norms and principles of regimes mean change of a regime itself. Regime weakening includes incoherence among the regime components or inconsistency between the regime and related behaviour.

**Regime change**

It is easier to modify existing regimes than create new ones. They tend to evolve rather than to dissolve. There is always continuous transformation within the regime as a result of its own dynamic. The same causes, which result in regime formation, can lead to regime change. For realists changes in the distribution of the power can lead to regime change. But knowledge can also result in regime change without any change in the distribution of power. Regime transformation can be result of internal contradictions, changes in actors’ interest, changes in distribution of power, result of technological development and new knowledge.

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Regime robustness
Regime is robust when members observe regime norms and rules and regime is effective to the extent it reaches its objectives. All major regimes are control oriented, where regime participants control others behavior reducing consequences of individual actions.

Security regimes
As seen formation of regime in a security area is more difficult because of greater uncertainty and competitiveness and higher stakes. Security regimes enforce limitations on unilateral actions.

Do regimes matter?
Conventional structural scholars do not consider regimes as serious; regimes change when causal variables change. They have no independent influence on behavior. Modified structuralisms believe that regimes do matter when independent decision-making results in unwanted outcomes. Groatian approach sees regimes as a key part of all patterned interaction, including behavior.\(^{390}\)

The NPT has 8 principles, 10 explicit and 4 implicit norms
In line with the analysis of the regime analytical components, the NPT has eight principles reflected in Preamble part of the Treaty, ten explicit norms and four implicit norms, rules are replicated in various documents such as UNSC resolution 1540, Safeguards Agreements, Additional Protocol, NSG guidelines, etc.

Treaty norms haven't been achieved yet
The long-term aim and principle of the Treaty to prevent the spread of nuclear weapons and complete disarmament haven’t been reached yet. Concerning norm implementation, safeguards and verification norms were enforced and implemented widely, while disarmament norm was not implemented.
Regime faces procedural problems, as not all regime members participate in norm

development. However, non-proliferation regime is one of most adhered regimes, close to universalization. It shapes all members behavior, non-proliferation and verification norms are widely accepted behavior and unquestionable among the regime members.

NWSs and NNWSs have different rights and obligations under the NPT

As seen from analysis of regime analytical components the NPT deals with obligations and rights based on the categorization of states into NWSs and NNWSs as defined in the NPT. Tables 4 and 5 illustrate main obligations and rights of these two categories of States. The main difference pertaining the obligations of the states are safeguards undertakings. The NPT enforces only on NNWSs acceptance on safeguards (Article II.1) and conclusion of Safeguards Agreements (Article II.4). Though obligation on pursuing negotiation for nuclear disarmament and cessation of nuclear arms race addressed in the Treaty to both NWSs and NNWSs, it is obvious that it relates to NWSs. In regard of the rights under the NPT both groups of states have similar rights, the only right where NNWSs rights is emphasized separately is the Article V, according to which NNWSs shall be able to obtain benefits from any peaceful application of nuclear explosions on non-discriminatory basis and that the charge to NNWSs for the explosive devices used should be on the possible lowest price excluding any charge for research and development.391

391 NPT, Article V.
3 BASICS OF THE IAEA SAFEGUARDS AND SAFEGUARDS LEGAL FRAMEWORK

The previous Chapter clarified some important terms and definitions of theoretical importance, as well as presented the findings of the theoretical framework, which is widely used and elaborated throughout the research. In order to bring further clarity on IAEA safeguards, some explanations and definitions are provided in this Chapter, which are widely used in this research. Thus this overview highlights key features pertaining to the researched objects. In the next step all safeguards agreements reference to which is done throughout the research, as well as documents containing safeguards provisions and comprising the legal basis of the safeguards regime in general, e.g. founding Treaties of Nuclear Weapon Free Zones, the NPT and the IAEA Statute are briefly described. Throughout the research various types of the IAEA Safeguards Agreements and safeguards measures as an underlying basis of the NPT verification and the IAEA safeguards regimes are exposed, which makes the explanation of the definition and main measures of safeguards and verification systems important.

This chapter looks at the documents, which form the basis for NPT verification regime and implementation of verification activities in States. Some commonalities as well as differences between these documents are underlined. Founding documents of Nuclear Weapon Free Zones are displayed in order to give an overview of the provisions stipulating the verification and safeguards norms and safeguarding of nuclear material however they are not the focus of this dissertation. Hence, my intention is not to go far to expose the differences of these documents, but rather to provide a broader picture of safeguards relating requirements contained in all legal documents.

To start the deliberations clear explanation should be provided on IAEA verification and safeguards systems and processes.

3.1 Safeguards Legal Framework

3.1.1 The IAEA Statute

As already illustrated, nuclear verification is one of the three pillars of the IAEA work.
In the subchapter on International organizations the IAEA Statute was briefly elaborated.

Article III.A.5 of the Agency’s Statute authorizes IAEA “to establish and administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose; and to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State, to any of that State's activities in the field of atomic energy”. 392

According to Article XII.A of the IAEA Statute, Agency has to examine the design of specialized equipment and facilities, including, for example, nuclear reactors, and assure that it will not pursue any military purpose and that it will permit effective application of the safeguards. IAEA has to require the maintenance and production of operating records to assist in ensuring accountability for source and special fissionable materials used or produced in the facility. IAEA has to approve the means to be used for processing of irradiated materials to be sure that no diversion of materials for military purposes will occur during the processing. IAEA should ask that special fissionable materials recovered or produced as a by-product is used for peaceful purposes under Agency safeguards. 393 According to the same Article paragraph A.6, Agency has the right to send into the territory of the Member State inspectors, designated by the Agency, who can have access at all times to all places and data and to any person who deals with materials, equipment, or facilities which have to be safeguarded. Inspectors shall account for source and special fissionable materials and fissionable products and to determine whether there is compliance with the undertaking against use for any military purpose. The Agency shall take corrective actions against any non-compliance or failure to take adequate measures. 394

Under Article XII.C, measures are described available to inspectors, Board of Governors and Director General in the case when the State is in violation with its Safeguards Agreements. Such measures include calling upon the State to remedy non-compliance, reporting the non-compliance to the Member States of IAEA and UN

392 IAEA Statute, Article III.
393 IAEA Statute, Article XII.
394 IAEA Statute, Article XII.
3.1.2 Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

The first international Treaty, which included the provision on the need for IAEA Safeguards is the Treaty for Non-proliferation of Nuclear Weapons (NPT) signed in 1968 and entered into force on 5 March 1970. NPT defined the nuclear weapon states (NWS) and non-nuclear weapon states (NNWS), according which “a nuclear weapon state is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to January 1, 1967.” Starting from the NPT, safeguards provisions, requirements and scopes for those two groups of states were differed. Article I and II of the NPT underline the non-proliferation commitments of NWSs and NNWSs, respectively. According to the Article I each nuclear weapon state, Party to the Treaty, undertakes not to transfer to any State nuclear weapons or other nuclear explosive devices and not assist and encourage any non-nuclear-weapon State to manufacture or acquire nuclear weapons or other nuclear explosive devices, or control over such them. Under Article II each non-nuclear-weapon State, Party to the Treaty, undertakes not to receive nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices, as well not manufacture, acquire and receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices. Here attention should be paid that NPT prohibits only explosive uses of nuclear material and not all military uses of nuclear material.

Article III of the NPT states that each NNWS Party to the Treaty should to accept safeguards, to be negotiated and concluded with the IAEA in accordance with the Statute of the Agency and the Agency’s safeguards system, for the exclusive purpose of the verification of the fulfillment of its obligations with a view to prevent diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. According to the abovementioned Article, safeguards shall be applied with respect to source or special fissionable material whether it is being produced, processed

395 IAEA Statute, Article XII.C.
396 NPT, Article IX.3.
397 NPT, Article I.
398 NPT, Article I, II.
or used in any nuclear facility or outside of the facility in all peaceful nuclear activities within the territory of a State, or carried out under its control anywhere.\textsuperscript{399}

3.1.3 Safeguards under the Nuclear Weapon Free Zone Treaties

3.1.3.1 The Tlatelolco Treaty

The Treaty for the Prohibition of Nuclear Weapons in the Latin America and the Caribbean (Tlatelolco Treaty, 1968) is a regional treaty establishing a nuclear weapon free zone in Latin America.\textsuperscript{400} According to Article 1 of the Treaty the Contracting Parties undertake obligations to use the nuclear material and facilities exclusively for peaceful purposes, and to prohibit and prevent in their respective territories testing, use, manufacture, production or acquisition, storage and deployment of any nuclear weapon.\textsuperscript{401}

In order to verify Parties compliance with their obligations, Article 12 to 18 of the Treaty envisage a control system, according which each Party have to conclude bilateral or multilateral Safeguards Agreements with the IAEA. The Control System should verify that devices, services and facilities aimed at peaceful uses of nuclear energy are not used in the testing or manufacture of nuclear weapons, that activities prohibited in Article I of the Treaty are not carried out in the territory of the Parties with nuclear materials or weapons introduced from abroad. Parties should submit reports to the IAEA on activities. Treaty provides opportunity to request from the Contracting Party to furnish the Agency with additional information. Under the Article 16 the IAEA has the power of carrying out special inspections.\textsuperscript{402}

Treaty has two Additional Protocols. The Parties to Additional Protocol I, which is open to States, undertake obligation to conclude Safeguards Agreement with the IAEA. Parties to the Additional Protocol 2, to which all five NPT NWS are Party requires not using or threatening to use nuclear weapons against Contracting Parties to the

\textsuperscript{399} NPT, Article III.
\textsuperscript{400} Treaty was signed in Tlatelolco, Mexico, on 14 February 1967 and entered into force on 22 April 1968.
\textsuperscript{401} Tlatelolco Treaty, Article 1.
\textsuperscript{402} Tlatelolco Treaty, Article 12-18.
Though Tlatelolco Treaty requires conclusion of Safeguards Agreement, all Contracting Parties to the Treaty are also party to NPT, and they have concluded only a single Safeguards Agreement, which refers both to Tlatelolco Treaty and NPT. The Treaty considers the possibility of peaceful application of nuclear explosions as does the NPT. However, the difference with the NPT is that Tlatelolco Treaty doesn’t require Safeguards as a condition for nuclear supply.

3.1.3.2 The Treaty of Rarotonga

The South Pacific Nuclear Free Zone Treaty, which is known as the Treaty of Rarotonga (1986). According to Article 3 of the Treaty each Party undertakes not to manufacture, acquire, possess or have control over any nuclear explosive device anywhere inside or outside the given Zone; as well as not to receive any assistance in the manufacture or acquisition of any nuclear explosive device; not to take any action to assist or encourage the manufacture or acquisition of any nuclear explosive device by any State. Under Article 4 of the Treaty, each Party undertakes not to provide to any non-nuclear-weapon State source or special fissionable material, equipment or material designed or prepared for the processing, use or production of special fissionable material for peaceful purpose unless it is subject to the safeguards required by the NPT, or to any nuclear-weapon State unless subject to applicable safeguards agreements with the IAEA. Article 8 of the Treaty creates the control system in order to verify compliance of the Parties.

Annex 2 of the Treaty states that safeguards shall be applied by the IAEA in respect of each Party under an agreement to concluded with the IAEA on all source or special fissionable material in all peaceful nuclear activities of the Party. Safeguards purpose is the verification of the non-diversion of nuclear material from peaceful nuclear activities to nuclear explosive devices. In Annex 2 Parties agreed to transmit upon the

403 Rockwood (2013), p. 6
404 Rockwood (2013), p. 6
405 Rarotonga Treaty, Article III.
406 Rarotonga Treaty, Article III-IV.
407 Rarotonga Treaty, Article VIII.
request of any other Party the most recent report by the IAEA on its inspection results carried out in the territory of the Party concerned.\textsuperscript{408}

The difference with the NPT and Tlatelolco Treaty is that Rarotonga Treaty doesn’t allow use of nuclear explosives or nuclear explosive devices regardless of their application within the zone of the application of the Treaty.\textsuperscript{409}

Treaty has three Protocols. Protocol I contains similar provisions as the Tlatelolco Treaty, open for the states (US, France and UK), which have territories within that zone. According to Protocol I each Party undertakes to prohibit the manufacture, stationing and testing of any nuclear explosive device within those territories, and apply safeguards as provided in Article 8 and Annex 2 of the Treaty.\textsuperscript{410}

Protocol II and III are open for five NPT NWSs. Protocol 2 requires that each Party does not use or threaten to use any nuclear explosive device against Parties to the Treaty. Under the Protocol III Each Party undertakes not to test any nuclear explosive device anywhere within the Zone.\textsuperscript{411}

\subsection*{3.1.3.3 The Bangkok Treaty}

Southeast Asian Nuclear-Weapon-Free-Zone Treaty ratified in 1997 and known as Bangkok Treaty. According to the Article IV.3 each State Party undertakes not to provide source or special fissionable material and equipment to any non-nuclear-weapon State except under conditions subject to the Safeguards required by Paragraph I of Article III of the NPT; or any nuclear-weapon State except in conformity with applicable Safeguards Agreements with the IAEA.\textsuperscript{412} Article 5 of the Treaty requires that Parties to conclude Safeguards Agreement with the IAEA for the application of full scope Safeguards to its peaceful nuclear activities. Under Article 10 control system should be established to verify compliance with State obligations, which should comprise from the IAEA safeguards system; reporting and exchange of information,

\begin{itemize}
  \item \textsuperscript{408} Rarotonga Treaty, Annex 2.
  \item \textsuperscript{409} Laura Rockwood (2013), p. 6.
  \item \textsuperscript{410} Rarotonga Treaty, Protocol I.
  \item \textsuperscript{411} Rarotonga Treaty, Protocol II and III.
  \item \textsuperscript{412} Bangkok Treaty, Article IV.
\end{itemize}
request for clarification and request and procedures for a fact-finding mission.\textsuperscript{413}

The Bangkok Treaty contains components, which are missing in other Nuclear Weapon Free Zone (NWFZ) Treaties: the zone also includes the continental shelves and EEZ; and NWSs should provide the negative security assurance not to use nuclear weapons against any contracting State or Party to Protocol within the zone of application. Treaty as other treaties includes identical obligations and verification system.\textsuperscript{414} Protocol is open for all NWSs, which shall not use or threaten to use nuclear weapons against any State Party to the Treaty. So far none of the NWSs have signed this protocol because they object to the inclusion of continental shelves and EEZ.

3.1.3.4 The Pelindaba Treaty

African Nuclear-Weapon-Free-Zone Treaty (Pelindaba Treaty) was opened for signature on 11 April 1996 and entered into force on 15 July 2009.\textsuperscript{415} The Treaty has a permanent character and shall remain valid indefinitely.

Under Article 3 of the Pelindaba treaty the Parties undertake not to conduct research, develop, manufacture, stockpile, acquire or possess any nuclear explosive device; not to seek or receive any assistance in the research on, development, manufacture, or acquisition of any nuclear explosive device. Under Article 4 the Parties also undertake to prohibit in their territory, the stationing of any nuclear explosive device. In its Article 5 the Treaty prohibits the dumping of radioactive waste. According to Article 6 the Parties undertake to declare any capability for the manufacture of nuclear explosive devices; dismantle and destroy any nuclear explosive device that they have manufactured prior to the coming into force of this Treaty; destroy facilities for the manufacture of nuclear explosive devices or, where possible, to convert them to peaceful uses; and to permit the IAEA to verify the processes of dismantling of the nuclear devices and facilities.\textsuperscript{416}

Treaty Article 9 requests State Parties to conclude a Comprehensive Safeguards

\textsuperscript{413} Bangkok Treaty, Articles 5 and 10.
\textsuperscript{414} Bangkok treaty. Available at: https://www.nonproliferation.org/wp-content/uploads/2013/12/nwfz_treaty_bangkok_southeast_asia.pdf
\textsuperscript{415} nti.org
\textsuperscript{416} Pelindaba Treaty, Articles 3-6.
Agreement with IAEA for the purpose of verifying compliance with the undertakings of the Treaty.\textsuperscript{417}

Under Annex II (Safeguards of the IAEA) safeguards shall be applied in respect of each Party by the IAEA as set forth in an agreement negotiated and concluded with the Agency on all source or special fissionable material in all nuclear activities within the territory of the Party. The referred Agreement shall be equivalent in its scope to INFCIRC/153 corrected. A Party that has already a safeguards agreement with the IAEA in place doesn’t require a new agreement.\textsuperscript{418} Annex IV contains provisions on conduct of inspections. Protocol I calls on the NWSs not to use or threaten to use a nuclear explosive device against any Party to the Treaty. Protocol II requires that NWSs not to test or assist or encourage the testing of any nuclear explosive device anywhere within the Pelindaba NWFZ.\textsuperscript{419}

Protocol III calls on each Party to ensure the application of safeguards. This Protocol is similar to the Additional Protocol I of the Tlatelolco Treaty and Protocol I of Rarotonga Treaty.

\subsection{3.1.3.5 The Semipalatinsk Treaty}

The Treaty on a Nuclear-Weapon-Free Zone in Central Asia (Semipalatinsk Treaty, 2009) was signed for unlimited timeframe. Like in other NWFZ Treaties, Parties to the Semipalatinsk Treaty undertake not to conduct research on, develop, manufacture, stockpile or acquire, not to seek or receive any assistance in research on, development, manufacture, stockpiling, acquisition, possession any nuclear weapon or other nuclear explosive device; not to take any action to assist or encourage the conduct of research on, development, manufacture, stockpiling, acquisition or possession of any nuclear weapon and not to allow in its territory the production, acquisition, stationing, storage or use, of any nuclear weapon or other nuclear explosive device, etc.\textsuperscript{420}

According to Article 8 of the Treaty (IAEA Safeguards) each Party undertakes to use

\footnotesize{\textsuperscript{417} Pelindaba Treaty, Article 9.} \textsuperscript{418} Pelindaba Treaty, Annex II. \textsuperscript{419} Pelindaba Treaty, Protocol II and I. \textsuperscript{420} Semipalatinsk Treaty, Article 1.
the nuclear material and facilities for exclusively peaceful purposes and to conclude Safeguards Agreement with the IAEA, if it has not already done so, for the application of Safeguards in accordance with the NPT (INFCIRC/153 (Corr.)), and an Additional Protocol (INFCIRC/540 (Corr.)) and not to provide to any NNWS source or special fissionable material or equipment, unless that State has in place CSA and AP.\(^{421}\) Treaty put legal obligation on State Parties to adhere to the Additional Protocol. This is the only NWFZ Treaty, which contains such requirement.

Treaty’s only Protocol is open for signature by the five NPT NWSs. All NPT states have signed the Protocol on May 6, 2014. France and UK have already ratified the instrument; ratification from remaining NWSs is still pending.

### 3.1.3.6 Guadalajara Agreement

The Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) was established by the Agreement between Argentina and Brazil (Guadalajara Agreement, 1991) for the Exclusively Peaceful Use of Nuclear Energy. ABACC is a regional agency responsible for safeguards and manages Common System for Accounting and Control of Nuclear Materials. Under the Article 1 of the Guadalajara Agreement the Parties agreed to use the nuclear material and facilities for peaceful purposes only; to prohibit and prevent and to abstain from carrying out, promoting or authorizing, directly or indirectly in use, production, manufacture or acquisition of nuclear weapon, etc.\(^{422}\)

The Quadripartite Agreement (INFCIRC/435) between Brazil, Argentina, the IAEA and the ABACC entered into force in 1991. Under the Agreement the safeguards system currently in force in Brazil and Argentina has been established in the countries. It ensures the implementation of a full-scope Safeguards system for all nuclear materials and nuclear activities in both countries. According to the Agreement, the Parties shall cooperate to facilitate application of the Safeguards.\(^{423}\)

\(^{421}\) Semipalatinsk Treaty, Article 8.
\(^{422}\) Guadalajara Agreement, Article 1.
\(^{423}\) INFCIRC/435.
3.1.4 EURATOM Treaty

Treaty establishing European Atomic Energy Community (EURATOM Treaty) was signed between Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom entered into force in January 1, 1958. The EURATOM Treaty contains a comprehensive system of safeguards to ensure that nuclear material is not diverted from the peaceful uses declared by States. Particularly, Article 77 of the Treaty envisages that European Commission will ensure in the territories of the Member states that “a) ores, source materials and special fissile materials are not diverted from the intended uses declared by users”; and “b) the provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with the third State and or an international organization are complied with”.\(^\text{424}\)

The EURATOM safeguards are applied in combination with the IAEA safeguards under tripartite agreements concluded between the Member States, EURATOM and the IAEA (INFCIRC/193).\(^\text{425}\) All states wishing to become EU member have to sign INFCIRC/193 and the Additional Protocol.

3.1.5 Safeguards Agreements

Resulting from the NPT distinction among NWSs and NNWSs as well as their respective obligations and commitments under the Treaty and existence of Non-NPT states, which are at the same time members of the IAEA, several types of Safeguards Agreements were developed and signed and are currently in force. In order to expose better view on differences between all existing safeguards agreements, which vary from their coverage and content, basic safeguards documents are presented in this dissertation. As my intention goes to illustrate only main provisions and differences of these agreements, which has theoretical importance, agreements are not analyzed thoroughly.

\(^{424}\) EURATOM Treaty, Article 77.
\(^{425}\) INFCIRC/193.
3.1.5.1 INFCIRC/26; INFCIRC/26/Add.1

INFCIRC/26 was the first Safeguards document elaborated by IAEA member states and the Secretariat. The first Safeguards were implemented two years after the establishment of IAEA. In 1959 the first IAEA ad hoc Safeguards were implemented in relation to the natural uranium fuel to be used in a small research reactor. In 1961 IAEA Board of Governors approved the first formal IAEA Safeguards Agreement INFCIRC/26. It is worth to mention that IAEA’s first Safeguards document was adopted before the NPT was negotiated. Administration of Safeguards by the Agency was governed by an agreement pursuant to the Agency’s Statute Article 3, between the Agency and the State or States. Under Article I (3) of INFCIRC/26 Agency Safeguards should be applied to materials and facilities voluntarily placed under the Agency Safeguards. According to INFCIRC/26 the safeguards procedures cover the envisaged requirements for the near future in regard of only to research and power reactors and to the source and special fissionable material used and produced in those facilities. It was mentioned that requirements for other types of nuclear facilities would be developed if such a need becomes evident. Until 1964, INFCIRC/26 agreements were applied only to reactors of less than 100 megawatts. On 26 February 1964 the Board of Governors adopted INFCIRC/26/Add.1, extending the Agency's safeguards system to reactors with 100 and more thermal megawatts.

3.1.5.2 Item Specific Safeguards Agreement – INFCIRC/66, INFCIRC/66/Rev.1, INFCIRC/66/Rev.2

As nuclear development was progressing, the issue of the need for the new safeguards document with new requirements arose before the Board of Governors. The IAEA Board of Governors approved the new safeguards system only after lengthy and troublesome debate and at the cost of severe constraints on the operations of the IAEA and its inspectors. Especially the rules concerning the appointment and activities of IAEA inspectors required the Director General to give as a minimum a week’s notice

426 Boureston/Ferguson (2005).
427 INFCIRC/26; Article I (3-4).
428 Boureston/Ferguson (2005).
429 INFCIRC/26/Add.1.
before each routine IAEA inspection. The inspector had to enter, travel in and leave the
country at points and on routes designated by the government concerned. The concepts
of short notice and unannounced inspections, which are of significant importance of
nowadays IAEA safeguards, would have been regarded as inadmissible infractions of
national sovereignty.\textsuperscript{430}

The experts of the Member States have elaborated a new document, and on September
28, 1965 the IAEA Board of Governors approved the completely revised Safeguards
Agreement INFCIRC/66, which applied to reactors. Starting from INFCIRC/66
safeguards were implemented to verify States’ obligations not to use facilities and material
for military purposes. Under INFCIRC/66 safeguards measures are targeted on the
particular facilities and material in question, and not to all nuclear material in peaceful
activities. It is not focused on comprehensive non-proliferation obligations such as those in
the NPT.\textsuperscript{431} The INFCIRC/66 safeguards limit the number of inspections in a year,
however, there are no limitations on the duration of the inspection, and it allows
continuous inspection of any reactor with an “inventory or potential production of more
than 60 effective kilograms per year”.\textsuperscript{432}

The document was revised in 1966 as an INFCIRC/66/Rev.1, which included in its
provisions reprocessing facilities; another revision was adopted in 1968
(INFCIRC/66/Rev.2), which extended its provisions to fuel fabrication plants.
Together with its two annexes, the document is known as a Safeguards Document\textsuperscript{433},
which established the pre-NPT safeguards regime. Enrichment plants were not included
in INFCIRC/66 type Safeguards Agreements. It is important to underline that
safeguards system did not cover at that time enrichment plants since there were no
operating or projecting enrichment facility in any of non-nuclear-weapon State.

Worthy to mention that INFCIRC/66 was not a model Safeguards Agreement rather it
was intended as a collection of provisions among which those concerning to a specific
situation would be included in a respective safeguards agreement.\textsuperscript{434} As a consequence
agreements based on this document were reasonably different from each other in

\textsuperscript{431} INFCIRC/66.
\textsuperscript{432} Bunn (2004), p. 2.
\textsuperscript{433} INFCIRC/66/Rev.2.
\textsuperscript{434} INFCIRC/66/Rev. 2, par. 4.
substance, even when they relate to similar issues and circumstances.\textsuperscript{435}

The provisions of the Safeguards Agreement become legally binding when they are incorporated into safeguards agreements. INFCIRC/66 itself doesn’t represent legally binding instrument for Member States, nor is it an international agreement.\textsuperscript{436}

INFCIRC/66/Rev. 2 safeguards may be applied to nuclear plants, services, equipment, facilities and information and to certain non-nuclear material such as heavy water.\textsuperscript{437}

Under the INFCIRC/66 type Agreements State should notify to IAEA the receipt of items, which have to be safeguarded. The items, which can vary from nuclear material to equipment or components, are usually listed in the main part of the inventory, which is maintained under such Agreements. As stated, such an inventory is dependent on the scope of the Agreement and determined by the State.\textsuperscript{438}

However experience in implementing the first comprehensive safeguards (INFCIRC/66/Rev. 2) proved to be significant both to the Agency itself and to the international community as it became greatly determined to stop the further spread of nuclear weapons. Taking into account this experience during the negotiations of the NPT it was proposed that the IAEA to become the principal body to apply safeguards to nuclear material in non-nuclear-weapon States.\textsuperscript{439}

INFCIRC/66/Rev.2 type Agreements have limited scope, which doesn’t allow assuring the international community about the absence of nuclear explosives produced in a State concerned, it has more compound safeguards procedures and unnecessary extension of safeguards to cover equipment and non-nuclear materials. Currently, INFCIRC/66/Rev.2 type Safeguards Agreement applies in three Non-NPT States, e.g. Israel, India and Pakistan.

\textsuperscript{438} Rockwood (2013), pp. 11-12.
\textsuperscript{439} IAEA/NVS/2 (1998), p. 11.
3.1.5.3 Comprehensive Safeguards Agreement - INFCIRC/153, INFCIRC/153 (Corrected)

After the entry into the force of the NPT, each NNWS Party to the Treaty was obligated to conclude agreements with the International Atomic Energy Agency in accordance with its Statute. The Treaty in its Article 3 states the purpose of the safeguards, which is verification of the fulfillment of State’s obligations assumed under the NPT with a view of preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices. As already described under the section NPT, safeguards shall implement in respect to source or special fissionable material produced, processed or used in any nuclear facility or outside of such facility.

In 1970, IAEA Board of Governors established a Safeguards Committee to advice on the content of the Safeguards Agreement to be signed between IAEA, as an authorized body for implementation of the Safeguards under the NPT, and NNWSs party to the NPT. The Committee elaborated the document entitled “The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons” (INFCIRC/153)”, which was approved by the Board in May 1971 and reissued as an INFCIRC/153(Corrected) in June 1972 to be used as the basis for negotiating Safeguards Agreements under the NPT. The Agreements concluded on the basis of INFCIRC/153(Corrected) called “full scope” or “Comprehensive Safeguards Agreement” (CSA). INFCIRC/153(Corrected) serves as a model Comprehensive Safeguards Agreement concluded in compliance with the NPT, Tlatelolco Treaty and for other NWFZ treaties as well. INFCIRC/153(Corrected) lays out a regime based primarily on nuclear material at selected key “strategic points” at declared sites.

Comparing with the scope of INFCIRC/66 Safeguards Agreement that were focused on particular facilities and material in question, INFCIRC/153(Corrected) safeguards applied to all nuclear material in peaceful activities. However INFCIRC/66 safeguards cover both facilities and material, and are not limited primarily to agreed strategic points, so that for

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440 NPT, Article 3.
those facilities and materials that are covered, safeguards can be more comprehensive. According to the provisions of the Comprehensive Safeguards Agreements State shall provide IAEA with the reports of all nuclear material and all nuclear facilities in the State operating and not operating ones. Implementation of Safeguards pursuant to INFCIRC/153(Corrected) gives IAEA to verify correctness of the State provided information. Currently 13 NNWS Parties to the NPT haven't CSAs in force.

### Status of the NPT Comprehensive Safeguards Agreements

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<th>6</th>
<th>Didn’t submitted CSA to BoG</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Eritrea</td>
<td></td>
</tr>
<tr>
<td>• Vanuatu</td>
<td></td>
</tr>
<tr>
<td>• Liberia</td>
<td></td>
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<tr>
<td>• Palestine</td>
<td></td>
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<tr>
<td>• Sao Tome and Principe</td>
<td></td>
</tr>
<tr>
<td>• Somalia</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 37: Status of Comprehensive Safeguards Agreements
Source: IAEA*

#### 3.1.5.4 Voluntary Offer Agreements

There is no requirement in the NPT that nuclear weapon states should accept safeguards. Despite the absence of such a requirement all five NWSs have signed Safeguards Agreements, under which they have voluntarily provided list of some nuclear material and/or facilities from which the Agency can select some to apply the safeguards. Voluntary Offer Safeguards Agreements (VOAs) generally have the format of agreements based on INFCIRC/153 (Corr.), though they vary in the scope of materials and facilities covered, e.g. excluding those with national security significance and they are not comprehensive. Under these agreements NWSs have the possibility to

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445 There are five NWSs: Russia, USA, UK, China and France. NPT defines a nuclear weapon state as a one, which manufactured and exploded a nuclear weapon before 1 January 1967, before NPT.
withdraw such material and facilities from Agency safeguards.\textsuperscript{446}

Application of safeguards in NWSs aims mainly in testing new safeguards methods, or providing Agency with their experience that it might not otherwise gain in safeguarding advanced nuclear fuel cycle facilities as well as in meeting the expectations of non-nuclear-weapon States that some facilities in nuclear-weapon States are subject to safeguards and allaying with their concerns that implementation of the Agency’s safeguards may lead to commercial disadvantages for the civil nuclear programmes of NNWSs. The Agency also applies safeguards in Nuclear Weapon States as a result of legal obligations arising from other safeguards agreements and for efficiency reasons such as verifying transfers of nuclear material in cases when it is more cost effective to verify such transfers in the exporting nuclear-weapon State than in the receiving non-nuclear-weapon State. Under Voluntary Offer Agreement safeguards are implemented to verify withdrawal of nuclear material, except as provided for under the agreement, and remains in peaceful nuclear activities.\textsuperscript{447}

Besides that, in accordance with paragraph 1 of 207, the five nuclear weapon states agreed to provide the Agency with the advance notifications of transfers of nuclear material to non-nuclear weapon States.\textsuperscript{448}

\subsection*{3.1.5.5 Small Quantities Protocol}

International Atomic Energy Agency permanently sought new measures in order to strengthen and improve the effectiveness and the efficiency of the safeguards system. Two significant milestones of this process were the adoption by the Board of Governors of the Model Additional Protocol (AP) to the Comprehensive Safeguards Agreement (CSA), and the decision to modify the Small Quantities Protocol (SQP). Effective implementation of these legal instruments allows the Agency to draw a conclusion on the peaceful use of nuclear material and activities in the State.\textsuperscript{449}

SQP was aimed to reduce the burden of safeguards activities on States with little or no nuclear activities, and no nuclear material in facilities, while ensuring that the IAEA’s

\textsuperscript{446}The Safeguards System of the International Atomic Energy Agency, p. 3.
\textsuperscript{447}The Safeguards System of the International Atomic Energy Agency, p. 3.
\textsuperscript{448}IAEA Safeguards Glossary (1997), p. 78.
\textsuperscript{449}Vasman/Muñoz/Charlier/Bayou Temesgen (2010), IAEA-CN-184/264.
Safeguards conclusions for SQP States are soundly based.  

Under the SQP, based on the original text of 1974\(^\text{451}\), the implementation of most of the procedures in Part II of a CSA are suspended for as long as specified criteria are met. Provisions, which were not suspended by the new instrument are for example, those relating to the reporting of exports and imports of nuclear material and any material containing uranium or thorium.\(^\text{452}\)

Small Quantities Protocol based on the original text remains in force until the quantities of nuclear material within the territory of the State exceeds the limits provided or if a State has nuclear material in a facility.\(^\text{453}\)

As the original Small Quantities Protocol text has shortages, for instance, the IAEA is unable to carry out verification activities in order to assure that the State satisfies the criteria of having SQP. Moreover, the fact that the State was not required to provide the IAEA with an initial report on all nuclear material which is subject to safeguards, Agency recognized the need for amendments in order to exclude those deficiencies and strengthen the safeguards system.\(^\text{454}\)

Thus, in 2005 the Board of Governors made amendments to the existing SQP, and adopted a Modified Small Quantities Protocol\(^\text{455}\). New amendments made the original SQP unavailable to a State with an existing or planned facility. The provisions from Comprehensive Safeguards Agreement Part II that were not implementing under the SQP were reduced in modified one. According to the Modified SQP States are should provide the IAEA "an initial report on all nuclear material" and to inform the Agency if there is a decision on construction of a facility. In such cases the design information for any planned nuclear facilities should be submitted to IAEA. If a State doesn’t satisfy the eligibility criteria, the original SQP loses its validity.\(^\text{456}\)

With modified Protocol Agency gains right to conduct inspections in SQP States. One of the differences with the previous version of SQP was that previous SQP allowed States to have small amounts of nuclear material but not to be obliged to report about

\(^{450}\) Moore (2012).
NM to the IAEA.\textsuperscript{457}

3.1.6 The Model Additional Protocol-INFCIRC/540 (Corr.)

The new safeguards document known as Model Additional Protocol is a model of an agreement to be signed between a state and IAEA for application of safeguards. The IAEA Board of Governors approved the text of the Additional Protocol in 1997. Not only states, but also other parties to the Comprehensive Safeguards Agreements with the Agency can also sign the Additional Protocol, which should contain all the measures described in the Model Additional Protocol. The Board of Governors at time of the approval of INFCIRC/540 also requested the Director General to begin to negotiate Additional Protocols with NWSs and other States, including in their Protocols those measures, which the State is ready to commit in order to contribute to the non-proliferation.\textsuperscript{458} After entry into the force of the Additional Protocol, state should provide with the initial declaration of the information required by the Protocol. INFCIRC/540 (Corr.) contains new requirements on provision of the information, which were not included in INFCIRC/153. More detailed description and analysis of the Model Additional Protocol is provided in forthcoming Chapters.

3.1.7 Subsidiary Arrangements

According to INFCIRC/153 Safeguards Agreement states undertake to sign Subsidiary Arrangement containing the technical and administrative procedures on practical implementation of the provisions of the Safeguards Agreements. In case INFCIRC/540 mentions that Subsidiary Arrangements is necessary, then it is to be concluded between the State and the Agency. Subsidiary Arrangements comprised of the General Part pertinent to all nuclear activities in the State and of the Facility Attachment, for each facility in the State, and contains arrangements specific for the facility.\textsuperscript{459}

\textsuperscript{457} Board Moves to Strengthen Nuclear Safeguards System (2005).
\textsuperscript{458} INFCIRC/540.
3.2 Basics of the IAEA Safeguards

3.2.1 IAEA “Safeguards” Objective, Definition, Scope and Measures

The central mission of IAEA Safeguards is the verification that commitments and obligations taken by States under Safeguards Agreements with the IAEA in connection to the NPT are fulfilled. In another words purpose of the IAEA safeguards is to verify the compliance with states’ obligations under the respective Safeguards Agreements. The Agency’s verification gives an opportunity to the State to show to other States that it is honouring its obligations under the NPT, the Tlatelolco Treaty or applicable Safeguards Agreement is question, whether it is an INFCIRC/66, INFCIRC/153 or INFCIRC/ 540 type of agreement.

Safeguards are measures and verification activities, which allow the IAEA to verify that nuclear material in the state is used for peaceful purposes and is not diverted for military uses. IAEA safeguards are considered as a verification system. In its publications Agency defines safeguards as a verification mechanism. The object of the safeguards is the nuclear material.

3.2.2 Definition of Safeguards and Safeguards System

According to the IAEA Safeguards Glossary “IAEA Safeguards is a verification system within the framework of non-proliferation policy applied to peaceful uses of nuclear energy, and entrusted to the IAEA by its Statute, by the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and by the Treaty for the Prohibition of Nuclear Weapons in Latin America (Tlatelolco Treaty)”.

From this definition, it becomes evident that IAEA Safeguards system is one of the verification mechanisms under the NPT verification regime, though the most fundamental one.

UNIDIR defines nuclear safeguards as “[a] form of verification designed to check compliance with undertakings by States not to acquire nuclear weapons.”

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“By definition, the safeguards system comprises an extensive set of technical measures by which the IAEA Secretariat independently verifies the correctness and the completeness of the declarations made by States about their nuclear material and activities including those from the Additional Protocol, in order to achieve maximum effectiveness and efficiency within the available resources”.

IAEA safeguards system applies to materials and items covered by respective Safeguards Agreements. As Safeguards Agreements differ, depending on the type of the agreement in place, states have also diverse reporting obligations and Agency has different rights in relation to the States. The Agency’s rights as well as States obligations and rights under all Safeguards Agreements illustrated in other parts of the dissertation.

In order to design and implement in-field verification activities, features of facilities and locations containing nuclear material are essential elements.

3.2.3 IAEA Safeguards Generic Objectives

Based on its rights and obligations the Agency has safeguards generic objectives A, B, C, which varies for the Comprehensive Safeguards Agreements, the Item Specific Agreements and the Voluntary Offer Agreements. After completing its verification activities in order to achieve safeguards generic and technical objectives for the review period Agency draws safeguards conclusion for States, which differ from the type of the agreement as well.

INFCIRC/153: Agency’s right and obligation under CSAs is to apply safeguards on all nuclear material in all peaceful activities. Generic safeguards objectives for states with the CSAs are as follow:

- **A.** “To detect any undeclared nuclear material or activities in the State as a whole;
- **B.** To detect any undeclared production or processing of nuclear material in declared facilities or locations outside facilities (LOFs), where nuclear material is regularly used;
- **C.** To detect any diversion of declared nuclear material in declared facilities or

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463 Renis (2014).
Safeguards conclusion drawn for CSA:

- “Declared nuclear material remained in peaceful activities (CSA only)"
- “All nuclear material remained in peaceful activities (Broader conclusion)”

**INFCIRC/66/Rev.2**: Agency’s rights and obligations under Item-Specific Safeguards Agreement is to apply safeguards to nuclear material, facilities and other items specified under the safeguards agreement to ensure that such items are used exclusively for peaceful purposes. Generic safeguards objectives for states with INFCIRC/66 are as following:

- “To detect any misuse of facilities and other items subject to safeguards under the safeguards agreement;
- To detect any diversion of nuclear material subject to safeguards under the safeguards agreement”.

Safeguards conclusion drawn for INFCIRC/66/Rev.2:

- “Nuclear material, facilities or other items to which safeguards had been applied remained in peaceful activities”.

**Voluntary Offer Agreements (VOAs)**: Agency’s rights and obligations under VOAs is to apply safeguards to nuclear material in facilities selected by the Agency from the State’s list of eligible facilities to verify that such material remains in peaceful activities or is withdrawn from safeguards as provided in the VOA.

Generic safeguards objective for States with VOAs are:

- “To detect any withdrawal of nuclear material in selected safeguarded facilities or parts thereof, except as provided for in the agreement”.

Safeguards conclusion for VOAs:

- “Nuclear material to which safeguards had been applied in selected facilities remained in peaceful activities or had been withdrawn from safeguards as provided for in the agreement”.

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464 Renis (2014).
465 Drawing Safeguards Conclusions, iaea.org.
466 Renis (2014).
467 Renis (2014).
468 Drawing Safeguards Conclusions, iaea.org.
469 Renis (2014).
470 Drawing Safeguards Conclusions, iaea.org.
<table>
<thead>
<tr>
<th>Scope</th>
<th>Generic Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA</td>
<td>All nuclear material</td>
</tr>
<tr>
<td>Item Specific</td>
<td>To detect undeclared nuclear material or activities in the States as a whole;</td>
</tr>
<tr>
<td></td>
<td>- To detect misuse of declared facilities;</td>
</tr>
<tr>
<td></td>
<td>- To detect diversion of declared nuclear material.</td>
</tr>
<tr>
<td>Item Specific</td>
<td>Specified items</td>
</tr>
<tr>
<td></td>
<td>- To detect misuse of facilities and other items subject to safeguards;</td>
</tr>
<tr>
<td></td>
<td>- To detect diversion of nuclear material subject to safeguards.</td>
</tr>
<tr>
<td>VOA</td>
<td>Nuclear material in selected facilities</td>
</tr>
<tr>
<td></td>
<td>- To detect undeclared withdrawal of safeguarded nuclear material in selected facilities.</td>
</tr>
</tbody>
</table>

*Table 10: Generic objectives of Safeguards Agreements*
*Source: Renis (2014)*

### 3.2.4 IAEA Safeguards Technical Objectives

As the acceptance of the safeguards is a legal obligation, the result of the IAEA’s verification mission is to demonstrate states compliance with their legally binding commitments. In implementing its safeguards, Agency aims to meet safeguards technical objectives. Technical objectives of the Agency’s safeguards in the state differ from the type of the Safeguards Agreements in the place as well.

For that purposes technical objective of safeguards in INFCIRC/153 agreement type of State is “the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection”.

For States, which ratified the Additional Protocol with the IAEA, safeguards technical objective is not only the timely detection of diversion of significant quantities of nuclear material, but also the detection of undeclared nuclear material and activities in a State. For States with INFCIRC/66 type of Agreements, the safeguards technical objective is to ensure that nuclear material, non-nuclear material, equipment, facilities and information specified and placed under the safeguards are not used for manufacture of nuclear weapons or any other nuclear

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471 Renis (2014).
472 INFCIRC/153, Para. 28.
explosive devices or to further any military purpose.\textsuperscript{473}

<table>
<thead>
<tr>
<th><strong>PURPOSE</strong></th>
<th>To give assurance</th>
<th>if no diversion or misuse occurred</th>
</tr>
</thead>
<tbody>
<tr>
<td>To deter diversion or misuse</td>
<td>if contemplated</td>
<td></td>
</tr>
<tr>
<td>To detect diversion or misuse</td>
<td>if undertaken</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>IAEA Obligation</strong></th>
<th>To alarm</th>
<th>if diversion or misuse is suspected</th>
</tr>
</thead>
<tbody>
<tr>
<td>To report</td>
<td>if verification is inadequate or impossible</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Technical Objective</strong></th>
<th>INFCIRC/153</th>
<th>Timely detection of diversion of significant quantities of nuclear material or misuse of other item</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFCIRC/540</td>
<td>Detection of undeclared nuclear material and activities in a State</td>
<td></td>
</tr>
<tr>
<td>INFCIRC/66</td>
<td>Detection of any misuse of the non-nuclear material, services, equipment, facilities or information specified and placed under safeguards.</td>
<td></td>
</tr>
</tbody>
</table>

\textbf{Table 11: Safeguards technical objectives}

\subsection*{3.2.5 Safeguards Measures}

Safeguards measures are activities and technical measures that allow the IAEA to verify States’ nuclear material and nuclear activities towards meeting the safeguards objective. Depending on the Safeguards Agreements IAEA applies “traditional measures” and “strengthened measures”. Traditional safeguards measures are measures provided in INFCIRC/153, whereas strengthened measures are those from INFCIRC/540.

States Nuclear Material Accountancy reports have significant importance for Agency safeguards. Paragraph 29 of the INFCIRC/153 mentioned nuclear material accountancy (NMA) as the safeguards measure of significant importance, with containment and surveillance as important complementary measures. With these measures the Agency verifies the inventory and the flow of the nuclear material within

the state as declared by the State. The main safeguards measures that the Agency applies during its verification activities are showed in the below chart.

![Diagram of Safeguards Measures]

**Figure 38: Safeguards measures**  
*Source: IAEA, iaea.org*

Of course, other specific safeguards measures can also be used such as verification of the operational status of a research reactor, NDA measurements, etc. and the above-illustrated list of measures is not conclusive. Some of the described measures such as environmental sampling and design information verification can be implemented under the legal authority of the INFCIRC/153 and belong to traditional measures, whereas complementary access can be applied under INFCIRC/540 as strengthened one. Detailed comparison of the measures under these two instruments is provided later in the dissertation.

As it can be seen from described safeguards measures some activities are conducted in field, while some in Headquarters of the IAEA: for example satellite imagery analysis, open source information collection and analysis, analysis of nuclear material accountancy are safeguards activities taken place in the Headquarter. In field verification activities include inspections, environmental sampling, complementary access and other activities. In order to design and implement in-field verification activities, features of facilities and locations containing nuclear material are essential.

474 INFCIRC/153, Para 29.
elements. Inspections, which are one of the main in-field verification activities and constitute the core of the verification, in their turn fall under some categories. Periodicity of inspections in the state is established by the IAEA timeliness detection goal.

![Diagram of inspection types]

**Figure 39: Inspection types**  
*Source: IAEA, iaea.org*

Based on INFCIRC/153 the IAEA can conduct routine inspections, ad hoc inspections and special inspections. Inspections have to endorse, inter alia, "that reports are consistent with records" and "the location, identity, quantity and composition of all nuclear material subject to safeguards under the Agreement."  

Routine inspections can be conducted when the IAEA and a State have agreed on "Subsidiary Arrangements", which represent a thorough agreement identifying each facility, where inspections to be carried out. Access during such kind of inspections is restricted to “strategic points” only, mentioned in the Subsidiary Arrangements. Ad hoc inspections designed to confirm the information provided in the initial report and in order to verify inventory changes after submitting initial report. Ad hoc inspections are carried out prior to the beginning of routine inspections. Special inspections need to be carried out "[i]f the Agency considers that information made available by the State, including explanations from the State and information obtained from routine inspections, is not adequate for the Agency to fulfill its responsibilities under the

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3.2.6 IAEA Verification Mechanism

First of all, verification aims assuring regime members that all states are abiding with the regime norms, and that nuclear material was not diverted, i.e. states honour non-proliferation norm, which is the base of the global non-proliferation regime. All safeguards and verification activities directed to support the global norm. If we look to the NPT norms, then hierarchy of norms can be drawn, where non-proliferation norm has leading place. All other norms exist to support the global norm. Though IAEA safeguards regime lay upon safeguards norm and verification norm, non-proliferation norm is indispensable part of the regime.

How does Agency verify norm implementation by regime members? Agency’s verification process consists of several steps and it is the result of analysis of all available information and analysis of the results of Headquarter and in field verification activities. Agency’s verification process rests on the collection and evaluation of the relevant information, based on the evaluation of all information safeguards approaches are developed for each state taking into account state factors. Based on safeguards approaches, safeguards activities both in Headquarters and in the state are planned, conducted and evaluated, after which the results of the safeguards activities are evaluated and safeguards conclusions are drawn. Once safeguards conclusions are drawn they are reflected in the annual Safeguards Implementation Report (SIR) and presented to the consideration of the member states in the Board of Governors and approved in General Conference.

The SIR includes the main conclusions reached during the year on safeguards implementation in states, draws attention to shortcomings and recommends actions to overcome them.

\[Sloss (1995), \text{p. 856.}\]
The below chart, presents Agency’s State evaluation process in verification of states obligations under Safeguards Agreements with the purpose of drawing safeguards conclusion on their compliance and reporting on compliance or non-compliance to the Board of Governors of IAEA as a decision making body.
As seen from the picture, the first step in the IAEA’s verification cycle is the information collection and evaluation of all safeguards relevant information. Main source of the information for the Agency’s verification is the state declared information, which can be Design Information Questionnaire (DIQ), AP declarations containing data on mines, country’s ten years research and development plans, information on source material, nuclear material inventories, etc. Second source of the information is the results and information obtained during in field verification activities, such as inspections, including Design Information Verification, Physical Inventory Verification, as well as environmental sampling, complementary access, etc. And third source of the information is the open source information and third country information.

**Figure 42: IAEA Information collection sources**


In realizing of its verification activities, the Agency receives, processes and analyses state declared Nuclear material accountancy (NMA) reports, Additional Protocol declarations (if country has AP in place), Design information, Nuclear Fuel Cycle-related research and development plans for ten years not involving nuclear material and other information prescribed in CSA, AP or SQP. In order to verify correctness of completeness of states declarations and reports open
source information collection and analysis is conducted and correlated with the state declared data.

Open-source information is considered any information that is not classified or patented information. Examples of useful information sources include for example:

- Specialized trade publications
- Scientific and technical literature
- Satellite imagery
- IAEA Technical Cooperation projects
- Academic reports and studies by relevant NGOs
- Company websites
- General media
- Trade and patent data
- Image data, e.g. photos of sites and equipment, facility maps, process diagrams.

As mentioned results of in field verification activities (results of inspections, Design Information Verifications, Physical Inventory Verification, Environmental samples and Complementary accesses) are being analyzed together with all available information, which contains besides of mentioned sources, various voluntary reporting from third states for the review period, trading partners, transit matching and satellite imagery. Based on all these information State Evaluation Groups evaluate state against it safeguards obligation.

State Evaluation aimed to examine all safeguards relevant information for a State as a whole, based on safeguards technical objectives.

<table>
<thead>
<tr>
<th>Search for and assess any indication of</th>
<th>Diversion of declared nuclear material</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Misuse of declared facilities</td>
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<tr>
<td></td>
<td>Undeclared nuclear material or activities</td>
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</table>

<table>
<thead>
<tr>
<th>Analyze and evaluate all available relevant information</th>
<th>Is all information correct and complete?</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Is all information consistent?</td>
</tr>
</tbody>
</table>

**Table 12: Technical objectives of state evaluation**

*Source: IAEA*

Based on the results of State evaluations specially formed State Evaluation Groups
developing facility/State specific safeguards approaches, negotiating with states and relevant authorities in order to facilitate safeguards implementation in a state, preparing Annual implementation Plans or Action Plans for States.

One of the important steps in verification process implemented in the IAEA is the acquisition path analysis, which contains the potential steps that the state can carry out in order to acquire nuclear material possible to use for nuclear weapons. The acquisition path analysis is a component of the State evaluation process, through which all safeguards-relevant information about a State’s past, present and planned nuclear programme and activities is collected, analyzed and consolidated. The objective of acquisition path analysis is to identify and assess all technically plausible paths by which a State could acquire nuclear material for the development of a nuclear weapon or other nuclear explosive device. It is targeted on the potential actions of a State that, from a technical point of view, could assume, if it decides to acquire nuclear material usable for the development of a nuclear explosive device. Acquisition path could involve the diversion of declared nuclear material, production or processing of nuclear material at declared nuclear facilities which haven’t been reported, undeclared nuclear material and activities, or any combination of all these.\textsuperscript{477} However, Agency in conducting acquisition path analysis has no intention to judge the intent of a State to proliferate and it should not assess any drivers that might or might not affect a State’s decision to acquire weapons-usable nuclear material.\textsuperscript{478}

Based on the evaluation of the information Agency establish and prioritize technical objectives for each state, which can differ depending on certain components, i.e. safeguards agreements, existent of the State System of Accounting and Control of Nuclear Material (SSAC), cooperation with the Agency, etc. Once all these processes are done, Agency conducts evaluation of effectiveness of safeguards implementation, prepares State Evaluation Report for each State and draws safeguards conclusions on states compliance with their international obligations. Then all safeguards conclusions are reflected in annual Safeguards Implementation Report and submitted to the Board of Governors and IAEA member states for judgment on state compliance with their

\textsuperscript{477} Rauf et al (2016), p.16.
\textsuperscript{478} Acquisition Path Analysis, IAEA.
safeguards obligations. The state evaluation cycle takes place for each evaluation period, annually.

3.2.7 Legal base of IAEA safeguards

As seen from previous subchapters both safeguards norm and verification norm were first emerged in the text of the IAEA Statute, which is an international Treaty signed by the IAEA Member States. Letter the norm was evolved in other documents. Before elucidating main regime analytical components pertaining to the IAEA Additional Protocol, the legal framework upon which is based the IAEA safeguards is explicated below, taking into account the theoretical assumptions, definitions, objectives and clarifications provided on verification and safeguards, and particularly the definition provided in the IAEA Safeguards glossary that “IAEA Safeguards is a verification system within the framework of non-proliferation policy[.]”.

<table>
<thead>
<tr>
<th>Legal base of the IAEA Safeguards regime</th>
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<tr>
<td>IAEA Statute</td>
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<tr>
<td>NPT</td>
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<tr>
<td>NWFZs</td>
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<tr>
<td>➢ The Tlatelolco Treaty</td>
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<tr>
<td>➢ The Treaty of Rarotonga</td>
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<td>➢ The Bangkok Treaty</td>
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<tr>
<td>➢ The Pelindaba Treaty</td>
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<tr>
<td>➢ The Semipalatinsk Treaty</td>
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<tr>
<td>INFCIRC/26</td>
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<tr>
<td>INFCIRC/66</td>
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<tr>
<td>Voluntary Offer Agreements</td>
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<tr>
<td>INFCIRC/153</td>
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<tr>
<td>INFCIRC/540</td>
</tr>
<tr>
<td>Small Quantities Protocol</td>
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<tr>
<td>EURATOM Treaty</td>
</tr>
</tbody>
</table>

Table 13: Legal framework of the IAEA verification regime
Source: Author

Not only these norms are reflected in the abovementioned legal documents but also rules and decision-making processes for implementation of safeguards and verification measures and activities.

3.3 Findings

Chapter II analyzed the main verification organization, its decision-making bodies and the structure. The main Treaty, which became the basis for establishment of the non-proliferation regime, was illustrated. In a second step Agreements founding Nuclear Weapon Free Zones containing safeguards provisions were expounded. As one of the main researched objects are safeguards documents, all Safeguards Agreements have been briefly described and analysis of provisions contained in those Agreements have been carried out. After examination of main safeguards related terms and definitions, IAEA safeguards evaluation process has been illustrated, with its safeguards measures and safeguards objectives. Key findings drawn as a result of the research are given below:

IAEA Statute was the first legal document recognizing verification and safeguards norms.

Summarizing the legal documents underlying the implementation of the safeguards by the IAEA, the basis of the IAEA safeguards system comprises of the IAEA Statute, Article III.A.5 of which authorizes the IAEA to establish and apply safeguards at the request of any State or multilateral or bilateral agreement. It contains also measures how the safeguards should be implemented in the states as well as measures for non-compliance cases. It also contains provisions on conduct of inspections in the Member States to determine states compliance with peaceful undertakings.

The NPT is the first International Treaty admitting the norm of non-proliferation of nuclear weapons
The NPT is the first International Treaty containing provision on need for safeguarding nuclear material. With the Treaty world accepted the norm of non-proliferation of nuclear weapons. The NPT categorizes states into nuclear weapon states and non-nuclear weapon states, for the purpose of the Treaty nuclear weapon states are considered only those “which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967”. Though certain states even if they would develop nuclear weapons according to the definition brought in the Treaty would not be recognized as a nuclear weapon state, but rather state with nuclear capabilities only. Treaty forbids transfer of nuclear weapons by NWSs to any other party. And NNWSs undertake not to manufacture, receive or acquire nuclear weapons. However, Treaty doesn’t forbid military use of nuclear material. NNWS Parties have to sign Safeguards Agreements with the IAEA in line with the IAEA safeguards system and the Statute for verification purposes, however NWSs had no such obligation.

**Agency Safeguards are one of the provisions of all Agreements founding Nuclear Weapon Free Zones**

Safeguards system was evolved with Tlatelolco Treaty approved in 1968, before the NPT entered into force in 1970 and contains provisions on safeguards in Article 12 to 18. Treaty foresees conclusion of a safeguards agreement with the IAEA for control of nuclear activities via implementation of Agency safeguards. Thus not the NPT safeguards norm was the foundation of establishment of the safeguards regime but the IAEA Statute expanding further to Tlatelolco Treaty, prohibition of the nuclear weapons in the Latin America and the Caribbean, and then the norm was further evolved in the NPT and Nuclear Weapons Free Zones in the South Pacific, Southeast Asia, Africa and Central Asia. Safeguards system further progressed involving regional arrangement ABACC and EURATOM. All Nuclear Weapon Free Zone Treaties contain provisions on safeguards and requirement of the conclusion of the agreements with the IAEA. Thus with all NWFZ Treaties IAEA was mandated to safeguard and verify the use of nuclear material and the nature of nuclear activities. In case Parties to these Agreements are the NPT Parties and have Safeguards Agreement with the

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480 NPT.
IAEA, necessity of another safeguards agreement is diminished. The founding norm of the safeguards regime was the norm on safeguarding nuclear material from not peaceful uses. All NWFZ Treaties contain Protocol open for the NPT NWSs, however not all Protocols are signed and ratified by NWSs.

Southeast Asian Nuclear-Weapon-Free-Zone Treaty has two additional provisions that other Treaties don’t contain. Continental shelves and EEZ of Parties are included in the zone and NWSs should provide negative security assurances not to use nuclear weapons against any contracting Party. Semipalatinsk Treaty became the first Treaty that encompasses provision of adherence to IAEA Additional Protocol.

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*Table 14: Provisions of SA and AP in NWFZs*

*Source: Author*

Regional arrangements ABACC and EURATOM cooperate with the IAEA in implementation of full-scope safeguards.

**First Safeguards document has been agreed before the NPT**

Even before the NPT came into force safeguards model agreements INFCIRC/26 and INFCIRC/66 were negotiated and adopted by the Boards of Governors in 1961 and 1966. The first ad hoc safeguards have been implemented after two years of the IAEA establishment, in 1959 to the natural uranium fuel for small research reactor. The first safeguards instrument, which can be described as the first rules regulating the regime, was contained in the IAEA INFCIRC/26 document approved by the IAEA Board of Governors in 1961 and it should be noted that it was adopted prior to the NPT. Regime rules meaning the coverage and various instruments were developed throughout the years in close parallel with the nuclear development growth. INFCIRC/26 applied only to reactors of less than 100 MgW, though in further amendment from 1964 safeguard were extended to reactors with more than 100 MgW. Under these Agreements safeguards were applied to materials and facilities that were
placed under Agency safeguards voluntarily. These rules applied until 1964. Completely revised safeguards document INFCIRC/66 was approved in 1965. This instrument called an Item specific Safeguards Agreement (currently India, Pakistan and Israel hold such type of Agreement). With adoption of this document safeguards were implemented to verify state’s obligations not use facilities and materials for military purposes. INFCIRC/66 limits inspections and safeguards are aimed at particular facilities and material, scope of the agreement is determined by the State. For States with this Agreement in place Agency can’t give assurances about the absence of nuclear explosives produced in a State.

**Comprehensive Safeguards Agreement was negotiated after the entry of the NPT as a Treaty’s verification mechanism**

After the entry into force of the NPT specially established Safeguards Committee created by the IAEA BG elaborated the content of a new Safeguards Agreement INFCIRC/153 approved by the Board in 1971 in order to verify state’s obligations and prevent diversion of nuclear material from peaceful uses. Safeguards apply to all nuclear material. Revised 1972 version of the document INFCIRC/153 (Corrected) called “full scope” or “Comprehensive Safeguards Agreement” (CSA) serves the basis on which Agency currently signs Safeguards Agreements with Non-Nuclear Weapon States. Implementation of this type of Agreement gives the Agency opportunity to verify correctness of the State provided information on nuclear material and activities.

**Voluntary Offer Agreements are signed by NWSs though there is no such a requirement**

NPT NWSs are not obliged to put their nuclear material and facilities under Agency’s safeguards. However all five NWSs voluntarily signed agreement with the Agency and put some nuclear material and facilities not of national security importance under safeguards. Under VOA withdrawal of nuclear material is verified. NWSs also provide advance notifications of nuclear material transfer to NNWSs.

**Small Quantities Protocol aimed to reduce the burden of safeguards activities on States with little or no nuclear activities**

Most of procedures in PART II of CSA are deferred, however states should still report on export and import of nuclear material and material containing uranium or thorium.
The modified SQP is not accessible to state with an existing or planned facility. And it requires also provision on initial report on all nuclear material.

*The IAEA Model Additional Protocol is the highest verification standard in safeguards system.*

The latest signed safeguards document is the IAEA Additional Protocol, INFCIRC/540, which contains the strengthened safeguards measures. States with CSA in place can sign AP.

**The purpose of the IAEA safeguards is to verify the compliance with states’ obligations under the respective Safeguards Agreements**

Agency is given the mandate to implement safeguards in relation to the NPT. Safeguards are measures and verification activities, which allow the IAEA to verify that nuclear material in the state is used for peaceful purposes and is not diverted for military uses. IAEA safeguards are considered as a verification system according to IAEA safeguards Glossary. It is the main verification mechanism under the NPT verification regime.

“*By definition, the safeguards system comprises an extensive set of technical measures by which the IAEA Secretariat independently verifies the correctness and the completeness of the declarations made by States about their nuclear material and activities including those from the Additional Protocol[.]*” 481

Safeguards generic objective vary from the type of the Safeguards Agreement and aimed at detecting any undeclared nuclear material or activities in a State as a whole, or detecting any diversion of declared nuclear material in declared facilities, etc. Technical objective of safeguards in INFCIRC/153 agreement type of state is “*the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities ..., and deterrence of such diversion by the risk of early detection*”. 482 For the states, with IAEA Additional Protocol safeguards technical objective includes also the detection of undeclared nuclear material and activities in a State. In achieving its generic and technical objectives, IAEA applies various

482 INFCIRC/153, Para 28.
safeguards measures.

**Agency analysis all available information to draw safeguards conclusions**

IAEA’s verification process contains several steps but in general it is based on analysis of all available information, which is obtained during in-field verification activities, such as inspections, complementary accesses, environmental sampling; information based on open sources and third party information and information declared and reported by the state concerned. Based on the evaluation of all available information safeguards conclusions are drawn on states compliance with its international obligation, and safeguards approaches for the next cycle of state evaluation are being developed for each state. Safeguards conclusions are presented to the consideration of the IAEA decision-making bodies contained in annual Safeguards Implementation Report. Non-compliance cases are reported to the Board of Governors and in case of necessity they are further referred to UNSC.
4 MAIN RESEARCHED OBJECT / THE IAEA MODEL ADDITIONAL PROTOCOL

The previous chapter analyzed all safeguards agreements and other documents comprising the legal basis for the Agency’s safeguards implementation. Commonalities and differences were highlighted. Having reached clarity on the global verification and safeguards framework, this chapter describes the latest verification and safeguards standard of the IAEA and the NPT verification regime.

My objective in this chapter is to describe the main researched object, i.e. the IAEA Model Additional Protocol, the events that led to negotiations of the new safeguards instrument, the formats where it was negotiated, the issues that were outstanding and difficult to reach consensus within the regime members. However, it should be mentioned that the whole negotiation process is not to be thorough, thus does not address all issues in details. Limitations and possibilities of the Comprehensive Safeguards Agreement are exposed to explain the need for more strengthened safeguards measures.

After describing the events lead to strengthening safeguards system and negotiations resulting in signature of the IAEA Model Additional Protocol, comparative analysis with regard to the Comprehensive Safeguards Agreement (INFCIRC/153) and the Model Additional Protocol (INFCIRC/540) is carried out. Regime analytical components pertaining to these two instruments are operationalized. In doing so, this chapter intends to address the main research question: “Is the IAEA Additional Protocol a new verification regime”?

4.1 Reforms of the IAEA Safeguards System

4.1.1 Limitations and Possibilities of the Comprehensive Safeguards Agreements

Deficiencies of the safeguards system were revealed by Iraqi case, though the Agency was implementing its verification mandate. Inspections have been taking place regularly and declared nuclear material was verified on regular basis. The question was that the Agency safeguards were applied only to the declared nuclear material and inspectors were thoroughly looking and verifying in the declared sites and locations, and none of the verification activities were indicating any signs of clandestine nuclear program. Iraqi clandestine nuclear program doesn’t mean that Agency failed, but that
the existing safeguards system was not sufficient to detect undeclared activities. Many argue that INFCIRC/153 legally gives the possibility to visit the undeclared sites (to verify all nuclear material) but based on the formed behavior of the member states and adopted norm, Agency conducted inspections only in those sites, which states declared to the IAEA.

CSA gave the possibility to verify the timely diversion of the declared nuclear material hence Agency has verified in Iraq the correctness of State declared information, so called Nuclear Material Accountancy reports. The Agency’s inspectors have not been tasked to detect undeclared nuclear activities, thus the completeness of declarations haven’t been verified. There was a debate though not publically that INFCIRC/153 states having intention to acquire nuclear weapon could establish clandestine nuclear weapon program, however, these opinions and views have been publically discussed neither by Member States nor by the Agency. Even for those who took part in the NPT negotiations it was obvious that any NPT state would be able to start clandestine nuclear weapon program, but it would be impossible as USA and Russia would prevent such programs in the countries of their influence. At the time of the NPT negotiations “developing countries” seemed to be far from having such industries to operate such programs.

Having this in mind states included in their Comprehensive Safeguards Agreements a provision on “special inspections”, which would be conducted in case of inconsistencies, however from the agreement it was not evident if special inspections would be applied in case of undeclared activities uncovered by the third party or in case of the inconsistencies with the declared nuclear facilities. Member States were delicate to doubt the reliability of another state and the issue was not brought into the attention of the Board of Governors except of two cases (Iraq and DPRK). In case of Iraq special inspection was conducted for the first time. Demand for special inspection in DPRK is still actual, however, realization is not realistic for time being. Implementation of such an inspection is difficult taking into account the political sensitiveness of the measure and at the same time ineffectiveness, that’s why the IAEA and some States voiced to find other appropriate measures or ways to uncover undeclared activities. Reform of the safeguards system started in 1993 and targeted to

finish by 1995 before the NPT Review Conference, therefore the reform program was called “93+2” though the negotiations were not completed and an agreement was not reached by that time.\textsuperscript{484}

4.1.2 Pre-Additional Protocol, Program 93+2 (Post-Iraq)

As already mentioned, the safeguards reforms were introduced starting from 1990s. From 1991-1996 negotiations were continuing on reforms of the safeguards system, which later shaped the outcomes in essential ways. During the five years many proposals were proposed and discussed, some of them were accepted some of them declined.

Before the Model Additional Protocol the Agency was limited in its verification to the declared nuclear material and hadn’t look to the suspicious nuclear programs. In order to strengthen the existing safeguards system and be able to draw reliable safeguards conclusion on states nuclear programs, Agency initiated the process of strengthening the safeguards’ system. Agency presented various drafts for consideration in the Board of Governors. Documents contained all identified measures in order to strengthen safeguards and give more legal authority to the IAEA Secretariat in order to implement enhanced verification measures.

Program “93+2” usually relates to the Iraqi program to develop nuclear weapon capability. Iraq was able to hide its clandestine nuclear program even being under the Agency’s full scope safeguards, party to the NPT and thus signatory of INFCIRC/153-type agreement. IAEA had regularly carried out its verification activities including inspection to declared Iraqi sites without finding any anomaly. After UN Security Council Resolution 687, the United Nations Special Commission (UNSCOM) and IAEA were mandated to conduct inspections in Iraq. When it became clear that suspicion that Iraq has conducted certain activities to acquire nuclear weapon was being confirmed IAEA Board of Governors changed it adopted language on states obligations pertaining safeguarding nuclear material to untraditional one using already “compliance with safeguards and non-proliferation commitments” and “verifying the

\textsuperscript{484} Haeckel/Stein (2000), p. 16.
absence of undeclared nuclear facilities and material”. 485

In 1991 July the doubts became a reality. Based on the results of IAEA inspections Board had in his agenda the report of Director General on Iraqi acceptance that, Iraq was involved in clandestine nuclear weapon program acquiring nuclear explosives and not declaring Agency nuclear material, which had to be put under safeguards. Taking into account that findings, Board condemned Iraq on non-compliance with its Safeguards obligations and reported the non-compliance case to Security Council. That was harm first of all to IAEA as well as to the nuclear non-proliferation regime and safeguards community as it was clear signal that full-scope safeguards, which were applied in Iraq at the very same time were not efficient.

Debate on strengthening the effectiveness and efficiency of safeguards system gained its momentum and brought tangible measures and goals. Despite the fact that the process of reforms was rather slow. IAEA and member states realized that if they would use all the possibilities provided by the existing safeguards, which had in its arsenals measures such as special inspections, perhaps they would avoid that scenario.

Negotiations were long lasting. Intention was to propose measures that would increase assurance among regime members that any undeclared nuclear activity or diversion of the declared nuclear material would not remain undetected. For that purposes all available information need to be used.

INFCIRC/66 states and Nuclear Weapons States supported by certain INFCIRC/153 states were seeking to extend new strengthened safeguards only to INFCIRC/153 states. However, at the same time several INFCIRC/153 states were in favor to extend the exercise of all type of safeguards agreements and have been insisting on that. Because of these conflicting interests several rounds of negotiations have been held in Board of Governors. At that time two main issues raised by member states were discussed: whether Director General may use not only safeguards information but also all other information, which was obtained and collected during the regular safeguards activities such as State provided information and results of inspection activities when justifies the need for “special inspection” as well as: the necessity to make progress in the deadline for providing nuclear facility design information to be close to the decision to construct a nuclear facility or making design changes in it. Agency drafts

on these two issues were envisaged for states with comprehensive safeguards agreements with the possible extension the issue for NWSs and Item Specific Agreement States.\textsuperscript{486}

In 1992 Board mandated the Director General to use in his reports and during the drawing safeguards conclusions the open source and third party information. This was the first time that Agency recognized importance of the open source information for drawing safeguards conclusion and confirming that State honoures its obligations. And second, the Board requested Member States an early notification of design information for nuclear facilities. These two decisions provided new impetus to the process of reforming safeguards system.

One of the issues that emphasized the weakness of safeguards system that was raised for consideration in the Board was international transfers of nuclear and other material, technology and equipment. How did Iraq obtain technologies and goods for its nuclear weapon program, without infringements or did it obtain fraudulently? New clause was suggested in 1992 as a strengthened safeguards measure to report and verify of the export, import, and production of nuclear material and report and verification of the export, import and production of sensitive equipment and non-nuclear material. This action initially was suggested to be a voluntary one however, the issue of additional legal authority of the Agency to apply this measures was raised, as these measures were beyond the Comprehensive Safeguards Agreements. After consultations, it was proposed to form a new list of equipment and technologies to be subject for reporting and notification. Opposition met Agency’s modality to extend the proposal for domestic inventories and production. Strong debate was heaped on the suggestion to limit the proposal to CSA countries. Universality of any new modality for strengthening safeguards system was debated strongly “because evidence gathered in Iraq had clearly shown that, among countries of origin of items used for the Iraqi nuclear-weapon programme, full-scope NNWSs, NWSs and INFCIRC/66 NNWSs were equally “well” represented”.\textsuperscript{487}

In February 1993 a new document, Gov/2629, on “Universal reporting system on nuclear material and specified equipment and non-nuclear material”, which was not

\textsuperscript{486} Haeckel/ Stein (2000), p. 28.
\textsuperscript{487} Loosch et al in Haekel/Stein (2000), p. 29.
separating NNWS and other states, introduced an idea of new multilateral instrument, which might be signed by all States on voluntary bases. Based on proposals of Standing Advisory Group on Safeguards Implementation (SAGSI) Director General presented a new report to the Board in November 1993, which was a full package of measures in order to strengthen the verification regime. Though the report itself didn’t mention “93+2”, after Boards’ endorsement that name for the program was used often. With the approval of the “93+2 Program” significant objective was reached in pursuing the reform with holistic approach and not addressing all weaknesses separately. And to do so timeframe was provided “93+2”.488

In March 1995 the definition phase of the content of “93+2” was completed. The NPT Review Conference underlined IAEA’s standing as a unique body with competence to apply safeguards under Article III of the NPT and called Agency to increase its capabilities to detect undeclared nuclear activities.489

With the “Program of 93+2”, for the first time, IAEA Board of Governors went beyond their previous concept. It became obvious that INFCIRC/153 was not sufficient base to implement all measures of the “93+2” program, but only some, which was approved by Board in June 1995 as Part I measures (GOV/2807), which included mainly environmental sampling in declared facilities. In order to extend that measures to undeclared facilities new agreement was needed.490 The idea of new instrument was not welcomed by States, which were in favour to have such measures to be acceptable within existing INFCIRC/153.

Approved Part I measures, as underlined in Secretariat’s GOV/2807 document could be implemented under that time existing IAEA’s legal authority and would greatly contribute to strengthening IAEA’s ability to detect undeclared nuclear activities and more efficient safeguards on declared nuclear material, while some measures (Part II) would need certain infrastructure, which wasn’t in place that time.491

Following measures were included in Part I:492

A. Broader access to information:

Expanded declaration was suggested to receive more information from the State that

488 GC(39)/17(1995).
would make its nuclear program more transparent, which would raise confidence on peaceful purposes of the program. For that purposes expanded declaration should contain following information: \(^{493}\)

- Information on a State or Regional System of Accounting and Control (SSAC): description of the technical and personnel resources, operational capability, legal mandate, information on nuclear material and nuclear related activities, administrative structure of SSAC, scope and timetable of SSAC inspection;
- Information on present nuclear activities (to enable IAEA to verify correctness and completeness of the State declarations): nature, purpose, location and design of nuclear facilities and LOFs closed down or decommissioned prior to entry into force of the safeguards agreement; previous accounting and records, a description of the nuclear fuel cycle and other activities involving nuclear material, description of nuclear related research and development (R&D) activities involving nuclear material at nuclear facilities and LOFs;
- Information on planned nuclear activities: design information of the planned nuclear facilities and LOFs and planned modifications of existing facilities.\(^ {494}\)

**B. Environmental Sampling:**\(^ {495}\)

For ad hoc inspections environmental samples have to be taken:

- At locations where the initial report or inspections results points out about presence of nuclear material;
- For routine inspections at strategic points;
- For special inspections at the locations where it takes place;
- For design information verification at any location where the IAEA has access to conduct design information verification.

**C. Improved analysis of information:**

Under INFCIRC/153 effective evaluation and use of information is required.

**D. Broader Access:**\(^ {496}\)

- Access to the strategic points of locations in nuclear facilities and LOFs during design information verification at nuclear facilities and during ad hoc

\(^{493}\) GOV/2807 (1995), Article 9, p. 8.
\(^{494}\) GOV/2807 (1995), Article 9, p. 8.
\(^{495}\) GOV/2807 (1995), pp. 11-12.
\(^{496}\) GOV/2807 (1995), pp. 11-12.
inspections;

- Access to other locations of Agency’s interest under voluntary arrangement with the State;

E. No-notice Inspections:

- Unannounced routine inspections at strategic points.

F. SG Technology Advances: \(^{497}\)

- Use of unattended equipment
- Remote transmission of inspection data
- Remote Monitoring of Safeguards Equipment

G. Increased Cooperation with States and SSACs: \(^{498}\)

- SSAC assistance to enable Agency’s conduct of inspections;
- The Agency and SSAC may conduct joint inspections;
- The Agency and SSAC may conduct joint selected support activities;
- Multiple-entry visas, long-term visas or visaless entry for inspectors;
- Use of available means of direct communication between inspectors and installations in the field and HQ.

H. SG Implementation Parameters:

- Significant quantities of nuclear material;
- Conversion and detection times;
- Starting point of Safeguards. \(^{499}\)

In order to implement measures described in Part I as being within existing legal authority of the CSA, Secretariat prepared respective actions to be implemented already for the rest of 1995. The measures, which required additional legal authority for their implementation included in “93+2” program Part II to be finalized after discussion in the Board provided below: \(^{500}\)

A. Broader access to information: \(^{501}\)

Expanded declaration should contain three categories of information:

- Information on the State System of Accounting and Control (SSAC);

\(^{497}\) GOV/2807 (1995), pp. 11-12.
\(^{498}\) GOV/2807 (1995), pp. 11-12.
\(^{499}\) GOV/2807, pp. 11-14.
\(^{500}\) GOV/2807, Part II.
\(^{501}\) GOV/2807, Part II, p. 19.
Information on present nuclear activities: description of Nuclear fuel cycle related research and development (R&D) activities carried out at nuclear training institutes without involvement of nuclear material, R&D centers, at nuclear facilities and LOFs and elsewhere; operational activities at nuclear facilities and LOFs, the nature of each building and activities on sites (including maps, site layout DIQ, etc.); the identity, nature, location of any activities not involving NM but related to the nuclear facilities, LOFs or nuclear R&D activities, location and status of known uranium and thorium ore deposits and mines, domestically produced items of nuclear equipment and materials for NFC and their location, etc.

Information on planned nuclear activities: plans for future NFC, description of planned nuclear R&D activities, and their planned locations.

B. Environmental Sampling:\textsuperscript{502}

In all sites were broader access is provided.

C. Increased physical access-Broader Access:

Broad access would be used to confirm information and to resolve inconsistencies.

- Access during routine inspections beyond strategic points to any location on the sites of nuclear facilities and LOFs;
- Access to other locations identified in Expanded Declaration;
- Access to other locations, which may be of interest to the Agency, will be sought under voluntary arrangements with the State.

D. No-notice Inspections:

- No notice inspections at nuclear facilities and would be used under complementary legal authority at other locations identified in the Expanded Declaration.

E. Increased Cooperation with States and SSACs:

- Simplified inspector designation procedures;
- Use of available means of direct communication (including satellite systems)

The measures contained in Part II would increase Agency’s capability to detect undeclared nuclear activities, thus enhancing the credibility of the information on

\textsuperscript{502} GOV/2807 (1995), Part II, pp. 21-22.
absence of undeclared nuclear activities.\textsuperscript{503}

In May 1996 a document consisted of two parts: a report on steps which had already been done, and a proposal on “Measures for a Strengthened and Cost-Effective Safeguards System under Complementary Legal Authority” including a draft model Protocol (Gov/2863) was presented to the Board by Director General. The first part of the document again contained measures that could be applied within the existing legal mandate of Comprehensive Safeguards Agreements as described above as Part I measures. An intense change in the Agency’s evaluation of the state based information to all information available on a state as a whole was one of the significant measures. “\textit{Instead of assessing the results of its verification activities separately for each individual facility in a state, the IAEA would visualize the state’s nuclear program in a coherent and connected way by looking at the state as a whole}”.\textsuperscript{504}

Another Part of the document contained measures that Director General proposed to be implemented on the basis of a new legal instrument to strengthen the existing verification mechanism. Those measures later found their place in the text of the Model Additional Protocol.\textsuperscript{505}

Main points contained in the draft were Agency’s access to broader information on the State’s System of Accountancy and Control (SSAC), nuclear activities, or planned activities with or without nuclear material, provision of declaration by States on Research and Development, international trade in specified equipment and non-nuclear material usable in nuclear fuel cycle, possibility for Agency for environmental sampling both in nuclear sites and other locations, granting of complementary access to IAEA inspectors, facilitation of visa issues of Agency’s inspectors.\textsuperscript{506}

Though Board was not happy with the draft Model Protocol, there was a clear articulated document on real needs and possible measures. The draft has been considered by Member States as a solid basis, involving all concerned aspects, for further solution of the long-lastend negotiations and consultations. During the Board of Governors meeting in June 1996 Chairman of Board in his statement expressed the hope that the Board will take action on the draft, which would become a legally

\textsuperscript{503} GOV/2807 (1995), Part II.
\textsuperscript{504} Rockwood (2014).
\textsuperscript{505} Rockwood (2014).
binding instrument. His statement was not truly supported by the states having the lead in the Board and they advocated themselves only for approval of the draft as a basis for negotiations.  

At the very same meeting Director General in his statement suggested establishing a committee to master the draft Protocol in order to take into account all expectations of Member States. Board agreed to establish a new committee to negotiate all outstanding issues only with a broad mandate. Committee was given the widest possible membership and the broadest possible mandate. It was expected the committee to commence its work on July 2, 1996.

4.1.3 Committee 24 – Negotiations of the Model Additional Protocol

As decided the new committee called Committee 24 was established and was tasked to base its work on the draft Model Protocol (Gov/2863). Agreement was reached immediately to work on a consensus basis. Committee worked during nine months until April 1997. Numerous consultations, rolling texts, coordination meetings of regional groups and debates on single minor clauses and serious political sensitive issues have been taken place. First of all, as a result of the negotiations it was concluded that the draft Additional Protocol should not be a stand-alone document. It means the states, which hadn’t Comprehensive Safeguards Agreement in place, could not sign the Additional Protocol, because the Additional Protocol would depend also on the type of the Safeguards Agreement in place.

The biggest issue was the universality of the new instrument, and universal implementation of Part II provisions drafted under the “Programme 93+2” not only in states with Comprehensive Safeguards Agreements but in NWSs with Voluntary Offer Safeguards Agreements and Item Specific Agreements States. Discussions were hard as the negotiations during the NPT. Director General’s proposal was to limit the new safeguards measures to CSA states indefinitely for initial phase. Member States especially NAM States were against such an approach and any kind of not equal

508 GC(41)/22 (1997).
treatment. For some NWSs keeping their privilege of not being obliged to accept international safeguards was “a symbol of their unfettered sovereignty”, a symbol of regime hegemons and world power. For Middle East States equal appliance of safeguards measures were strategic factor to survive in their region where Israel was a state without Comprehensive Safeguards.\(^{510}\) Some arguments on universality of the safeguards implementation were justified by commercial and economic reasons. For example to place under the additional safeguards industrial and R&D facilities of non-nuclear weapons states would put them in non-equal footing comparing with their competitors nuclear weapon states and it would mean an extra burden for them. As an advantage of universal implementation of new measures, such as, reports by all states on their industrial and research and development activities, trade of nuclear materials and technologies would strengthen IAEA’s capability to detect undeclared activities and make verification regime more efficient if they would be accepted by all states.\(^{511}\) Conflicting positions were so principal that non-nuclear weapon states tried to ensure that each state was legally free to accept the new instrument, i.e. Additional Protocol. Despite of the lengthy debates, universality norm didn’t appear in the text of the Protocol. Though almost unanimous agreement was reached on the Belgian proposal on foreword, where all types of safeguards agreements as well as all both nuclear weapon states and non-nuclear weapon states have been pointed out. Board of Governors requested that Director General to negotiate Additional Protocol with all States incorporating those measures provided in Model Additional Protocol, which would not contradict to their national security interests.\(^{512}\) Another measure, subject for lengthy discussion was the Secretariat’s approach to the access of additional information. According to that approach State Party, which signed the Additional Protocol commits itself to report to the Agency on all research and all industrial activities in the country and its international transactions. The issue of broader physical access to nuclear-related installations and activities was another topic for long consultations. From the beginning the majority of states agreed that the Agency should have more access, i.e. more rights and abilities in order to verify the

information, consequently to visit the sites and locations and verify consistency of the information in the field. However, this agreement was a general understanding of the States, which was not answering to some questions, for example to what extent, under which circumstances, etc.

The proposal on unlimited and unconditional access to any place at the operating and closed nuclear facility, to all unrestricted areas with only 24 hours advance notification, to thorium and uranium mines, to locations where materials where exported or to be imported, locations or nuclear-related research was opposed by large number of states. Especially, states argued that state concerned might not be able to obtain against the will of the owner access to entirely private locations if the state would not be able to provide reasonable justification for doing that. This proposal met the strong support of certain states. It took some time to come to the agreement concerning the complementary access, which would satisfy all interested parties. However, the works of the Committee 24 on this clause succeeded.\textsuperscript{513} To satisfy states concerns, a provision was included in the Additional Protocol draft that Agency should “not mechanistically or systematically seek to verify the information [obtained under Additional Protocol]”\textsuperscript{514} and should give the state “advance notice in writing and specify the reasons for access and the activities to be carried out during such access”\textsuperscript{515}. Besides, it was underlined that request for complementary access can’t be rejected due to the absence of proper justification. These and some other provisions met a consensus in regard of complementary access, which addressed both Agency’s concern to strengthen its measures of verifying non-diversion of declared and the absence of undeclared nuclear material but at the same time honouring international standards.\textsuperscript{516}

Other issue discussed was environmental sampling. There was no distinction in the draft between environmental samples to be taken from declared sites and locations or their adjacent territories, alleged nuclear facilities or locations, which were partly covered by existing Comprehensive Safeguards Agreements and by Board decision as Part I measures of “93+2 Program”. According to the new proposal the environmental

\textsuperscript{513} Loosch et al in Haekel/ Sten (2000), pp. 52-52.
\textsuperscript{514} INFCIRC/540, Article 4a.
\textsuperscript{515} INFCIRC/540, Article 4c.
\textsuperscript{516} Loosch et al in Haekel/ Sten (2000), p. 53.
samples to be taken to any appropriate area. The measures covered by Comprehensive Safeguards Agreements called “location specific environmental sampling” and the one proposed “wide-area environmental sampling”. According to a new proposal samples would be taken from water, air, soil and in the areas identified by the Agency. Not only environmental sampling, but also all the measures introduced in the draft Protocol were infringing states sovereignty and it was hard for states to go beyond that. Especially states were hesitant to accept the provision on wide-area environmental sampling. From technical point of view they brought argument that sampling method is not developed well and it would be difficult to trace the origins of the particles. That method was used only in experiments and it would take long time to use it as a wide practice.517 After debates both proposals of “location-specific” and “wide-area environmental sampling” were included in the draft Protocol but in separate articles. The location-specific sampling as they had been already approved by the Board and applied technically would continue to be applied, whereas “wide-area environmental sampling” needed Board approval of procedural arrangements for the use of that measure.518 Some delegations suggested to include in the text of the draft Protocol provisions that new measures should not infringe upon individual rights guaranteed by national constitutions. Secretariat voiced against these proposal justifying their position that “…any general clause under which national constitutions and possibly even national laws would prevail over international treaty obligations under the Additional Protocol would render the latter completely toothless”.519 Secretariat argued that such provision would invite the states to change their national legislation and, in case of necessity, their constitutions in a way that they can defeat the aim of the Additional Protocol. However, it was obvious that for some states to change the national laws and regulations and moreover the constitution would be a real challenge. After lengthy discussions the clause on individual rights was included in the preamble paragraph calling the Agency to consider all such factors before implementing safeguards.520

After some consultations and discussion on remaining minor issues on 15 May 1997 the Board of Governors adopted the report of the Committee 24 with the attached text of the Model Additional Protocol. “Committee on Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System” the so-called Committee 24 finished its work. In September 1997 the General Conference of IAEA approved the Model Additional Protocol and, welcomed the signature of the first few Additional Protocols and called others with Comprehensive Safeguards Agreements to sign and ratify Model Additional Protocol.

Though the process took longer than it was envisaged, the “Program 93+2” actually lasted “93+4”; the progress and results achieved were significant for strengthening the safeguards regime. The main achievement was the acceptance of the need for universal impact and scope of safeguards. Before Additional Protocol safeguards system has had big shortages and weaknesses driven from the NPT. It covered only part of the nuclear activities of the world for uses of nuclear energy. However, another part of activities taken place in Nuclear Weapon States and in non NPT States continued to remain uncovered. Their nuclear materials and activities were subject to safeguards in the extent that countries wanted. From another side, the IAEA would not spend huge financial means for verification activities in the states, which by default, based on NPT, may anyway have non-peaceful nuclear activities. After the adoption of the Model Additional Protocol, the perception of the situation is changed. All the records of the meetings of the Board of Governors negotiating “Program 93+2” and later the records of the works of the Committee 24 as well as the Preamble of the Additional Protocol, show that states, with exception of a few ones, came to the consensus that all states, both NWSs and NNWSs have the responsibilities in regard of the non-proliferation regime and safeguards system. Foreword of the Protocol is already underlines that measures to be applied in all states with the reservation that Voluntary Offer and Item Specific Agreement States may apply those measures in their selected locations, but providing with the reason for that determination.\(^{521}\) As noted Reinhard Loosch “…the Foreword to the Model Protocol represents the first international code of conduct for NWSs to subject themselves to a minimum of IAEA safeguards even if this minimum is smaller than that advocated by the most outspoken universalists like

\(^{521}\) INFCIRC/540.
Germany and Japan and accepted by the United States Government”. 522

The case for universality succeeded with the development of consensus document. Though the successful and effective implementation of mentioned in the Model Protocol safeguards measures depends on the ability of the Agency and will of the states. Indeed, such an ambitious verification mechanism would need technical capabilities, experts and vast financial means to be efficient and reach the overarching goal of the document. However, without universal adherence of the document all measures will not be sufficient for strengthened safeguards regime.

4.1.4 Model Additional Protocol - INFCIRC/540

After the Board of Governors approved the text of the Model Additional Protocol by consensus it didn’t enter into force immediately. Since it is only a Model Additional Protocol, it has to be signed by each state individually, on a voluntary basis, then to be approved by the Board in order to be effective.

The Model Additional Protocol to the Agreement between State and the International Atomic Energy Agency for the Application of Safeguards comprises Foreword, Preamble, 18 operative paragraphs and 2 Annexes. It has four main features. First and the most important from strengthened safeguards system perspective is the universality.

Foreword-The principle of universality

The position of the NNWSs during the negotiations was embodied around the principle of the universality. They refused to negotiate and made compromises in case the new instrument have to be applied only in NNWSs. With the proposal of the German delegation it was made explicit that all states regardless of the type of Safeguards Agreement have to take certain obligations under the Additional Protocol in order to ensure its credibility. The system would be effective if it is applied all over the world. This position despite of the big resistance was reflected in the Foreword of the Additional Protocol, though its implementation has various implications. The Model

Additional Protocol gives an interpretation on general consensus with regard of the universalization of the instrument as it applies for all states with INFCIRC/153, INFCIRC/66 and Voluntary Offer Agreements, though with different volume of applicability. The foreword clearly says that Additional Protocol includes non-NPT states with non-comprehensive safeguards. However protocol contains no obligation on the part of these states to do so.\textsuperscript{523}

Indeed, there is a difference in the level of implementation of all prescribed measures for states with CSA, Voluntary Offer Agreements and Item Specific Agreement. In the Foreword the Board of Governors requested the Director General “to negotiate Additional Protocols or other legally binding agreements with nuclear-weapon States incorporating those measures provided for in the Model Protocol that each nuclear-weapon State has identified as capable of contributing to the non-proliferation and efficiency aims of the Protocol, when implemented with regard to that State, and as consistent with that State's obligations under Article I of the NPT\textsuperscript{524} and “[I]o negotiate Additional Protocols with other States that are prepared to accept measures provided for in the Model Protocol in pursuance of safeguards effectiveness and efficiency objectives”.\textsuperscript{525} These two provisions in the Additional Protocol though put a request for NWSs but give them independence in selecting measures, which they will find appropriate to be applied for their state. Balance of applied measures as provided in the Protocol for all States is not equal; however, efforts have been taken to make the Protocol at least at some instance applicable for all states, including NWSs.

As a proof in support of the new strengthened safeguards mechanism, US President Clinton in a letter expressed its country’s support to the Model Additional Protocol stating that it will be applied in US except of the measures, which would be related to their national security. All five NWSs adopted some sections of the Protocol. Some analysis on the Additional Protocols of the NWSs is provided later in the dissertation. Threshold countries at that time have refused to be bound by the Additional Protocol though in 2014 India ratified the Protocol. Walter Sandtner found it “pointless to speculate whether Indian and Pakistani tests could have been prevented if the NWSs had adopted the demand for universality of the Strengthened Safeguards System from

\textsuperscript{523} Rosenthal/ Saum-Manning (2010), p. 23.
\textsuperscript{524} INFCIRC/540, Foreword.
\textsuperscript{525} INFCIRC/540, Foreword.
the outset in a more forthcoming manner.”

It should be mentioned that as underlined in the Model Additional Protocol, it could be concluded not only by States but also by other parties to Comprehensive Safeguards Agreements with the Agency.

**Preamble**

In the Preamble part the objective of the new safeguards standard, Additional Protocol, was made clear “…to further enhance nuclear non-proliferation by strengthening the effectiveness and improving the efficiency of the Agency's safeguards system[…]” however all the measures directed to that end should not hamper the economic and technological development and international co-operation in the field of peaceful nuclear activities; should respect health, safety, physical protection and other security provisions and the rights of individuals; protect commercial, technological and industrial secrets as well as other confidential information. What was emphasized in the Preamble is the number and intensity of activities provided in the Additional Protocol, which shall be conserved to the minimum in line with the goal to raise the effectiveness and the strength as well as to increase the efficiency of Agency safeguards system.

**Relationship between the Protocol and the Safeguards Agreements**

By its very name the Model Additional Protocol is designed to be “additional to the Agreement(s) between State(s) and the Agency for the application of safeguards”. From the very beginning it was planned to include a provision in the Additional Protocol according to which AP had to be an integral part of the Safeguards Agreement. However, the nature of the various Safeguards Agreements prevented this provision to be appeared in the text of the Protocol. That time Assistant Director General of the IAEA ElBaradei described the relationship between the Agreement and Protocol as “dynamic and symbolic” and “for the purpose of interpretation, the two

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527 For example, EURATOM has signed Additional Protocol with the Agency, which entered into force on 30th of April 2004.
528 INFCIRC/540, Preamble.
529 INFCIRC/540, Preamble.
530 INFCIRC/540, Preamble.
531 INFCIRC/540.
agreements—once concluded—had to be read and interpreted as one agreement”. In case of contradictions between provisions of Safeguards Agreements and those of the Additional Protocol, the provisions of AP should be applied.

**Provision of the Additional Information**

Provision of the extensive and detailed information under the Additional Protocol contains in Article 2. Justification for the provision of additional information was that in order to conduct efficient verification activities Agency needs additional information on locations and activities. If in INFCIRC/153 the objective of safeguards system is “the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices of for purposes unknown, and deterrence of such diversion by the risk of early detection”, in INFCIRC/540 it goes further than the detection of diversion of nuclear material. In AP provision of additional information is significant in order detect undeclared nuclear material and nuclear activities. For that purposes information should be provided for example on Nuclear Fuel Cycle related Research and Development activities not involving nuclear material (Article 2.a.i); general description of each building on each site including a map of the site (Article 2.a.iii); a description of the scale of operations for each location engaged in the activities specified in Annex I of the Protocol (Article 2.a.iv); information on the location, operational status and annual production capacity of uranium and thorium mines and concentration plants (Article 2.a.v); information regarding source material which has not reached the composition and purity suitable for fuel fabrication (Article 2.a.vi); information on exports and upon request by Agency on imports of non-nuclear material and equipment listed in Annex II (Article 2.a.ix); information on ten years R&D plans in regard of Nuclear Fuel Cycle (Article 2.a.x); information on state funded R&D activities in the field of enrichment, reprocessing, processing of intermediate or high-level waste containing plutonium, HEU or uranium-233 (Article 2.b.i); provide clarifications or amplifications upon request from IAEA for safeguards purposes.

533 INFCIRC/540, Article 1.
534 INFCIRC/153, Article 28.
Complementary Access

Complementary access was the new element introduced in the Additional Protocol, which is not possible to trigger in the States with the Comprehensive Safeguards Agreement. Complementary access is aimed in verifying the information obtained from other sources such as the state declared information, open source information, information provided by the third party, or to clarify inconsistencies between declared information and information resulted from safeguards verification activities to assure the absence of undeclared nuclear material and activities. In the States with the Additional Protocol in force Agency can verify the correctness of the information received, or in case of inconsistencies to check the inconsistencies. Such on site verification activities called “complementary access”. The objectives of the complementary access provided in: article 4.a.(i) to assure the absence of undeclared nuclear material and activities; 4.a.(ii) to resolve a question relating to the correctness and completeness of the information, 4.a.(iii) to confirm declaration of the decommissioned status of a facility or LOFs. As defined in the Model Additional Protocol the main provisions, which regulate the provision of the complementary access are Article 5, according to which, the State should provide the Agency access to any place on a site; or any location pointed out under Article 2.a.v-viii; any decommissioned facility or decommissioned LOF where nuclear material was used. If State is unable to provide the IAEA with a requested access then it should make every possible effort to meet Agency requirements, without delay, through other means. State should provide access to Agency to take location-specific environmental sampling as well, in case State is not able to give such an access then it should satisfy Agency requirements, without delay via other means.

Noteworthy to mention that Protocol clearly emphasizes that the IAEA should not try to verify the information under Article 2 “mechanistically or systematically”; however, the IAEA should have an access to any location referred to in Article 5 on a selective basis in order to confirm the absence of undeclared nuclear material and activities.

535 INFCIRC/540, Article 2.
536 INFCIRC/540, Article 4.
537 INFCIRC/540, Article 4-5.
Agency should try to have such an access in order to clarify outstanding issues concerning to the correctness and completeness of State declared information under Article 2 or to resolve an inconsistency.\footnote{INFCIRC/540, Article 4-5.}

24 hours advance notification is required for complementary access. For access to any place on a site for design information verification visits, ad hoc or routine inspections 2 hours advance notice is required, though in exceptional cases, it may be less than two hours.\footnote{INFCIRC/540, Article 4.b.} Agency should specify in the notice the reasons for such an access and the activities to be carried out during the visit. In the case of an open question or inconsistency, the IAEA should provide the State with an opportunity to clarify and facilitate the resolution of the question or inconsistency. Such a possibility will be given before an access request, unless the IAEA views that delay in access would bias the purpose for which the access is asked. The Agency should not draw any conclusions about the question or inconsistency if the States was not provided with such an opportunity.\footnote{INFCIRC/540, Article 4.}

Article 7 regulates the issue of the confidentiality of the information obtained during the verification activities. Thus State can ask the IAEA to make arrangements for managed access in order to obstacle the spread of proliferation sensitive information, to meet safety or physical protection requirements, or to protect commercially sensitive information. However, such arrangements should not prevent the Agency from conducting safeguards activities in order “to provide credible assurance of the absence of undeclared nuclear material and activities at the location in question, including the resolution of a question relating to the correctness and completeness of the information referred to in Article 2”.\footnote{INFCIRC/540, Article 7.}

In line with the Article 7 State can also offer the Agency access to locations in addition to those referred to in Articles 5 and 9 or request the Agency to conduct verification activities at a particular location.\footnote{INFCIRC/540, Article 7.}

As we saw in the negotiation process of the Committee 24 a great concern of the States were directed to the issue of the wide-are environmental sampling. Though the provision on the wide-are environmental sampling was included in the Protocol, the
State should provide the Agency with access to locations mentioned by the IAEA to carry out wide-area environmental sampling. However, for wide-area environmental sampling the Board should approve it and its procedural arrangements. Only after the approval Agency can ask an access. Wide-area environmental sampling should be carried out only after consultations between the Agency and the State concerned.\textsuperscript{543}

**Designation of Agency inspectors and visas**

Article 11 of the Additional Protocol provides the mechanism of inspectors’ designation. Director General proposes to BoG and the Board of Governors appoints safeguards inspectors, which should be approved by States. The State can reject a designated inspector in three months period. According to Article 12 multiple entry visas should be provided to inspectors, which should be valid for at least three months.\textsuperscript{544}

**Subsidiary arrangements**

Subsidiary arrangements can be concluded with the State to stipulate the procedures on implementation of the measures contained in the Additional Protocol. The content of such an arrangement is not defined in the Model Additional Protocol. The Agency is authorized to apply the measures described in the Protocol, pending to the entry into force of any necessary Subsidiary Arrangements.\textsuperscript{545}

**Communication systems and Confidentiality**

In the text of the Model Additional Protocol States agreed to use in consultation with the State the right to use internationally established systems of direct communication, including satellite systems and other forms of telecommunications. Communication and transmission of information should be carried out taking into consideration the protection of commercially sensitive information or design information, which has particular sensitivity for the State.\textsuperscript{546} Protection of confidential information

\textsuperscript{543} INFCIRC/540, Article 9.
\textsuperscript{544} INFCIRC/540, Article 11-12.
\textsuperscript{545} INFCIRC/540, Article 13; Sandtner in Haeckel/Stein (2000) p.73.
\textsuperscript{546} INFCIRC/540, Article 14.
continuously highlighted as of paramount importance in the Board of Governors. Governors decided to update the regime of confidentiality on the regular basis.\textsuperscript{547}

\textit{Annexes}

Additional Protocol gives opportunity to amend the list of activities listed in Annex I and list of equipment and material specified in Annex II by the Board of Governors upon advice of an open-ended working group of experts established by the Board. Annex I contains the list of activities referred to in Article 2.a.iv of the Additional Protocol and Annex II the list of specified equipment and non-nuclear material for the reporting of exports and imports according to Article 2.a.ix.\textsuperscript{548} Annex II list was formed based on the Nuclear Suppliers Group (NSG) guidelines, Part I. Though the NSC list has passed its 12\textsuperscript{th} revision, APs Annex II items’ list remained unchanged.

\textit{Entry into force and application of the Additional Protocol}

Approval by the Board of Governors of the Model Additional Protocol was one of the steps towards its application. Protocol had to be negotiated with the three EU negotiating mandates under EURATOM Treaty-13 EU NNWSs, France and United Kingdom. The negotiations finished in May 1998 and on September 22, 1998 signature of the Agreements by the EU and its 15 Member States took place in the framework of the IAEA General Conference.\textsuperscript{549}

\textbf{4.1.4.1 Status of the Additional Protocol}

As of April 2016, AP is in force in 127 States, signed by 146 States. Board of Governors approved 147 APs, one state though has Board approval hasn’t sign the AP yet.

\textsuperscript{547} Sandtner in Haeckel/Stein (2000), p.74.
\textsuperscript{548} INFCIRC/540, Annex I, Annex II.
\textsuperscript{549} Sandtner in Haeckel/Stein (2000), p.75.
From 127 Additional Protocol, 1 is signed with EURATOM, 5 APs with NWSs, 1 AP with INFCIRC/66 State, and remaining States are INFCIRC/153 States.

4.1.4.2 NWSs and Non-NPT States’ Additional Protocols

As underlined in the Foreword of the Model Additional Protocol Board of Governors has requested Director General to negotiate APs with NWS and non NPT States. To follow the request Board of Governors in its 913 meeting on 15th of May 1997 discussed which measures NWSs and Non NPT States are ready to accept. Non nuclear weapon States noted that they constantly supported Programme 93+2 and contributed to the work of Committee 24. Representative of Chine in its statement mentioned that though the conditions and history of development of nuclear energy in five nuclear weapon States are fundamentally different, those States should not take the same obligations and their inputs should differ.\textsuperscript{550}

Already at that very meeting all nuclear weapons states announced the measures from the Model AP that their countries would be ready to undertake.

In regard of the INFCIRC/66 states, i.e. Non-NPT Stats, India’s position continued to be that AP is developed for states with CSA. Cuba’s government expressed political

\textsuperscript{550} GOV/OR.913* (1997).
will to consider measures envisaged in Model AP, however their possible implementation was closely linked to Cuba’s relations with all nuclear weapons states and lifting of all kind of economic, commercial and financial blockade.\textsuperscript{551} Israel’s position was similar to India’s position. The country considered Additional Protocol not relevant for Non-NPT States with INFCIRC/66 types of Agreements and thus it was not in position to launch negotiations on APs, however Israel would consider on a voluntary basis certain measures of the AP, which would be consistent with its policy and safeguards undertakings. Pakistan found it unacceptable to consider application of the measures under Additional Protocol in countries with Item-specific Safeguards Agreements.\textsuperscript{552}

Today all nuclear weapons States have signed and brought into force Additional Protocols. From Item specific Safeguards Agreement States only India have signed and brought into force its AP (more details are provided in India’s Case study part).

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\textit{Table 15: Status of NWS and non NPT States Additional Protocols}  
\textit{Source IAEA, iaea.org}

\textsuperscript{551} Cuba’s CSA entered in force in June 3, 2004. Before that the country hold Item-Specific Safeguards Agreement.  
\textsuperscript{552} GOV/OR.913* (1997).
From all nuclear weapon States only US took different approach. US’s Additional Protocol INFCIRC/288/Add.1 incudes almost all measures of the INFCIRC/540 however Article 1.b of the Protocol excludes “only instances where its application would result in access by the Agency to activities with direct national security significance to the United States[.]”.\(^{553}\) Article 1.c gives the US the right to use managed access in relation to the activities with direct national security significance. Pursuant to Russia’s Additional Protocol INFCIRC/327/Add.1, Russia permits the IAEA to apply the Protocol “with the exception of only those cases where its application would jeopardize the security or the national interests of the Russian Federation”.\(^{554}\) Russia committed to provide information on NFC related R&D activities carried out with NNWSs anywhere in Russian not involving nuclear material, this provision differs from the reporting obligations under their respective APs taken by France, UK and China on R&D. The US AP also has such a provision however the IAEA can trigger a Complementary Access in the US, though as mentioned in its AP Article 1 only if such an access excludes instances of direct national security. Russia’s AP doesn’t include provisions on Complementary Access whereas Additional Protocols of NWSs, except of China, include an Article on Complementary Access. Russia’s AP excludes also provision of information on site descriptions, domestic source material, exempted nuclear material, general NFC ten years plans, R&D activities outside of a site and all provisions on complementary access.\(^{555}\) France and the UK signed their trilateral Additional Protocols INFCIRC/290/Add.1 and INFCIRC/263/Add.1 respectively with the Agency and EURATOM. Their APs modified in a way that states reporting obligations are applied to activities involving cooperation with NNWS. For instance they provide information on cooperation with NNWS related to nuclear fuel cycle R&D (Article 2.a.i), Annex I activities involving links with NFC operation in NNWS (Article 2.a.iii), location and operational status of mines and concentrations plants in the UK, which are involved in production for a NNWS and the annual production for NNWS (Article 2.a.iv), information on source material and their export from UK to NNWS, etc. However, there are some obligations taken to report not in relation to NNWS. For example pursuant to Article 2.a.ii

\(^{553}\) INFCIRC/288/Add.1, Article 1.

\(^{554}\) INFCIRC.327/Add.1, Article 1.

\(^{555}\) INFCIRC/327/Add.1.
information on operational activities of safeguards relevance at facilities should be provided according to their Safeguards Agreements. Additional Protocols of France and the UK don’t include provisions of the Model Additional Protocol in regard of the provision of information for site descriptions, domestic source material and exempted nuclear material. Though not reporting on national civil nuclear activities is in contradiction to the aims of the Additional Protocol, but at the same time committed reporting obligations on foreign cooperation and R&D involving and not involving nuclear material allows these two states to claim that they provide more information than needed under the Model AP.

China’s AP has also important departures from the initial text of the Model Additional Protocol. China agreed to provide information on NFC related R&D activities involving or not involving nuclear material carried out in China for or in cooperation with NNWSs not on a regular basis but upon request by the IAEA. Such an approach decreases the value of the declaration as a measure for the IAEA to detect undeclared activities in NNWSs. China committed to provide information on general plans with NNWSs for ten-year period in connection to NFC only if approved by Chinese authorities. It doesn’t include requirement to provide information on operational activities at facilities and LOFs using nuclear material, site descriptions, domestic source material and information on R&D activities at locations identified by the IAEA. China’s AP like Russia’s AP doesn’t contain provision on complementary access.

India is the only item specific safeguards state, not a State Party to the NPT, having AP (INFCIRC/754/Add.6) in place. Though signed in 2009, Protocol was ratified only in 2014. India AP. India committed to certain provisions of the Model Additional Protocol. It Protocol doesn’t include complementary access provisions, but the provision of certain information to the IAEA, designation of Agency inspectors, visas, communication systems and protection of confidential information. According to Article 2 of its Protocol India limited provision of information to exports of certain source material and Annex II items. India committed itself upon request by the

556 INFCIRC/263/Add.1; INFCIRC/290/Add.1
557 INFCIRC/369/Add.1, Article 2.a.vii (b)
559 INFCIRC/369/Add.1.
Agency, to provide amplifications or clarifications of any information it has provided under Article 2.\textsuperscript{560}

To sum all NWSs and India as Non-NPT State diverged from the original text as well as from the purpose of the AP. Their efforts were aimed at political support of the universalization of the instrument. Moreover, France, UK and Russia’s efforts were to support effective implementation of the IAEA safeguards. Certain information that nuclear weapon States agreed to provide has little value from safeguards prospective. However, information provided on nuclear trade with NNWSs is very useful for the IAEA. Limitation by Russia and US to provide information on collaboration of the NFC related R&D with NNWSs not involving nuclear material creates a gap on a broader picture. France, China and UK agreed to declare cooperation with NNWSs on the NFC related research and development both involving and not involving nuclear material, only China committed to provide such information upon request by the IAEA.

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<td>x</td>
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<td>AP Article 2.b.(ii)</td>
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<td>AP Article 2.c</td>
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<td>x</td>
</tr>
<tr>
<td>Complementary Access (Articles 4.5, 6, 7, 8, 9, 18.b/c/d/e/f/g/j)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

\textbf{Table 16: Obligations of NWSs and Non-NPT States to provide information under the AP, analysis of the AP Articles.}

\textit{Source: Dupuy/Stern (2010)}

Though above table shows comparison of the obligations related to the provision of the information by five NWSs and Non-NPT State India, certain articles contain

\textsuperscript{560} INFCIRC/754/Add.6, Article 2.b,
limitations of the provision of the information relevant to the NNWSs only. As seen from the chart India committed to the least obligations under the AP, following with Russia then China. US accepted more provisions from AP then all other NWSs and India.

4.1.5 Comparative Analysis of the Comprehensive Safeguards Agreement and the Model Additional Protocol

4.1.5.1 Objectives of the Comprehensive Safeguards Agreement and the Model Additional Protocol: Commonalities and Differences

Model Additional Protocol isn’t stand-alone legal instrument but an addition to the Comprehensive Safeguards Agreements containing strengthened measures in order to achieve the objective of the Safeguards Agreements, which was initially enshrined in NPT Article III.1. Measures prescribed in the Model Additional Protocol are supplementing of those containing in CSA. Though certain objectives highlighted in CSA and Model Additional Protocol, the overall objective of these two instruments is the one given in the NPT: “...for the exclusive purpose of verification of the fulfillment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices”.

In Part I of the Comprehensive Safeguards Agreement as a basic undertaking it is defined that State should accept safeguards according to the NPT Article III.1 “on all source or special fissionable material in all peaceful nuclear activities, within its territory, under its jurisdiction or carried out under its control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices”.

Deriving from this formulation the purpose or as commonly accepted to say the general objective of the Comprehensive Safeguards Agreements is to verify the non-diversion of nuclear material. Further in the text as a safeguards objective CSA defines a “timely

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561 NPT, Article III.
562 INFCIRC/153 (Corrected), Part I.1.
detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purpose unknown, and deterrence of such diversion by the risk of early detection". This is so called technical objective, which is timely detection of diversion and deterrence of such diversion. All measures defined in the Comprehensive Safeguards Agreement should be implemented to serve the highlighted safeguards objective. All measures prescribed both in Part II of INFCIRC/153 and INFCIRC/540 are intended to specify the procedures to be implemented for the application of safeguards provisions and achievement of safeguards objective.

Overall objective of the Model Additional Protocol highlighted in the Foreword, says that the Additional Protocol is designed to “strengthen the effectiveness and improve the efficiency of the safeguards system as a contribution to global nuclear non-proliferation objectives”. Safeguards objectives are part of the global nuclear non-proliferation objectives thus Additional Protocol serves for the same objectives as CSA. Consequently to broader objective of the Protocol is aimed to strengthen the safeguards system.

As new elements were introduced in the Model Additional Protocol such as Complementary Access, these elements have their objectives, which include, for example: (article 4.i) to assure the absence of undeclared nuclear material and activities; (article 4.ii) to resolve a question relating to the correctness and completeness of the information provided or to resolve inconsistency relating to that information; (article 7) to provide credible assurances of the absence of undeclared nuclear material and activities and resolve questions relating to the correctness and completeness of the information or any inconsistency.

Having a closer look to the measures and procedures provided in the Comprehensive Safeguards Agreement and Model Additional Protocol, one can notice that under CSA Agency can verify the declared nuclear material, it means the “correctness” of the State declarations, whereas under Additional Protocol Agency goes one step further and verifies existence or absence of undeclared nuclear material or activities, so called “completeness” of State declarations.

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563 INFCIRC/153 (Corrected), Part II.28.
564 INFCIRC/540, Foreword.
565 INFCIRC/540, Article 4, Article 7.
Laura Rockwood, who worked in the IAEA Legal Office, argued in many occasions that IAEA Board of Governors made a number of decisions in 1991-1993, reiterating the agency’s right and obligation to ensure that “in a state with a comprehensive safeguards agreement, no nuclear material, whether declared or undeclared, is diverted to nuclear weapons or other nuclear explosive devices. In other words, the objective of IAEA inspections under such agreements is verification of not just the non-diversion of declared nuclear material (the correctness of state declarations), but also the absence of undeclared nuclear material and activities (the completeness of state declarations). Under the CSA alone, the IAEA has the legal authority to investigate and assess both the correctness and the completeness of a safeguarded state’s declaration”.  

For example, according to Rockwood, if a State has only Comprehensive Safeguards Agreements in place and no Additional Protocol, the Agency still has the legal authority and mandate under INFCIRC/153 alone to look for undeclared fissile materials on the territory of the safeguarded state, and to refuse its judgment of full safeguards compliance by that state if the state doesn’t comply with the agency’s requirements in this regard. In support of Rockwood’s position on Agency’s legal mandate under INFCRIC/153 to assess the completeness of State declarations on nuclear material, INFCIRC/153 article 1, Part I reads: “an undertaking by the State to accept safeguards ...on all source and special fissionable material in all peaceful nuclear activities within its territory []”. Article 2, Part I also highlights application of safeguards on “all source and fissionable material”. Article 7, Part I calls to State “to establish and maintain a system of accounting for and control of all nuclear material subject to safeguards []”. All source and fissionable material can be interpreted as declared and undeclared material. Thus Agency has the mandate to safeguard and draw conclusion both on declared and undeclared nuclear material. 

However that authority was not used by the Agency until Model Additional Protocol entered into force. Even if we accept that the Agency legally had the same right under the CSA, measures and procedures how to implement that right were not clear or

566 Rockwood (2014).
567 Rockwood (2014).
568 INFCIRC/153, Part I, Articles 1-2.
569 INFCIRC/153, Part I, Article 7; Part II, Article 31.
approved by member states. If during the negotiations of “93+2 Program” and Committee 24, concerned Stats invested a great effort to discuss and formulate the relevant provisions, during the negotiations of INFCIRC/153 that issue was not a subject for discussions.

If agree to Rockwood then there is no need to adhere to Additional Protocol if Agency has the authority to verify undeclared nuclear material and activities, i.e. completeness of State provided information under CSA. Rockwood however agrees that though “the IAEA’s right and obligation to verify correctness and completeness derive from the comprehensive safeguards agreement, but in such an agreement, there are limited tools for doing so, such as special inspections. An additional protocol secures for the IAEA broader access to information and locations on a more routine, predictable, and reliable basis. This permits the IAEA to detect indications of undeclared nuclear material and activities earlier and more effectively than it otherwise would”.$^{570}$

The IAEA in its annual Safeguards Implementation Reports (SIR), in putting efforts to achieve the safeguards objective, gives conclusions on “correctness” for INFCIRC/153 States and “completeness” for INFCIRC/540 States on State declared information aimed to assure the the member states and world that all nuclear material remains in peaceful purposes. Taking into account what was said above, implementation of both CSA and AP by the State makes it possible to achieve the overall safeguard objective, i.e. to “prevent the diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices”$^{571}$, this relates both to undeclared nuclear material and declared nuclear material.

Given the significance of the AP in reaching the safeguards objective under the NPT, CSA and Model Additional Protocol, the broader political objective must be directed to gain more countries adhering to the INFCIRC/540. That will increase effectiveness and efficiency of the verification regime and efficiency of the Agency safeguards.

$^{570}$ Rockwood (2014).
$^{571}$ INFCIRC/153.
4.1.5.2 Comparative Analysis of the Comprehensive Safeguards Agreement and the Model Additional Protocol

In previous chapter detailed introduction on regime elements was provided, here operationalization of four analytical elements of the regime in the context of the IAEA Comprehensive Safeguards Agreement INFCIRC/153 and IAEA Additional Protocol INFCIRC/540 is provided in order to answer whether the Model Additional Protocol is a new verification regime, evolution of the existing regime or new verification standard to strengthen the non-proliferation norm and existing verification mechanism. My intention here goes to identify the characteristics of the regime and regime analytical components. As Comprehensive Safeguards Agreement INFCIRC/153 was the last safeguards instrument containing rules for implementation in the states, it should constitute main basis of safeguards regime, consequently rules of INFCIRC/540 are analyzed in relation to INFCIRC/153.

Looking at the structure of the Model Additional Protocol and Comprehensive Safeguards Agreement and their interconnections, following conclusions can be drawn:

- Additional Protocol can be signed only by the states having Comprehensive Safeguards Agreement in place, which means, that existing regime members in order to strengthen the regime developed new rules to be applied on nuclear material for safeguards and verification purposes. Though the new instrument was elaborated by already existing regime, not all regime members adhered to the instrument, which set higher standards and more strength rules;

- Regime members agreed not to give the instrument legally binding character, it becomes legally binding once the State ratifies it.

- “The provisions of the Comprehensive Safeguards Agreements should be applied to the Additional Protocols to the extent that they compatible with the provisions of the Protocol. In case of conflict between the provisions of the Safeguards Agreement and the Additional Protocol, the provisions of the Protocol should be applied.”

In the hierarchy of the provisions and rules, the Additional Protocol rules have preference.

572 INFCIRC/540, Article 1.
4.1.5.3 Comparative analysis of regime principles of the Comprehensive Safeguards Agreement and the Model Additional Protocol

As was mentioned in the previous parts, regime principles are mostly reflected in the Preamble parts of the Treaties. The Comprehensive Safeguards Agreement (INFCIRC/153) has no Preamble Part; it consists of Part I and Part II. Part I contains certain principles and norms highlighted in the NPT as well as rights and obligations of States and the IAEA, while Part II specifies the procedures to be applied for the implementation of the safeguards provisions of Part I.\(^{573}\)

The theory part of the dissertation has already elaborated on existence of implicit and explicit principles and norms as given in Krasner’s definition of the regime. And regime principles mostly are reflected in the norms of the regimes as well as they are the starting point for norm development. Though it isn’t reflected in the text of INFCIRC/153, however, certain international principles should be admitted as the implicit principles of the CSA. Though for example principle of universalization is not included in the text of the Agreement, it is obvious from the NPT Article III, that all NNWSs should conclude Safeguards Agreements.

*I would identify those implicit principles as:*

- Non-proliferation of nuclear weapons
- International control
- National sovereignty
- Benefit from peaceful application of nuclear technology
- Universalization

*Explicit principles of the CSA are:*

- Safeguarding the flow of source and special fissionable materials
- Verification

Contrary to the INFCIRC/153, Model Additional Protocol consists of Foreword, Preamble, Operative paragraphs and Annexes. Foreword underlines the main principle and the purpose of the INFCIRC/540, i.e. contribution to nuclear non-proliferation. Principle of universality at certain instance is reflected in the Foreword as well requesting the Director General to conclude such Additional Protocols not only with

\(^{573}\) INFCIRC/153, Part II, Article 27.
NNWSs, but also with NWSs and other States. Principle of safeguards also found its place in the Foreword of the document. New Principle of strengthening the safeguards system is highlighted in the Foreword.

All implicit principles identified for CSA are valid for INFCIRC/540 as well.

*Implicit principles of INFCIRC/540 are as follows:*

- Non-proliferation of nuclear weapons
- International control
- National sovereignty
- Benefit from peaceful application of nuclear technology
- Verification

*Explicit principles of INFCIRC/540 are:*

- Universalization
- Safeguarding of nuclear material

Below comparative analysis of implicit and explicit principles of INFCIRC/153 and INFCIRC/540 is provided.

<table>
<thead>
<tr>
<th>Regime analytical components</th>
<th>Component’s explanations</th>
<th>INFCIRC/153</th>
<th>INFCIRC/540</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implicit Principles</td>
<td>Beliefs of facts, causation, Rectitude</td>
<td>- Non-proliferation of nuclear weapons</td>
<td>Non-proliferation of nuclear weapons</td>
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<tr>
<td></td>
<td></td>
<td>- International control</td>
<td>International control</td>
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<td></td>
<td>- Benefit from peaceful application of nuclear technology</td>
<td>Benefit from peaceful application of nuclear technology</td>
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<td></td>
<td></td>
<td>- National sovereignty</td>
<td>National sovereignty</td>
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<td></td>
<td></td>
<td>- Universalization</td>
<td>Universalization</td>
</tr>
<tr>
<td>Explicit Principles</td>
<td>Beliefs of facts, causation, Rectitude</td>
<td>- Safeguarding the flow of source and special fissionable materials</td>
<td>Universalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Verification</td>
<td>- Verification</td>
</tr>
</tbody>
</table>

*Table 17: Comparative analysis of implicit and explicit principles of INFCIRC/153 and INFCIRC/540*

*Source: Author*

From the above provided table one can conclude that both documents have the same
principles; no new explicit principle was introduced in INFCIRC/540. Furthermore, AP emphasized once again safeguards principle underlining in the text the objective of the AP to strengthen the safeguards. There are no alterations of the principles, but the strengthening or giving more priority to the principle of safeguarding the nuclear material. Strengthening of the safeguards system principle can be seen as change in importance of the principles, which means giving more significance to safeguards principle. However, one should not forget that Model Additional Protocol is a supplementary document of the CSA, thus all principles prescribed in INFCIRC/153 and INFCIRC/540 should be accepted valid for both documents.

Moreover, the support for a safeguards principle is clearly underlined by the fact that both documents stress the need for effective and strict safeguards in terms of safeguarding all nuclear material. While INFCIRC/153 underlines that safeguards shall apply on all source or special, fissionable material, INFCIRC/540 highlights only the nuclear material. Notwithstanding this difference, one needs to recognize that in the definition part of the INFCIRC/540, Article 18 “nuclear material means any source or any special fissionable material as defined in Article XX of the Statute”. In addition to the explicit principles underlined under both documents, states with CSA and AP admitted and recognized the implicit principle pertaining the benefit of peaceful application of nuclear technology for all States. Given the potential benefits, which make possible nuclear energy, this principle promotes use of nuclear energy for peaceful purposes as well as international cooperation in the field of nuclear technology. As such, this principle also emphasizes the distinction that one should be made between peaceful uses of nuclear energy for the benefit of mankind versus clandestine nuclear program and use of nuclear energy for not peaceful purposes.

As the intention of the dissertation and main research question is to identify whether AP is a new regime, it should be mentioned that there was no evolution of the regime, or development of a new principle, meanwhile all the previous principles didn’t undergo any transformation, evolution or change. Based on already widely accepted principles and having intention to strengthen effectiveness of the existing safeguards regime the significance of the safeguards principle was increased and prioritization in

574 INFCIRC/540, Article 18.
the hierarchy of the principles and norms was observed. No revolutionary or evolutionary change of the regime pertaining to regime principles was occurred.

4.1.5.4 Comparative analysis of regime norms of the Comprehensive Safeguards Agreement and the Model Additional Protocol

Norms of the regime are reflected in the rights and obligations of the regime members and constitute the basis in guiding states’ behavior in developing rules and decision-making procedures. But they not only provide guidance in relation to the formalized rules explicitly mentioned in the regime, but also guide the non-formal side of the issue area to be in line with the regime principles.

Given the theory explanations of the norms, here are the rights and obligations of the States under the INFCIRC/153, so called explicit norms:575

- Non-Proliferation norm – title of the document already emphasizes the norm (Article 1, Part I);
- Safeguards norm - it is the basic undertaking of the states to accept safeguards on all source or special fissionable material (Article 1, Part I);
- Verification norm - safeguards exclusive purpose is the verification of non-diversion of nuclear material (Article 1, Part I);
- Non-diversion norm - safeguards exclusive purpose is the verification of non-diversion to nuclear weapons or other nuclear explosive devices (Articles 1; 2, 7, Part I);
- Cooperation norm / International cooperation norm - State shall cooperate with the Agency to facilitate the implementation of the safeguards (Article 3, Part I); safeguards implementation should not hamper international cooperation in the field of peaceful nuclear activities and international exchange of nuclear material (Article 4.a, Part I);
- Economic and technological development norm - safeguards shall be implemented in a manner designed to avoid undermining the economic and technological development of the State (Article 4.a, Part I);
- Non-interference norm - safeguards implementation should avoid undue

575 INFCIRC/153.
interference in the States’ peaceful nuclear activities (Article 4.b, Part I);

- Peaceful use of nuclear energy norm – (Articles 4.a, 4.b, Part I);
- Confidentiality norm-Agency should protect commercial and industrial secrets and other confidential information (Article 5, Part I);
- Norm of nuclear material accounting - State shall establish and maintain a system of accounting for and control of nuclear material (Article 7, Part I). Though this norm I would combine with the provision of the information norm;
- Norm of provision of information – to ensure effective implementation of safeguards in accordance with the provisions set out in Part II, Agency should be provided information concerning nuclear material subject to safeguards (Article 8, Part I);
- Inspections norm - State shall take the necessary steps to ensure that Agency inspectors can effectively implement their functions (Article 9, Part I);
- Privileges and Immunities norm – State shall grant to the Agency and its staff privileges and immunities (Article 10, Part I).

Implicit norms of the INFCIRC/153 constitute:

- Non-proliferation of nuclear weapons norm
- Prohibition norm
- Non-discrimination norm
- Sovereignty norm

All underlined explicit and implicit norms are commonly accepted norms, which form the general behavior of the regime members. Though non-proliferation norm isn’t reflected in the Comprehensive Safeguards Agreement text, that very norm was the foundation of the safeguards and verification systems and implicit norm of the INFCIRC/153.

In comparison with the norms of the NPT, non-diversion norm, nuclear material accounting, inspections, privileges and immunities, provision of information and confidentiality norms, are the new norms introduced in safeguards regime. So comparing with the non-proliferation regime, one can identify safeguards regime as a different regime with different norms.

Now operationalizing the theory pertaining to the regime’s second analytical component in relation to the INFCIRC/540, attention is paid whether new norms emerged and found their place in the document though keeping in mind that AP
shouldn’t be considered as a separate instrument.

Below are provided explicit norms of the INFCIRC/540.576

- Universalization norm – Director General to negotiate APs with CSA states, NWSs, and with other states (Foreword);
- Safeguards norm - in order to strengthen the effectiveness and improve the efficiency of the safeguards system as a contribution to non-proliferation objectives (Foreword, Preamble);
- Non-proliferation norm - aware of the desire of the international community to further enhance nuclear non-proliferation (Preamble);
- Economic and technological development norm – Agency while implementing safeguards should avoid hampering economic and technological development (Preamble);
- Peaceful uses of nuclear energy norm – Agency should not hinder peaceful nuclear activities (Preamble);
- International cooperation norm – Agency should not undermine international cooperation in the field of peaceful nuclear activities when implementing safeguards (Preamble);
- Individuals’ rights norm – Agency should not hamper individuals’ rights while implementing safeguards (Preamble);
- Confidentiality norm – Agency should protect commercial, technological and industrial secrets and other confidential information (Preamble, Article 15);
- Provision of information norm (Articles 1-3);
- Inspections norm – this includes complementary access (Articles 4-9);

Implicit norms of INFCIRC/540:

- Verification norm
- Non-diversion norm
- Prohibition norm
- Non-discrimination norm
- Sovereignty norm

The table below summarizes main explicit and implicit norms established under the INFCIRC/153 and INFCIRC/540, respectively.

576 INFCIRC/540.
<table>
<thead>
<tr>
<th>Regime analytical components</th>
<th>Components explanations</th>
<th>INFCIRC/153</th>
<th>INFCIRC/540</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explicit Norms</strong></td>
<td>Rights and obligations</td>
<td>1. Non-proliferation norm</td>
<td>1. Non-proliferation norm</td>
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<td></td>
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<td>2. Safeguards norm</td>
<td>2. Safeguards norm</td>
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<td>3. Economic and technological development norm</td>
<td>3. Economic and technological development norm</td>
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<td>4. International cooperation norm</td>
<td>4. International cooperation norm</td>
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<td>5. Peaceful use of nuclear energy norm</td>
<td>5. Peaceful uses of nuclear energy norm</td>
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<td>6. Confidentiality norm</td>
<td>6. Confidentiality norm</td>
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<td>7. Norm of provision of information</td>
<td>7. Norm of Provision information</td>
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<td>8. Inspections norm</td>
<td>8. Inspections norm</td>
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<td></td>
<td>10. Non-interference norm</td>
<td>10. Individuals’ rights norm</td>
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<td></td>
<td></td>
<td>11. Verification norm</td>
<td>11. Verification norm</td>
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<tr>
<td><strong>Implicit Norms</strong></td>
<td>Rights and obligations</td>
<td>1. Universalization norm</td>
<td>1. Privileges and Immunities norm</td>
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<td></td>
<td></td>
<td>2. Individuals’ rights norm</td>
<td>2. Non-interference norm</td>
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<tr>
<td></td>
<td></td>
<td>3. Prohibition norm</td>
<td>3. Verification norm</td>
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<td></td>
<td></td>
<td>5. Sovereignty norm</td>
<td>5. Prohibition norm</td>
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<td>7. Sovereignty norm</td>
<td>7. Sovereignty norm</td>
</tr>
</tbody>
</table>

*Table 18: Comparative analysis of implicit and explicit norms of INFCIRC/153 and INFCIRC/540*

*Source: Author*
As seen from the table, norms of the INFCIRC/153 and INFCIRC/540 are identical and have the same scope. In some cases, even when the norm was not explicit in the text of the document, it constitutes the implicit norm of the instrument. For instance, though in INFCIRC/540 there is no mention of the verification norm; document was elaborated only for pure verification purposes. The main objective of the INFCIRC/540 is to strengthen verification measures and activities. Thus the verification norm though isn’t reflected in the text with the exact wording, it constitutes the overall pillar of the Model Additional Protocol.

As in the NPT, norm of the economic and technological development and peaceful uses of nuclear energy norm underlined both in INFCIRC/153 and INFCIRC/540 as one of the main rights of the regime members. As such this norm emphasizes the obligation of the Agency and other States to avoid interference to States’ activities and avoid hampering the economic or technological development and international cooperation in the field of peaceful nuclear energy.

Identification of the norms for both documents gives us to conclude that they are based on the main norm of the NPT, the nuclear non-proliferation norm. In order to guarantee observance of the nuclear non-proliferation norm, verification norm addresses States compliance with their obligations using various verification techniques and measures. Both instruments contain safeguards norm, which cover all the measures, surveillance and containment, nuclear material accounting, design information verification and other measure in order to succeed with the safeguards main objective, including achieving safeguards generic and technical objectives.

Though provided as separate norms provision of information, inspections and privileges and immunities norms, I would combine under the cluster of the verification and safeguards norms, as they all are the separate components of the verification and safeguards norms.

Cooperation norm is highlighted in both documents, and relates to the cooperation with the Agency to facilitate implementation of the IAEA mandate and to international cooperation to facilitate exchange of information and developments in the field of nuclear energy. Confidentiality norm is of significance for regime members in ensuring effective protection against disclosure of national secrets and other confidential information. Implicit norms of sovereignty, non-discrimination and non-interference need to be observed while implementing the provisions of the both instruments.

No new norm development is observed in INFCIRC/540. INFCIRC/540 is aimed
mainly to implementation of its key norm, i.e. provision of information. It mostly contains procedures and details on kind of the information and timeframes that State shall to provide to the Agency. Though there are new provisions included in INFCIRC/540, e.g. complementary access, I consider it as a type of inspection, and it falls under the inspection norm, thus it is not presented as a new developed norm. Interpretation of the norms of these two documents is my understanding and interpretation of the theory and theoretical framework provided in the second chapter.

4.1.5.5 Comparative Analysis of Regime Rules of the Comprehensive Safeguards Agreement and the Model Additional Protocol

The Model Additional Protocol gives the highest authority to the Agency. As the types of Safeguards Agreements vary, states safeguards and reporting obligations to the Agency also vary. Even the states with the SQP and the Amended SQPs have diverse reporting requirements. What does this mean? That rules of the CSA, AP and SQP are also different.

In the previous chapter a quick analysis of the regime elements pertaining to the Comprehensive Safeguards Agreement and the Model Additional Protocol was exposed. Per se, it referred to the respective provisions of the Agreements. In this sub-chapter, a comparative analysis of these documents’ rules is carried out.

Regime rules considered as the third analytical element of a regime. According to Stephen Krasner’s definition, “[r]ules are specific prescriptions or proscriptions for action”. Mentioned rules form the legal framework and procedures concerning the Agency’s verification activities and safeguards measures and thus define the specific prescriptions and proscriptions for action by Member States.

Thus, they present the most elaborated and formalized part of a regime by further determining the regime norms. Member States put every effort to define the regime rules as detailed as possible and turn them to legally binding. Taking into account the clearly identified character of the rules, regime members’ compliance as well as non-compliance with the regime rules becomes obvious. As the rules have to be implemented on the ground, their operative nature constantly becomes a contentious issue during the negotiations. Given that the regime members often have contradicting interests, to agree upon and formalize the rules become very difficult task. The below given table summarizes main areas for which detailed rules have been established
under INFCIRC/153 and INFCIRC/540. Attention should be paid to the fact that some of the Articles both from INFCIRC/153 and INFCRC/540, which were referred under the regime norms, are provided under the regime rules as well. Sometimes even for theorists, it is difficult to draw the line between the regime norms and rules, taking into account their bound nature and their divers degree of detail, which often makes them to be qualified as regime rules. Analyzing the rules containing in both documents, it becomes evident that key responsibilities and obligations of the IAEA and those of the Member States are reflected in the Articles of the given documents, while detailed procedural aspects are given in the respective Guidelines. The list of such guidelines provided at the later stage.

In the table below are provided rules of the INFCIRC/153 and INFCIRC/540 respectively.

<table>
<thead>
<tr>
<th>Regime analytical components</th>
<th>Components explanations</th>
<th>INFCIRC/153</th>
<th>INFCIRC/540</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rules applying on nuclear material (NM accounting and control, material in mining or ore processing activities, inventory, starting point, termination and exemption of safeguards) (Article 7, 8, 11, 14, Part I, Articles 31-38, 41, 49-50, Part II)</td>
<td>Information on NFC R&amp;D (Article 2.a.(i))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rules on Subsidiary Arrangements (Article 39-40, Part II)</td>
<td>Information on Facilities and LOFs (Article 2.a.(ii))</td>
</tr>
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<td></td>
<td>Rules on design information (Identification of the facility, purpose, site coordinates, nominal capacity, etc.) (Articles 42-48, Part II)</td>
<td>Information on each building on site and site map (Article 2.a.(iii))</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rules on Records System (Records on each nuclear material balance area,</td>
<td>Information on scale of operations (Article 2.a.(iv))</td>
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<td>Information on uranium and thorium mines (Article 2.a.(v))</td>
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<td>Rules on provision of information on source material (Article 2.a.(vi))</td>
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<td>Information on intermediate and high-</td>
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<td>Rules on Reports System</td>
<td>Rules on Complementary Access</td>
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<tr>
<td>(Inventory change reports, material balance reports, inventory changes reports, special reports, amplification and clarification reports, etc.) (Articles 59-68, Part II)</td>
<td>(Article 4-6)</td>
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<td><strong>Inspections Rules</strong></td>
<td><strong>Rules on Managed Access</strong></td>
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<tr>
<td>(Ad hoc, routine and special inspections, purpose and scope of inspections, access points, frequency and intensity, notice and designation of inspections, etc.) (Article 9, Part I, Articles 70-90, Part II)</td>
<td>(Article 7)</td>
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<td><strong>International Transfers Rules</strong></td>
<td><strong>Designation of Inspection Rules</strong></td>
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<tr>
<td>(Import and export of NM, quantity and composition of NM, date and location to be shipped, etc.) (Article 12, Part I, Articles 91-97, Part II)</td>
<td>(Article 11-12)</td>
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<td><strong>Finance Rules</strong></td>
<td><strong>Subsidiary Arrangements Rules</strong></td>
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<tr>
<td>(Article 15, Part I)</td>
<td>(Article 13)</td>
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<tr>
<td><strong>Privileges and Immunities rules</strong></td>
<td><strong>Communication Rules</strong></td>
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<td>(Article 10, Part I)</td>
<td>(Article 14)</td>
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<td><strong>Confidentiality Rules</strong></td>
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<td>(Article 15)</td>
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Both treaties stipulate the conclusion of the Subsidiary Arrangements between the IAEA and the State, which would assist facilitation of implementation of INFCIRC/153 and INFCIRC/540. Though certain rules are already provided in both documents as the above provided table shows, the main rules and how the rules should be implemented with their detailed descriptions shall be included in the Subsidiary Arrangements to be negotiated between the State and the Agency as outlined in the
CSA and AP. It can be seen that regime rules mostly emphasize and further define verification and safeguards norms. Various types of regime rules are developed to address the general issue concerning the verification and safeguarding nuclear material and verification of the State as a whole based on various types of information. They prescribe, inter alia, provision of information on State Nuclear Fuel Cycle and R&D in relation of the NFC, verification of design information of nuclear facilities, export and import and the purpose and end use of the AP Annex II items, and many other rules, which would allow the Agency based on all available information to provide international community assurances on the nature of the States nuclear programme and absence of undeclared activities and nuclear material.

Rules can be divided into some areas: rules of how to provide state reports and declarations including Additional Protocol declarations on nuclear material, nuclear facilities, locations outside facilities, research and development plan and other issues in details as requested by INFCIRC/153, INFCIRC/540 and Subsidiary Arrangements, rules on in-field verification activities, which include various types of inspections and state provision of access to the IAEA, e.g. ad hoc, routine (unannounced and announced) and special inspections, purpose and scope of inspections, access points, frequency and intensity of inspections, notice and designation of inspections, complementary accesses, rules on establishment of State system of accounting for and control of nuclear material (SSAC) and many other rules.

It should be noted that under the umbrella of overall rules numerous policy and guidance documents were developed to facilitate implementation of the regime rules. The list of such documents is provided below, though it should be noted that the list is not exhausted. For implementation of general safeguards, Additional Protocols as well as Small Quantities Protocol policy documents were elaborated.

<table>
<thead>
<tr>
<th>General Safeguards Implementation</th>
<th>Additional Protocol Implementation</th>
<th>SQP Implementation</th>
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<tr>
<td>Nuclear Material Accounting Handbook (IAEA Services)</td>
<td>Complementary Access Summary Table</td>
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These Guidance documents are designed for State and regional authorities responsible for safeguards implementation, as well as for facility operators. They reflect the legal obligations of both State and the IAEA underlined in Safeguards Agreements and Protocols. However, it should be noted that guidance and policy documents have no legal status and are not designed to add, amend or derogate States and IAEA’s legal obligations under CSA, AP and SQP.

Another issue that needs to be paid attention is the spectrum of the rules, though one of
the main norms of the NPT and overall non-proliferation regime is the disarmament norm, it was not reflected in safeguards documents and it is not the mandate of the IAEA, that is the reason that CSA and AP related rules don’t address any disarmament issue. Accordingly, they focus only on safeguards related aspects.

4.1.5.6 Comparative Analysis of Decision-Making Procedures of the Comprehensive Safeguards Agreement and the Model Additional Protocol

As said in previous chapters, decision-making procedures are considered as fourth analytical component of a regime. Decision-making procedures provide an approach in regard of the rules implementation. Below provided table describes decision-making procedures established under the INFCIRC/153 and INFCIRC/540.

<table>
<thead>
<tr>
<th>Regime analytical components</th>
<th>Components explanations</th>
<th>INFCIRC/153</th>
<th>INFCIRC/540</th>
<th>Statute</th>
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<tr>
<td>Decision-making procedures</td>
<td>Prevailing practices</td>
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<td>Third party liability</td>
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<td>Amendments to Annexes (Article 16).</td>
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<td>International responsibility</td>
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<td>(Article 17).</td>
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<td>Measures in relation to verification of non-diversion</td>
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<td>(Article 18).</td>
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<td></td>
<td>Interpretation and application of the Agreement and settlement of disputes</td>
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<td>(Article 20-22).</td>
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<td>Amendment of the Agreement</td>
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<td>(Article 23).</td>
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<td>Amendments to Annexes</td>
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<td>(Article 16).</td>
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<td>Non-compliance cases</td>
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<td></td>
<td>(Article 9.a.7; Article 9.b and 9.c).</td>
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<td>Settlement of disputes</td>
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<td>(Article 17).</td>
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<td></td>
<td>Amendments and withdrawals</td>
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<td></td>
<td>(Article 18).</td>
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Table 21: Comparative analysis of decision-making procedures of INFCIRC/153 and INFCIRC/540

Source: INFCIRC/153, INFCIRC/540, Statute
As seen from the table above INFCIRC/153 contrary to INFCIRC/540 contains certain decision-making procedures. CSA provides that any claim by one party against the other in respect of any damage resulting from the implementation of the safeguards under the Agreement should be resolved in accordance with international law.\textsuperscript{577} INFCIRC/153 also foresee mechanisms for interpretation and applications of the agreement and settlement of disputes. Any issue of interpretation of the Agreement and dispute shall be brought to the Board. Any dispute arising out of the interpretation or application thereof except a dispute with regard to a finding or an action taken by the Board should, on the request of either party, be submitted to an arbitral tribunal. If, within 30 days of the request for arbitration, either party has not designated an arbitrator, they may request the President of the International Court of Justice to appoint an arbitrator. The decision of the tribunal would be obligatory for both parties.\textsuperscript{578} According to the Agreement States can propose amendments to the INFCIRC/153 as well.\textsuperscript{579} INFCIRC/153 contains decision-making procedures in relation to verification of non-diversion and pertaining to non-compliance by the State, in such cases the Board shall call upon the State to take the necessary action “\textit{without delay, irrespective of whether procedures for the settlement of a dispute have been invoked.}”\textsuperscript{580} When Board is not able to verify that there has been no diversion of nuclear material to nuclear weapons required to be safeguarded under the INFCIRC/153, it may make the reports as set in paragraph C of Article XII of the Statute to the Security Council.\textsuperscript{581}

As indicated in the above table Model Additional Protocol in its text has no provisions on decision-making procedures, except of the provision on amendment of the Annexes but not the text of the Protocol. However, in the Foreword it is underlined that a Model Additional Protocol is designed for States having Safeguards Agreements with the Agency. Further, Article 1 of INFCIRC/540 says that the provisions of the Safeguards Agreement shall apply to the AP to the extent that they are relevant. Which can be understood that in the absence of any decision-making procedures in AP those of CSA shall be applied. Moreover, the Foreword highlights, that each individual Protocol or

\textsuperscript{577} INFCIRC/153, Article 17.
\textsuperscript{578} INFCIRC/153, Article 21-22.
\textsuperscript{579} INFCIRC/153, Article 18.
\textsuperscript{580} INFCIRC/153, Article 18.
\textsuperscript{581} IAEA Statute, Article 12.C.
other legally binding agreement needs approval of the Board of Governors in line with the requirements of the IAEA Statute. Thus the same decision-making mechanisms, in regard of resolving incompliance cases and addressing any other question, applies for both INFCIRC/153 and INFCIRC/540.

Though AP has no provisions on non-compliance cases and definitions, what can be considered as non-compliance, States take obligation while signing the AP to provide requested information and access to the Agency. Non-provision of the requested information and access should be considered as violation of the obligations and non-compliance.

State’s compliance with safeguards obligations is a primary part of its participation in the nuclear nonproliferation regime and NPT Review Conferences continuously pay a great attention to that issue. The main objective of the IAEA, provided in its Statute, is to promote “the contribution of atomic energy to peace, health, and prosperity throughout the world” and at the same ensuring that nuclear material and facilities are not used for military purposes. In order to carry out its mandate IAEA established and implements safeguards and mandated to ensure smooth implementation of the provisions of the Safeguards Agreement and the Additional Protocol. Thus IAEA decision-making procedures set out in the Statute shall be applied to both INFCIRC/153 and INFCIRC/540. Consequently, decision-making bodies under the Comprehensive Safeguards Agreement and the Model Additional Protocol are the same. As outlined in the Statute and briefly described in the previous chapters decision-making organs of the IAEA are the Board of Governors and the General Conference, for the purposes of implementation of the provisions given in these two documents.

It is worth to mention that respective roles of the IAEA Secretariat and those of the Board of Governors should be distinguished. While IAEA secretariat is mandated to reveal and detect any legal non-compliance by the State under its safeguards agreements with the IAEA, it has no authority to make decisions on violations. Secretariat in performing its responsibilities should not take into account political considerations but carry out its functions in nondiscriminatory and objective way.

582 INFCIRC/54, Foreword.
583 IAEA Statute, Article 2.
4.2 Operationalization of the Theory

4.2.1. Why was the IAEA Additional Protocol Created?

The nuclear non-proliferation regime has faced serious challenges and passed some developments starting from 1990s, which resulted in negotiating and adopting new measures in order to overcome the weaknesses of the regime. Detection of Iraqi clandestine nuclear weapons program was an example that the country with the Comprehensive Safeguards Agreement and under the Agency safeguards was able to develop secret nuclear program. Notwithstanding of having regular inspections in the State declared facilities, the IAEA inspectors haven’t been able to identify signatures or indicators of undeclared activities in the State. Moreover, it was not the IAEA, who unmasked the nuclear weapons program in Iraq but the United Nations Special Commission (UNSCOM), which was in Iraq after Second Gulf War. It was a clear sign that the Agency’s at that time existing safeguards system has failed. Non-detection of the secret nuclear program by the Agency’s verification mechanism meant that one of three pillars of the regime was collapsed. The trust of the international community to the Agency’s safeguards system was reduced. New safeguards measures were needed first to re-establish the confidence and trust of the world to the IAEA as an effective verification body, and second, to strengthen the NPT verification regime and thus overall non-proliferation regime and to ensure that no single nuclear weapon program can be gone undetected.

4.2.2. Ways of Regime Formation /AP Formation

As was described in this chapter the IAEA Additional Protocol was negotiated during the “92+3 Program” and later in “Committee 24” and was supposed that all states having the Comprehensive Safeguards Agreement in place, at a certain time, would sign and implement the new instrument, and they supposed to be subject of the regime, however, though all states were represented in the negotiations, not all of them took part in the bargain.

The theory part of the dissertation exposed three ways of regime formation. Even after
operationalization of the theory one can come to conclusion that Additional Protocol isn’t a new regime but the change within the existing regime, I intend to operationalize all assumptions of the regime theory pertaining the regime formation to answer the main researched question. Assessing Oran Young’s assumptions on the ways of a regime formation, one can exclude spontaneous way of a regime formation in regard of the Additional Protocol, as the assumptions that adoption of the AP didn’t require “explicit consent” on the subject and it didn’t involve “conscious coordination” among regime members are not valid. It can’t be considered as an imposed one as well, as such regimes do not involve explicit agreement of subordinated members and they don’t require formal expression, which is not the case. Though certain dominant powers within already existing the NPT verification regime theoretically could impose their policy and requirements to be abide by subordinate actors, consent and the positions of non-powerful actors were taken into account during the negotiations of the Additional Protocol. On the contrary to these assumptions, AP can be considered as a negotiated way of a regime formation, including “conscious efforts” to agree on the main provisions of the instrument, “explicit consent” of the participants and “formal expressions of the results”.

Considering Oran Young’s explanation of the two types of the negotiated regimes, i.e. “constitutional contracts” and “legislative bargains”, AP negotiations in the “Committee 24” can be seen as a regime development stage, where States, which might be subject of the regime were directly involved already during the process of the development of the regime in negotiations over general principles and norms, as “Committee 24” was open for all States, though eighty States were participating in the discussion on a regular basis. Taking into account Young’s explanation of the “constitutional contracts” AP belongs to negotiated order with “constitutional contracts”. In regards of Young’s conclusion that only negotiated regimes can produce more or less equal outcomes, we should take into account that AP was negotiated on the basis of the NPT. Though all States have participated in the negotiations, comments and suggestions from all States were discussed and compromise was achieved, and even though AP Foreword contains request to the IAEA Director General to negotiate

and conclude APs with the NWSs and other States, which are ready to implement provisions of the document, equal obligations and rights under the AP were not possible to achieve simply because of the discriminatory nature of the NPT itself. AP should be seen as a verification mechanism of the NPT to achieve the goals and principles of the Treaty.

4.2.3. Regime Development/ AP Development

Regime theory brings the most accepted explanation of a regime formation and existence, which is the egoistic-self interest. States already participating in the IAEA safeguards regime, which in this dissertation was identified with the NPT verification regime, clearly understood that some other states might follow the road, which has been chosen by Iraq in developing clandestine nuclear program. To achieve their selfish goals, security for their States and confidence that others would not cheat gathered the States together to realize their interests collectively.

AP reduces transaction costs associated with monitoring and enforcement of implementation of obligations. As identified in the theory part, main function of the regime is to facilitate cooperation by providing States with the information. The IAEA Additional Protocol was designed mainly to provide information to the Agency and States on regime members’ compliance with the nuclear non-proliferation norm. AP gives opportunity to Member States realize their interest collectively, for example complementary accesses prove correctness of states declarations and confirm absence of the undeclared nuclear material and activities in the State, this ensures others about the effectiveness of the regime. AP also reduces information costs for states and provides them with information on significant questions of collective interest. As States having the CSA wouldn’t be able to solve dilemmas of common interests and common aversions, that is the reason that they gave preference to cooperation instead of choosing their not restricted individual choice, as the outcome of the common action would be preferable of the one reached alone. In order to guarantee that no one cheats, such cooperation needs a formal status according to the Stein.\textsuperscript{585} AP has all the rules in place and non-observance of them would clearly point out those States, which don’t

follow the agreed behavior. Presence of explicit and efficient compliance mechanism brings success of the interactions between regime members. The IAEA Additional Protocol also impacts incentives for compliance by interconnecting issues together and by interconnecting regime members together. Following the theory assumptions the Additional Protocol if consider as a separate regime is based on an “institutional bargaining” rather than on power-based models.

Efficiency of the regime increases the likelihood of the regime creation. It’s of all states interest to receive assurances that states are not developing nuclear programs for not peaceful purposes, which are undeclared. This is the common interest, which needs collaboration, and any level of formalization, i.e. regime and strong “pattern of behavior”. In AP system it’s very easy to see who is cheating, verification mechanism gives all tools to the Agency to clarify the cheating. Cost of the cheating is very high. As argues Ethane common interest doesn’t mean that states, which ratified the Additional Protocol have identical interests, they can have mixed motive situation and cooperation results not in customizing interests but the policies.

If follow the theory of Young on regime development that regime is an agreement, then AP is an agreement, a long negotiated agreement. Some States join the AP under the fear of invasion; they want to feel more secure knowing that their neighbor’s nuclear program has a peaceful nature. States with the AP had not intention to change their national interests by joining the AP but to get advantage of it. Explaining regime creation Keohane highlighted two aspects, i.e. “imposition of constraints and “decision making”.

Constraints are imposed by powerful actors, for instance, Iran’s agreement to implement AP according to the latest deal under the Joint Comprehensive Plan of Action (JCPOA), is not a voluntary action, but the decision resulted in calculation, i.e. the risk of toughest economic sanctions resulting in economic collapse and fear of invasion. In such circumstances joining the AP can’t be considered as a voluntary action.

Indeed certain states joining AP calculate if it is better to be in a regime or outside of the regime. For example there are disadvantaged actors, who join AP, which don’t get benefits, however, the goal of the regime is to create confidence among States that

nuclear material is not diverted. Even if countries doesn’t get notable help and benefits, on the contrary have extra costs and efforts to satisfy the Agency with the provision of the information, in a global sense their national security benefits from the wider implementation of the AP. Costliness of the AP makes it important for States.

As seen from the theory explanation States join the regime even without getting benefits. Certain States join the AP, as it is an accepted behavior, it’s a reputation and visibility issue for them, to show that they abide with common accepted norms. They calculate when there is an incentive to violate the rules and principles of the regime whether benefit of doing so outweigh the costs. AP has a good monitoring mechanisms, the provisions of the AP themselves contain monitoring mechanisms (environmental samples, complementary accesses), which facilitate cooperation and lower the risks.

4.2.4. Preconditions for Regime Formation

Keohane explains that some conditions should be applied in order regime to be formed, for example, absence of legal framework for accountability for actions. As seen from comparative analysis of the Comprehensive Safeguards Agreement and the Model Additional Protocol, no new mechanism for liability was established, the mechanism to deal with the non-compliance cases has been established under the IAEA Statute, and highlighted in the CSA. Taking into account this, one of the key preconditions for the regime formation in case of the AP was missing. Another two factors, important for regime formation, costliness of information and positive transaction costs, were resulted in the creation of the IAEA safeguards regime and States would benefit from information and transaction costs already under that regime, there was no need for a new regime to get sufficient information. The issue was, which additional information would contribute to already established regime effectiveness.

4.2.5. Regime Functions

States, which develop new norms and rules are represented in the IAEA decision making bodies, even if they don’t sign and ratify the AP, they take part in elaboration of the new documents and instruments. Whether States with the AP has different forum
for negotiation to facilitate cooperation, no, it is the same format and the same forum as in the case of the IAEA safeguards regime. Reduction of transaction costs, uncertainty and risks of making agreements have been provided already by the IAEA safeguards regime.

4.2.6. Regime Analytical Components

The main component, which would point out on the presence of the regime is the analytical elements of the regime, otherwise it would be difficult to differ from any usual behaviour of action. Comparative analysis of the principles, norms, rules and decision making procedures of INFCIRC/153 and INFCIRC/540, confirmed my initial hypothesis that the Additional Protocol was a change within the existing regime and no new principles or norms were introduced. Based on the theory underlying conditions result in changes of the norms, however, though new claimants, non-compliance cases and clandestine nuclear program of Iraq changed States perceptions on the IAEA safeguards regime, the main norms of the regime, including non-proliferation norm, safeguards and verifications norm, prohibition norm, remained unchanged. For the INFCIRC/540 principles of the existing regime (Safeguards) didn’t take any other shape or form, they remained unchanged and provided amplifications for State’s behavioral prescriptions and proscriptions. The main theoretical assumption, which is actual for this dissertation is that changes in norms importance for States can bring evolutions of the regime’s rules. What happened in the case of the Model Additional Protocol is that the verification norm became too instrumental in providing credible affirmations that there are no non-declared nuclear activities and material and in order to strengthen norm implementation new rules were developed and applied. Even if we consider the provision of information as a separate norm, that norm constitutes one of the norms both for CSA and the AP. The change, which occurred, was the change in the rules in terms of provision of more detailed information and broader access. The IAEA Additional Protocol constitutes additional rules to the NPT verification regime. It’s complementary to the rules already contained in the Comprehensive Safeguards Agreements. It contains only new rules pertaining the provision of the information, inspections (complementary access), simplified visa procedures, etc.
4.2.7. Regime Dynamic

As provided in my previous analysis operationalization of the theory in regard of the regime analytical components denies creation of the new verification regime in the context of the Additional Protocol. That analysis answers the main research question, whether the IAEA Model Additional Protocol can qualify as a new verification regime. Following Haas’s assumptions with appearance of new information different processes emerge and in some cases it results in formation of a new regime or alteration of the existing one. Weak and fragile regimes undergo changes frequently. But one can’t assess the IAEA safeguards as a weak regime. It is true that starting from the first safeguards document the regime has undergone through certain changes, but was it because of the power change, interest change or other reason? In complex institutions such as the IAEA and its verification mechanism to introduce planned and guided changes is difficult, however social institutions are never static and continues transformation happened with the regime due to dynamic and changes in political, economic and social environment. Development of nuclear energy by many states and fast changing nuclear landscape couldn’t remain neglected by States. This resulted in dynamic of the regime expressed by new arrangements and new procedures. Non-compliance cases and undeclared nuclear program of course showed the deficiencies of the regime, which needed corrective actions and measures. Whether the weaknesses and deficiencies weren’t able to eliminate within the existing regime was never a question, as only additional measures were needed to get a more comprehensive picture on State’s nuclear programs.

The Additional Protocol was one of such changes affected by factors such as interest and new knowledge (information). However evolution of the regime didn’t result in change of the regime and change in the distribution of the power within the safeguards regime. The same powerful actors continue to play the same role. Taken into account theoretical assumptions transformation or change of the regime wasn’t observed within the NPT verification regime, no change of underlying structure of the power and no internal contradictions have been identified.

Theory points out four dimensions of the regime change, change in the regime strength, organization form, scope and allocation mode, however non of these are
actual for the safeguards regime, what was observed is the dynamic in the strength of the regime. No evolutionary change happened as regime principles remain unchanged and no revolutionary change occurred, as norms didn’t alter.

What is observed it’s a stabilizing regime dynamic as a consequence of adaptive learning process in response to events.\textsuperscript{588}

To summarize based on theoretical assumptions, which highlights that "changes in principles and norms are changes of the regime itself, whereas all other changes—changes in rules and decision making procedures are changes within regimes, provided that principles and norms are unaltered",\textsuperscript{589} the IAEA Additional Protocol is a change within the regime given that no principles and norms were changed. To assess whether changes in rules lead to changes in norms and principles is difficult to do. However weakness of the regime is observed including inconsistency between regime and related behavior.\textsuperscript{590}

\textbf{4.2.8. Regime Type}

The NPT verification regime is a control-oriented regime, which ensures regime effectiveness; others’ behavior is controlled via institutionalized behavior. The IAEA verification measures decrease proliferation risks arising form States’ individual actions. This regime confirms theoretical assumption that regime is supported by States with strong power in the issue area and with strong incentives to implement that power. NWSs are especially the named States within the NPT verification regime. As a security regime States tend to be satisfied by status quo.

\textbf{4.2.9. Regime Effectiveness and Robustness}

According to the theoretical framework regime’s effectiveness measures by observance of norms and rules by regime members. As concluded, the IAEA Additional Protocol is not a new regime but change within the regime and evolution of the regime rules, which means that talking about the regime effectiveness here, first of all, effectiveness

\textsuperscript{588} Haas in Becker (1990), p. 68; Müller/Seidler-Diekmann (2008).


\textsuperscript{590} Krasner (1983), p. 5.
of the NPT verification regime needs to be assessed. Non-compliance cases brought to
the attention of the IAEA Board of Governors and in some cases to the consideration
of the UN Security Council show that some regime members don’t abide with the
norms and rules of the safeguards regime. The states, which violated the accepted
behavior hadn’t in place the Additional Protocol. As perceived self-interest motivates
compliance with regime rules, though in cases when they comply with the norms
contrary to the self-interest, they value the regime itself.\textsuperscript{591} For States, which bridged
the adopted behavioral pattern, self-interest was in contradiction with the regime rules
and disadvantages of the regime were overweight the advantages. Any judgment on
regime effectiveness or regime dynamics must be based on considerations of the level
of agreement within the regime on regime underpinning fundamental principles. From
negotiations or discussions we see whether there are various interpretations of the
principles, whether there are lengthy and tough debates on these principles, or on the
nature of scope of the regime.

What does regime make stronger? I expand upon a framework for assessing regime
effectiveness. Presence of strong norms must be good indicators for regime
healthiness.

Norms must be embedded properly into the existing institutional peculiarities of the
regimes, however, for instance, some studies showed that, the biological and chemical
weapons regimes are more effective than the nuclear non-proliferation regime.
However, norm of the IAEA safeguards regime are thoroughly included in the IAEA
verification mechanism and institutional features.

Regimes are no just rules and institutional frameworks. They are dynamic processes as
already exposed and tend to changes over time. The adopted framework to measure
regime effectiveness includes the normative, institutional and behavioural features of
the regime. This research illustrates the specific challenges pertaining the IAEA
safeguards regime dynamics.\textsuperscript{592}

In the theoretical framework chapter, norms and principles have been elaborated in
detail. Here with normative features dimension it involves norms and principles, which
lay on the basis of the regime. For the regime effectiveness, as seen from theoretical

\textsuperscript{591} Puchala/ Hopkins in Krasner (1983), pp. 89-90.
\textsuperscript{592} Enia/Fields (2014), p. 44.
explanations in the previous chapters, this dimension is of particular significance as mostly changes of the norms and principles would be evidence that the whole regime is in a change mode.

\[\text{Founding Principles} + \text{Explicit Norms} + \text{Implicit Norms} + \text{Emerging Norms} = \text{Normative Framework}\]

**Figure 44: Normative framework of the regime**  
*Source: Enia/Fields (2014)*

The institutional and organizational features category directed to the implementation of the specific formal and informal rules that endorse the regime. These rules ease transaction costs to produce public goods.

\[\text{Issue Scope} + \text{Level of Institutionalization} + \text{Organizational Forms} + \text{Allocation Mode} = \text{Institutional Framework}\]

**Figure 45: Institutional framework of the regime**  
*Source: Enia/Fields (2014)*

As of the category of behavioural features, which describes states actions within the regime, it designed to illustrate analysis of states compliance or non-compliance and focuses on specific behaviours such as internalization, verification, and others.\(^{593}\)

\[\text{Participatory Scope} + \text{Level of accepted constraints} + \text{Internalization of Constraints} + \text{Verification} + \text{Compliance} + \text{Enforcement} = \text{Behavioral Framework}\]

**Figure 46: Behavioural framework of the regime**  
*Source: Enia/Fields (2014)*

\(^{593}\) Enia/Fields (2014), p. 44.
Operationalizing the provided frameworks, normative framework of the AP hasn’t been changed, it contains strong founding principles, explicit and implicit norms, they are widely accepted by States, and observed. The AP institutional framework is highly institutionalized, with explicit issue area, organizational procedures and polices and defined allocation mode. No changes in the institutional framework have been observed. Regarding behavioural framework, participatory scope though is well defined but still needs improvement and more States ratifications would be needed for a broader adherence of the instrument and final universalization of it. Given the technological developments verification mechanism can be further strengthened, more strict and well-defined compliance mechanisms would make verification and observance of norms stronger.

4.3 Findings

This chapter aimed at analyzing the main researched object: how it was developed and what were the underlying reasons that gave a rise to a new safeguards instrument. It exposes all controversial issues appeared during the negotiations raised by States or Group of States, all the new measures, i.e. Part 1 and Part 2 measures, that were developed during the „Program 93+2“ and „Committee 24“, how agreement was reached to approve the Model Additional Protocol. Upon a brief analysis of the Foreword, Preamble and operative paragraphs of the Model Additional Protocol to clarify all the respective measures, comparative analysis of regime analytical components pertaining to INFCIRC/153 and INFCIRC/540 are carried out with a view to highlight emergence of new principles and norms. As part of this effort, regime theory is operationalized to address the central research question: ”Is the IAEA Model Additional Protocol a new verification regime and if yes how effective is it and how it shapes behavior of States?” As a result of this analysis, the following key findings were identified.

**The Safeguards system under the CSA has deficiencies**

Limitations of the safeguards under the CSA were revealed by the Iraqi case, which showed that application of the safeguards only to the declared nuclear material doesn’t provide credible assurances about the absence of the clandestine nuclear facilities and
nuclear material. Agency was able to verify only correctness of State’s declarations. States with INFCIRC/153 having intention to acquire nuclear weapon could establish clandestine program without being detected. The most intrusive safeguards measure under the CSA “special inspection” has been conducted in Iraq to uncover undeclared activities.

**Program “93+2” intended to strengthen safeguards system**

Before the Model Additional Protocol the Agency was limited in its verification to the declared nuclear material and hadn’t look to the suspicious nuclear programs. “Program 93+2” has been initiated in order to strengthen the safeguards system. After Iraq the IAEA Board of Governors adopted a new language on States safeguards obligations pertaining safeguarding nuclear material, i.e. to verify the absence of undeclared nuclear facilities and material. The Board of Governors mandated the Director General to use in his reports and in drawing safeguards conclusions information received from open sources and third party. Thus recognizing for the first time the importance of the open source information. A new document Gov/2629 on “Universal reporting system on nuclear material and specified equipment and non-nuclear material” introduced an idea of a new multilateral instrument to be open for all States on a voluntary basis. Approval of the “Program 93+2” met the objective in pursuing reform with holistic approach and addressing all weaknesses together.

**INFCIRC/153 was not sufficient to implement “Program 93+2”**

Only measures contained in the Program’s Part 1 was possible to implement under the INFCIRC/153. That contained mainly environmental sampling in declared facilities. Part II measures needed additional legal authority in order to be implemented. It envisaged broader access to information, environmental sampling, increased physical access, no notice inspections and increased cooperation with States. Part II measures would increase Agency’s capabilities to detect undeclared nuclear activities.

**Agency starts evaluate the States based on all available information**

The most important measure for strengthened safeguards included in Gov/2863 on “Measures for a Strengthened and Cost-Effective Safeguards system under Complementary Legal Authority” including a draft Model Additional Protocol was the state evaluation based on all available information to the IAEA about the State.
Committee 24 was established by the Director General to finalize the proposed draft Protocol.

**Draft Model Additional Protocol is not a stand-alone document**

Committee 24, working on a consensus basis, concluded that the draft Model Additional Protocol can be signed by the States having the Comprehensive Safeguards Agreement only. It can’t be considered as a stand-alone document. All the measures were discussed and compromise was reached to strengthen Agency’s measures in verifying non-diversion of declared and absence of undeclared material. On May 15, 1997 the Board of Governors adopted the report of the Committee 24 with the attached text of the Model Additional Protocol. The “Program 93+3” lasted “93+4” years, but the progress and results achieved were significant for the strengthening safeguards system. All the measures described in the Model Additional Protocol have to be applied in states with the CSA, which sign and ratify the Protocol, however the Voluntary Offer and the Item Specific Agreement States may apply those measures, which they find appropriate. Universal application though of not all measures of the Additional Protocol is highlighted in the Foreword of the document.

**The Model Additional Protocol has to be signed on a voluntary basis**

AP has to be signed by each state separately on a voluntary basis and approved by the Board of Governors; it has no legally binding nature. Universality, though with a different level of implementation, is the most important feature for strengthened safeguards system.

**AP aimed to further enhance nuclear non-proliferation**

Though AP aimed at strengthening the effectiveness and improving efficiency of the IAEA safeguards system, implementation of the measures contained in the AP should not hamper economic and technological development and international cooperation in the field of nuclear activities. In case of conflict between provisions of the Safeguards Agreements and those of the AP, the provisions of the AP should be practiced.

**Under the AP States should provide expanded declarations and broader access**

States with the AP should provide expanded information on mines and concentration plans, on exports, on research and development related to the Nuclear Fuel Cycle, ten
years R&D plan and other information. The complementary access was the new element introduced in the AP aimed at verifying state declared information and clarifying inconsistencies. The State should provide the Agency access to any place on a site or any location of interest. Simplified measures for designation of the inspections should be applied under the AP.

Subsidiary Arrangements should contain procedures on implementation of the AP measures
The Agency together with the State should negotiate Subsidiary Arrangements to include all the procedures how the measures contained in the AP should be implemented in practice.

NWSs and Non-NPT States undertakings under the AP are different
Israel, India and Pakistan found it unacceptable to consider application of the measures under the Additional Protocol during the negotiations. However India has changed its position, and currently is the only Non-NPT State having the AP in place. All NWSs signed and ratified the Additional Protocol, though they all diverged from the original text of the Protocol. Their efforts aimed at political support of the universalization of the instrument. The information that NWSs provide has little value for safeguards prospective.

AP measures complementing measures under the CSA
The overall objective of these instruments is the verification of States’ obligations under the NPT. All measures contained in INFCIRC/153 Part II and INFCIRC/540 specifying the procedures need to be implemented for application of safeguards provisions and achieving the safeguard’s objective. Implementation of both the CSA and the AP makes it possible to reach the overall safeguards objective. Measures provided in the CSA aimed at verifying “correctness” of State declarations, whereas measures under the AP “completeness”. Though from the legal point of view the CSA also underlines application of safeguards on “all” source and fissionable material that authority was not used by the IAEA until the Model Additional Protocol entered into force, as no procedures have been agreed by States and have been in place.
**INFCIRC/153 and INFCIRC/540 have the same principles**

Comparative analysis showed that explicit and implicit principles of the CSA are valid for the AP as well, and no new principle was developed. With the approval of the AP, safeguards and verification principles have been prioritized in the hierarchy of the principles. Findings of the analysis confirm that all the principles of the CSA didn’t undergo any transformation, evolution or change. Thus no regime revolutionary and evolutionary change occurred in the context of the regime principles given unchanged character of the principles. Change within the regime was observed only.

**No new norm emergence was observed**

Operationalization of the regime theory and analysis of the norms both for INFCIRC/153 and INFCIRC/540 showed that both instruments are based on the main norm of the NPT, the nuclear non-proliferation norm. Analysis didn’t identify emergence of a new norm in the context of the AP. New elements introduced in the AP relate to rules and procedures and has no effect on the regime. Based on the theory no new regime has been developed, as only changes in the normative framework would lead to the emergence of a new regime.

**New safeguards rules have been developed**

Various new rules have been introduced in INFCIRC/540 to strengthen verification and safeguards norms. Procedures to describe and facilitate implementation of the rules under the both INFCIRC/153 and INFCIRC/540 need to be negotiated between a State and the IAEA and to be included in the Subsidiary Arrangements. Rules evolution was observed, more strengthened and intrusive rules were included in the AP. For rules implementation numerous guidance and policy documents were developed and approved.

As changes in the rules and decision-making procedures are not changes of the regime or emergence of a new regime, the Model Additional Protocol can’t be qualified as a new verification regime. Changes occurred within the rules and decision-making processes are changes within the regime.

**CSA and AP have the same decision-making procedures**

As AP can’t be considered as a separate document, decision-making procedures defined in the CSA should be applied for the AP implementation as well. Most
decision-making procedures are contained in the IAEA Statute. AP itself contains no decision-making procedures. For non-compliance cases both documents apply the same decision-making procedures. Decision-making bodies are the General Conference and the Board of Governors.

**The Model Additional Protocol is a negotiated instrument**

Additional Protocol was developed via negotiations, including conscious efforts to come to a compromise and it took a “formal way” of expressions of the results. The way, how the Model Additional Protocol was developed is a “negotiated order” with “constitutional contracts”. As the theory proved the AP is not a new regime, it can be considered as one of the instruments of verification mechanism of the NPT to achieve the goals and principles of the Treaty.

**States realized their egoistic self-interest collectively developing a strengthened safeguards instrument**

AP reduces transaction costs associated with monitoring and enforcement of implementation of States’ obligations. It was designed to provide information and access to the Agency to verify States’ compliance. AP also reduces information costs by providing with information on significant questions of collective interest. AP States exercise their interest collectively. They preferred cooperation against their not limited individual choice to ensure that no one cheats. AP gives tools and mandate to the IAEA to identify a State, which is cheating.

**Additional Protocol is based on “institutional bargaining” rather than on power-based models.**

Powerful States impose constraints. Iran’s agreement to implement the AP was not a voluntary action but the result of calculation. Even if states with the AP doesn’t receive tangible benefits, in a global context their national security benefits from the wider application of the AP. Costliness of the AP makes it important for States.

**The Model Additional Protocol is an accepted behaviour**

It gives States a reputation and visibility when they abide with commonly accepted norms.
**Additional Protocol is not a new regime**
Comparative analysis of the regime analytical components in relation to the CSA and the AP confirmed hypothesis that the Additional Protocol is an evolution and change within the regime itself, as only regime rules have been changed. Norms and principles of INFCIRC/153 remained unchanged and provided amplifications for State’s behavioral prescriptions and proscriptions. The Additional Protocol itself is a set of rules of the NPT verification regime.

**Changing nuclear landscape resulted in the regime dynamic**
Fast changing nuclear field resulted in dynamic of the regime expressed by new arrangements and new procedures. AP was one of changes affected by interest and new knowledge (information). Strengthening of the regime didn’t result in change of the regime and change in the distribution of the power within the safeguards regime. No evolutionary change of the regime was observed. AP can be considered as a stabilizing regime dynamic as a consequence of adaptive learning process.594

**NPT verification regime is a control-oriented regime**
As operationalization of the theory showed that the AP is not a new verification regime, but the latest instrument of the NPT verification regime complementing already adopted and accepted behavior under INFCIRC/153, it is a part of the control-oriented regime, which ensures regime effectiveness.

**Deficiencies of the NPT verification regime have been observed**
Effectiveness of the AP should be assessed in the context of the NPT verification regime. Non-compliance cases considered in the Board of Governors demonstrate the regime weakness and non-observance of the Meta norm of nuclear non-proliferation. However, States, which didn’t follow the accepted behavior hadn’t in place the Additional Protocol. Would they have the AP in place, it would reduce their opportunities for cheating. States, which bridged the adopted behavior, self-interest was in contradiction with the regime rules, disadvantages of the regime overweight the

594 Haas (1990), p. 68.
benefits. AP has been adopted as a new safeguards and verification standard to strengthen the NPT verification regime and eliminate observed weakness.

*No changes of the normative and institutional framework of the NPT verification regime has been observed*

Participatory scope can be further broadening to include more States with the APs. Stricter and well-defined compliance mechanisms would make verification and observance of norms stronger.
5 PERSPECTIVES OF UNIVERSALIZATION OF THE ADDITIONAL PROTOCOL: CASE STUDIES

After examining the Model Additional Protocol and providing comparative analysis of the regime theoretical elements pertaining to Comprehensive Safeguards Agreement and Model Additional Protocol and answering the central research question, this chapter looks to the perspectives of universalization of the Additional Protocol by conducting cases studies. Theory expectations of AP adherence are provided. With that analysis this chapter intends to answer the sub-question “Is it possible to reach the universalization of the Model Additional Protocol or its adherence by all States having Comprehensive Safeguards Agreement?”

Secondly impact of the Additional Protocol to strengthen IAEA safeguards, the NPT verification regime and the nuclear non-proliferation regime is illustrated. This analysis aimed at answering the following sub-question: “What impact does the IAEA Model Additional Protocol have on the IAEA safeguards regime and overall nuclear non-proliferation regime?”

In the third place necessity of strengthened measures including the need for a new mechanism more efficiently to tackle the non-compliance cases and to increase the robustness of the NPT verification regime is discussed. The IAEA’s State level concept to plan and carry out safeguards measures and verification activities are briefly described to provide a broader picture on the robustness and effectiveness of the IAEA safeguards regime and verification activities. Prospects for a new AP plus instrument are illustrated.

5.1 Case Studies

Methodology
At the first step theory expectations (neorealism, neoliberal institutionalism and constructivism) in regard of the universalization of AP are clarified.

Secondly, this dissertation reviews some of the most important States for the purpose and prospect of the Additional Protocol universalization. The main endeavor of these case studies is to investigate why did states decide to pursue the Additional Protocol having already developed nuclear weapons (India) or nuclear industrial capabilities to develop a nuclear weapon (Iran) and why some do not (Pakistan, Israel, Syria, Egypt, Argentina and Brazil)? Further some of those States that have both motives and
capabilities to develop nuclear weapons are examined. As IAEA gives the highest priority to its efforts to universalize AP to States with “significant nuclear activities”, a few of them have been chosen for case studies, to understand underlying reasons not to join the new commonly accepted behavior and what is prospective for those States to adhere AP in the near future.

Third, observations and evidence gained during the case studies are being matched against the theory expectations to show which theories are supported.

5.1.2 Theoretical Expectations on Additional Protocol Adherence

5.1.2.1 Introduction

Though after discovery of Iraqi clandestine nuclear program new efforts have been taken to strengthen the safeguards system and the Model Additional Protocol was approved by the Board, some states such as India, Pakistan, Israel, Brazil, Argentina, Venezuela, and others made it clear from the beginning that they will not be bound by new strengthened measures. Nevertheless, these were not only declarations, for instance, in 1998 India and Pakistan conducted several underground nuclear tests, which were a big blow to the international community’s efforts of some years to strengthen the nuclear non-proliferation regime. But situation has been changed by the time. Contrary to its nuclear program and previous statements, India ratified the Additional Protocol in 2014. Iran started provisional implementation of AP. But some other States, which has been categorized by the IAEA as States with significant nuclear activities still continue to refuse to sign and ratify the Additional Protocol. Why do these States make such policy choices? Understanding of policy choices of States can widen our knowledge and may possibly assist to influence them to commit to regime norms and rules and to reform their future decisions. The theoretical framework provided in the second Chapter explains states policy options from the perspective of neorealism, neoliberalism and constructivism. If for some States assumptions of the realism can be applied, for other States it fails to explain their policy motivations and options. The same applies for neoliberalism and constructivism. Why States with significant nuclear activities don’t acquire a nuclear weapon? Only one theory is not able to explain all the cases and events taken place in the international relations.
Scot Sagan in his “Three Models in Search of a Bomb” book gives three demand-side theoretical frameworks for proliferation.\textsuperscript{595}

Security Model proposes that States go nuclear to have a nuclear deterrent if they face a military threat and if they don’t face such a threat they will not pursue nuclear weapons. This assumption is based on realism assumptions;

Domestic politics model suggests the need for establishment of domestic coalitions within governments either supporting or preventing the development of a nuclear weapon program. According to this model proliferation is a result of “parochial bureaucratic or political interest of at least some individual actors within the state”.\textsuperscript{596} Consequently domestic political factors dictate whether to move towards nuclear direction or no;

The Norms Model focuses on norms in regard of obtaining weapons and sees nuclear decisions as symbolic functions, which shape and reflect state’s identity. According to this model State behavior is formed not by decision makers’ calculations about the national security interest but by norms and shared beliefs about what actions are appropriate and accepted.\textsuperscript{597}

5.1.2.2 Neorealism

If to consider that international cooperation is not possible in international relations and states should rely on themselves than, then a rational state will seek to get nuclear weapons.\textsuperscript{598} The states, which wish to acquire nuclear weapons, seem have a fear from a nuclear threat. Some states face external threats, other eager to become hegemonic state or regional power, but the benefit of having nuclear weapons outweighs the threats. But why states go nuclear or reject to choose that policy option. Neorealism brings some explanations:\textsuperscript{599}

- Lack of threat - states obtain nuclear weapons to balance threats posed by potential enemies and if they see no threat they don’t go nuclear;
- Lack of regional threat - states obtain nuclear weapons to balance threats from

\textsuperscript{595} Sagan (1997), pp. 57-73.  
\textsuperscript{597} Sagan (1997), pp. 57-73.  
\textsuperscript{598} Rublee (2009), p. 6.  
\textsuperscript{599} Rublee (2009), pp. 22-24.
potential regional adversaries, and if they don’t see that threat they will not acquire nuclear weapons;

- Security guarantees - as states seek nuclear weapons to balance threats from potential enemies, they need security guarantees which will mitigate a need for nuclear weapons;
- Nuclear weapons weaken security - if state sees that acquiring nuclear weapons will harm their security, they will not seek nuclear weapons. Acquisition of nuclear weapons can make a state a target for other nuclear weapon state;
- Alternative means of deterrence - deterrence against nuclear weapons can be obtained through acquisition of chemical or biological weapons.600

To summarize above given neorealism assumptions, States’ security is on the highest level and they come to certain decisions based on cost-benefit calculations. Agreements are not guarantee for security in a self-help world, thus nuclear weapons are necessary tools for national security. States try to obtain nuclear weapons to balance the threat from their enemies. Those states, which have no such security situation and potential adversaries, will not strive for nuclear weapons. Those with regional adversaries are the ones who will seek to obtain nuclear weapon to balance the threat. Security guarantees can diminish the necessity to get nuclear weapons. Security guarantees can have a form of agreement or other type of commitment, which ensures to protect another state during the security threat. Acquiring nuclear weapons can harm national security, as the state will become the target for nuclear weapons states. States, which has such a security dilemma will not sign and implement the Additional Protocol as it will enormously limit their prospects to develop a nuclear program and it would put them in more disadvantaged situation. States with security guarantees, for example NATO states, states, which belong to other regional military blocks, will seek to ensure reliability of the guarantee from the guarantor. Those states, which will afraid of becoming target for their nuclear programs would decide not in favour of acquiring nuclear weapons, thus can make a choice of ratifying the Additional Protocol.601

5.1.2.3 Neoliberal Institutionalism

From the perspective of neoliberal institutionalism the material benefits offered by the NPT and AP will lead states to choose nuclear restraint, escaping the security dilemma: States, which wish to escape security dilemma will join the NPT and the AP, which provide verification with the Treaty obligations.602

Based on neoliberal assumptions multilateral organizations reduce transaction costs, monitor compliance and increase transparency. The benefit of being inside of the regime will change cost-benefit calculations and influence state policy and decision-making and states will not go for nuclear choice, however states’ desire to have nuclear weapons will not change. Material benefits which offer the NPT (technology and knowledge transfer), the CSA and the AP (broader access, costly extended information, transparency, confidence building and deterrence), will persuade states not to go nuclear. States will adhere to AP, which increases transparency and compliance control, and also mitigates anarchy. States joining AP will seek means to enhance and strengthen monitoring compliance.

5.1.2.4 Constructivism

The fear for social costs and the desire for social rewards can persuade states not to acquire nuclear weapons. States which will choose not to pursue a nuclear path owing to internalize beliefs will be loyal to their beliefs. It will be reflected in policy commitments, and financial resources spent.603 States will join AP because of social conformity and not because they think it is the best decision for their national security. Constructivism explains deterrence with conviction - changes in states thinking about the security lead them to forgo nuclear weapons, social conformity: the fear of social costs and the desire for social rewards can motivate states to exercise nuclear forbearance, identification – state, which value compliance with the NPT verification regime norms and their status in regime will be more likely to forgo nuclear

Nuclear non-proliferation norm changed state’s cost benefit calculations, and with interaction with other variables nuclear non-proliferation has been seen as more favorable outcome. Before the NPT those who proliferate or developed nuclear weapon haven’t been considered as behaving ethically bad and they haven’t been accused for their policy choices. Only after the signature of the NPT and development of the norm that behavior has been seen as unacceptable. Now in safeguards environment AP is considered as a highest level of norm observance, thus States signing AP increase their reputation. Observing others behavior contributes in forming and understanding what is correct and normal. As many actors behave in the same way as more states accept it as a correct behavior. Behavior of other states in our social environment shapes our understanding and response to a situation. “Injunctive norms can prescribe proper behavior or proscribe improper behavior. Such norms usually bring social rewards for those who comply, or social sanctions for those who do not, whether stated or not”. The international social environment promoted by the Additional Protocol boosts states to accept the AP as an accepted behavior.

5.1.3 Case studies

Having these theoretical explanations, why do certain states knowing material benefits of joining the Additional Protocol, which would give them also possibility to escape the security dilemma and increase their social status and reputation still resist that policy option? For that purposes the demand side, political motivations and reasons for adopted policy options of the selected States are analyzed below.

For case study purposes the following Stats have been chosen:
MENA Region: Egypt, Syria, Iran and Israel.
South East Asia: India and Pakistan.
Latin America: Argentina and Brazil.

Though states with significant nuclear activities such as Venezuela or DPRK, would also be interesting to study, this dissertation limited itself with selected states only. For

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example, DPRK has withdraw from the NPT, doesn’t implement any safeguards obligations and doesn’t allow the IAEA inspections to carry out any verification activity, continues development of its nuclear weapons program and carries out nuclear test. In this context no prospects that in the near future, the country would change its policy towards the nuclear non-proliferation if no major geopolitical events and changes happen. Thus probability of accession to AP by DPRK is below zero.

5.1.3.1 Middle East and North Africa (MENA)

In order to understand the aspirations of States with nuclear activities from the MENA region, one should look first at the broader regional context and their behavior towards the nuclear non-proliferation regime. As seen from the history the region had faced many wars and currently has both external and internal threats. Israel had wars with Arab States in 1956, 1967, 1970 and 1973. Iraq had a long war after invading Iran in 1980. Nowadays main threat perceptions in the region are along Iran and Israel, though there is no history of direct war and both countries are not neighbors geographically. However, Iran has a fear that Israel might strike Iran’s nuclear facilities as it did against Iraq and Syria. Israel, on the contrary, has fear from Iran and all other Arab states. Despite the fact that Israel has peace treaties with Syria and Egypt, their relations continue to be hostile. Gulf States worry about the Iran’s nuclear program.\textsuperscript{607} Nuclear program development in the region was not fast. Some of the States have had nuclear programs in the past such as Iraq and Libya, some of them expressed interest to develop nuclear programs such as Egypt and Turkey, while some among them Syria, Saudi Arabia and Algeria are suspected to have such aspirations. Israel is considered the only state in the Midle East region that possess nuclear weapons, though it doesn’t meet strong international pressure from the international community (except of the Arab world) as it would be in case another State would have such capabilities. However, knowing Israel’s actual nuclear capabilities and existence of nuclear weapons in the country, States in the Middle East currently are not following a nuclear weapon path. Only Iran has advanced in its enrichment capabilities making him capable theoretically to develop a nuclear weapon.\textsuperscript{608} Recent years the international

\textsuperscript{607} Walsh (2014), pp. 262-263.
\textsuperscript{608} Walsh (2014), pp. 262-263.
community was concerned and busy mainly with the Iran’s nuclear program and Iran’s non-compliance with its safeguards commitments. However, comparing Israel and Iran’s nuclear programs, of course, Israel’s program raises more concerns than Iran’s one. But international pressure on Israel to join the NPT and put its nuclear arsenals under safeguards can’t be considered proper.

<table>
<thead>
<tr>
<th>Country</th>
<th>Nuclear Weapons</th>
<th>Chemical Weapons</th>
<th>Biological Weapons</th>
<th>Ballistic Missiles</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Algeria</em></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><em>Egypt</em></td>
<td>No</td>
<td>Has used in past. Suspected of having chemical capability. No information on current stockpiles.</td>
<td>Limited OS information. Probably no active program, although it has strong technical base.</td>
<td>Missile program (capability for Scud-B and enhanced Scud-C production).</td>
</tr>
<tr>
<td><em>Iran</em></td>
<td>Advanced fuel cycle capabilities. Concerns on possible military dimensions of the program.</td>
<td>Capability, but no stockpiles.</td>
<td>No</td>
<td>Committed to one of the most sophisticated missile programs in the Middle East. Shahab missile. Launched space vehicle in 2011.</td>
</tr>
<tr>
<td><em>Iraq</em></td>
<td>Extensive past activity; no known current program.</td>
<td>Extensive past activity; no known current program.</td>
<td>Extensive past activity; no known current program.</td>
<td>Extensive past activity; no known current program.</td>
</tr>
<tr>
<td><em>Israel</em></td>
<td>Reportedly possesses 60-400 weapons</td>
<td>Capability, no stockpiles.</td>
<td>Conflicting reports.</td>
<td>Region’s most advanced missile program. Advanced ballistic (Jericho II and III) and cruise missiles, and missile defense systems. National space program</td>
</tr>
<tr>
<td><em>Libya</em></td>
<td>No</td>
<td>Renounced in 2003; previously unknown stocks declared in 2011-12.</td>
<td>No</td>
<td>Very limited and outdated missile arsenal from the 1970s.</td>
</tr>
<tr>
<td><em>Saudi Arabia</em></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>36 CSS-2 intermediate-range ballistic missiles purchased from China.</td>
</tr>
<tr>
<td><em>Syria</em></td>
<td>No, although suspected interest in acquiring</td>
<td>Suspected of having the most advanced CW</td>
<td>Conflicting reports.</td>
<td>Possesses one of the largest arsenals of ballistic missile in the</td>
</tr>
</tbody>
</table>
According to IAEA, the building bombed by Israel in 2007 was a nuclear reactor.

Middle East, including three domestically assembled Scud missile variants, and a solid-propelled missile.

Table 22: WMD capabilities of some Middle East States
Source and modified table: Foradori/Malin (2012), p. 11

As seen from the above-illustrated table, some of the Middle East States tried to acquire WMD capabilities to counter the regional security threat. Thus weapons of mass destruction and their delivery systems play a key role in the national security strategies of some Middle East States. Mistrust about the intentions among the States in the region resulted in the need to acquire nuclear, biological, and chemical weapons. Current adversary and tension is based on this distrust, which hinders any arms control and disarmament negotiations among them. WMD have been seen as a good deterrent for future conflicts that is the reason that any negotiation to ban the possession of such weapons brought no results. Absence of the trust undermines the resolution of existing political questions.609

Besides of the threat perception as a result of what they don’t give up their aspirations of developing nuclear weapons, concerns over a discriminatory nature of the norms of the nuclear non-proliferation regime plays a central role, which in its turn forced some of these States not to adhere to AP.

<table>
<thead>
<tr>
<th>N</th>
<th>Didn’t sign</th>
<th>Signed</th>
<th>Ratified</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Egypt</td>
<td>Algeria</td>
<td>Bahrain</td>
</tr>
<tr>
<td>2</td>
<td>Israel</td>
<td>Iran</td>
<td>Iraq</td>
</tr>
<tr>
<td>3</td>
<td>Lebanon</td>
<td>Tunisia</td>
<td>Jordan</td>
</tr>
<tr>
<td>4</td>
<td>Oman</td>
<td>Kuwait</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Qatar</td>
<td></td>
<td>Libya</td>
</tr>
<tr>
<td>6</td>
<td>Saudi Arabia</td>
<td></td>
<td>Morocco</td>
</tr>
<tr>
<td>7</td>
<td>Syria</td>
<td></td>
<td>UAE</td>
</tr>
<tr>
<td>8</td>
<td>Yemen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total 8</td>
<td>Total 3</td>
<td>Total 7</td>
</tr>
</tbody>
</table>

Table 23: The Additional Protocol Status in the MENA region
Source: IAEA

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610 List of the MENA countries corresponds to the list of the World Bank.
Nevertheless, effective implementation of the INFCIRC/540 in the region as a confidence-building measure and verification tool will contribute to the establishment of the NWFZ in the Middle East. As seen from the table to date only seven states in the Middle East have an Additional Protocol in force, three States signed but didn’t ratify it, though Iran currently provisionally implements the AP and eight States didn’t sign at all. Though Saudi Arabia may have aspirations for the nuclear program, it hasn’t explicitly announced opposition to the AP. Egypt and Israel are the only States, which have strong opposition and political position towards the signature and implementation of the AP.

5.1.3.1.1 Egypt

Non-proliferation commitments

Egypt ratified the NPT in 1981. Country has Comprehensive Safeguards Agreement (INFCIRC/302) in place. Egypt is the main advocate of creating a Middle East NWFZ. It continues criticizing the nuclear non-proliferation regime and mainly issue of universality as some States, including Israel, remain outside of the NPT. Egypt is also against the rise of non-proliferation measures in the absence of progress on nuclear disarmament norm. Based on this argumentation country rejects to sign not only the Additional Protocol but also the Chemical Weapons Convention, and to ratify the Comprehensive Nuclear Test Ban Treaty, the Biological and Toxin Weapons Convention and the African Nuclear Weapon-Free Zone Treaty. Egypt is an Annex II State, and its ratification is required for entry into force of the CTBT.

Egypt is the leading country of the Arab league. In 1974 country tried to revive the nuclear non-proliferation norm sponsoring Iranian resolution, which called for Nuclear Weapon Free Zone in the Middle East and was adopted by consensus already in 1980. In 1995 Egypt forced the resolution to be part of the NPT Review Conference. Resolution was calling to universal adherence to the NPT and establishing a NWFZ in the Middle East. Now days the resolution is part of the IAEA General Conference agenda as well. Both actions included in the resolution targeted to Israel’s nuclear capabilities. Egypt and Israel continue to approach the talks in creating a NWFZ in the Middle East with counter goals, as a result any official meeting aimed at establishing the NWFZ is delayed.
History

The Egyptian Atomic Energy Commission (AEC) before the Six Day War of 1967 made significant progress in developing country’s nuclear infrastructure. Country launched also ballistic missile program, which could deliver nuclear weapons in case Egypt would take a decision to “go nuclear.” Under the cooperation agreement with the USSR the country received research reactor, however the amount of plutonium produced by the reactor usable for a nuclear weapon was not significant. Israel’s announcement that country was constructing a nuclear research reactor raised significant concerns among the neighboring states. And it is well accepted that Egypt increased its aggressive statements relating to the issue of nuclear weapons following the Israeli statement. Egypt started its most active period of nuclear program expansion in 1960-1967. Scientists believe that Nasser's government was pursuing nuclear weapons.\textsuperscript{611} Some reports alleged that Egypt asked either nuclear weapons or related assistance from the USSR, China, and India.\textsuperscript{612} However, none of its diplomatic efforts had been successful. 1967 War had devastating consequence on the country’s economy, and the development of the nuclear program has been stalled. Changes of the decision makers and geopolitical circumstances also changed Egypt’s policy options to tackle the Israeli threat. Contrary to realist assumptions, Egypt decided to follow the nuclear non-proliferation path.

Egypt’s nuclear weapon program was frozen after reaching peace treaty in 1979 with Israel. The treaty resulted in robust relations with US. Stability and peace in the region and regional dominance were one of the incentives no to pursue nuclear weapons. In case the Egypt would choose another path it would meet the resistance of international community. In 2004, IAEA found Egypt’s violations of its Safeguards Agreement in non-reporting experiments with uranium, which has been conducted between 1990 and 2003 as well as not reporting imports of uranium in its initial inventory.\textsuperscript{613} Though these activities under CSA are not forbidden, States should not fail to report them. Nevertheless, the IAEA Director General’s 2005 report pointed out the non-compliance and outstanding issues in regard of "uranium conversion experiments, uranium and thorium irradiation experiments, and preparatory activities related to

\textsuperscript{611} Egypt, NTI (2016).
\textsuperscript{612} Fitzpatrick (2008), pp. 19-20.
\textsuperscript{613} Implementation of the NPT Safeguards Agreement in the Arab Republic of Egypt, (2005).
reprocessing.”⁶¹⁴ Need to be mentioned that traces of highly enriched uranium were found in Egypt in 2007 and 2008.⁶¹⁵ According to another source the IAEA inspectors found plutonium footprints and “hot cell activity” as well taken place in Egypt⁶¹⁶. However, it was not possible to identify the origin of the HEU. Egypt explained its not reporting of various experiments with pure interpretation of CSA. As country showed readiness and willingness to cooperate in clarifying all outstanding issues, Agency has been able to evaluate fully Egypt’s nuclear activities. As Egypt hasn’t signed the Additional Protocol it was impossible to access to the sites of interest and confirm the absence of undeclared nuclear activities in the country.

**Current nuclear program**

Egypt’s current nuclear policy isn’t aimed to develop nuclear weapons, which is also in contradiction with the country’s national interests. Since 2006 Egypt revived its interest in nuclear power declaring about country’s plans to construct 10 nuclear power plants.

Egypt has more developed civil nuclear program in comparison with other Middle East States, though it is mainly based on research. Country has two operational research reactors and has tried to acquire a nuclear reactor, however its efforts were not successful so far. Egypt has developed proliferation sensitive technologies such as plutonium separation and spent-fuel management technologies, which theoretically might be applicable to a nuclear weapons program.⁶¹⁷ However, Egypt has no enrichment and reprocessing capabilities.

**Country’s position to the adherence to the Additional protocol**

The main argument of the Egyptian policy makers not joining AP is Israel’s nuclear weapons. Ratifying the NPT Egypt hoped that Israel would also decide to be within the regime, however, Israel being one of the four countries Non-Party to the NPT lags

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⁶¹⁵ Egypt, NTI (2006); "IAEA probes enriched uranium found in Egypt, says report" (2010).
⁶¹⁶ Kerr (2005).
Egypt to sign AP. Country doesn’t want to take additional nuclear non-proliferation obligations, while the only State in the region continues to develop its nuclear weapons capabilities and doesn’t follow the general accepted behavior. Egypt made it clear in many occasions that ratification of AP will be possible only if Israel’s nuclear issue is considered. Though, it should be mentioned, that country stated, that non-officially they would follow the AP spirit.  

"In the Middle East, Israel regrettably remains the only state that refuses to undertake a legally-binding commitment not to acquire nuclear weapons, and to subject its nuclear facilities to comprehensive IAEA safeguards. Every effort must be made to remedy this dangerous destabilizing situation."

Egypt contends that it was deluded to sign the NPT and agreed to an indefinite extension of the treaty in 1995 on the understanding that there would be tangible progress towards a NWFZ in the Middle East. Egypt’s official stance was articulated ever clear; Egypt will not take on any more unilateral non-proliferation obligations while Israel accepts none.

Egypt’s position on the AP puts into question the realist assumptions that countries cooperate when there is a threat or so called security dilemma. Egypt’s signature of the AP is closely interconnected with Israel’s nuclear weapons program. One can expect country’s acceptance of the AP in case Israel joins the NPT and puts its nuclear arsenal under the IAEA comprehensive safeguards. Though with signature of the NPT, Egypt tried to follow accepted behavior, and show its social conformity, but not joining AP, constructivism assumptions on reputation and norm observance are not valid here.

Signing the NPT, Egypt looked for material benefits offered by the Treaty.

From another side at least in its current policy in developing of the nuclear program and in its official statements, Egypt tries to show observance of nuclear non-proliferation norms, though in the region, international concerns on norms observance haven’t given the State impetus in their policies concerning the WMD. It is enough to mention that Libya, Iraq, Iran, Syria violated their NPT obligations.

Domestic political opposition shouldn’t be ignored as well and it plays a big role in government’s position towards the AP. Egypt has been criticized domestically on the

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fact that Arabs have been disarmed but Israel has been allowed to keep its nukes. To sum up, Egypt will sign and ratify the Additional Protocol, if Israel will show positive steps towards adhering to nuclear non-proliferation regime norms, otherwise Egypt’s perspectives to sign the AP is unlikely.

5.1.3.1.2 Syria

Non-proliferation commitments
Syria didn’t sign the IAEA Additional Protocol. Country is a party to the NPT since 1969 and has a Comprehensive Safeguards Agreement with the IAEA (INFCIRC/407) in force since 1992. Syria didn’t sign the CTBT, though it is an Annex II country, and its ratification required for the Treaty to enter into force.

History
Since 1980s Syria’s policy aimed at increasing its nuclear capabilities and receiving technologies including a reactor through foreign assistance, mainly cooperating with Argentine, China, and Russia. However, country wasn’t successful in its policy until 1991, when China started to construct Syria’s first research reactor. The miniature neutron source reactor went critical in 1996. Despite of the fact that reactor capacity was not enough to raise proliferation concerns, the IAEA inspection team identified the presence of undeclared uranium in 2008 and 2009.622 Allegedly Syria constructed a nuclear reactor at a remote site in Dair Alzour between 2001-2007. Analysis of satellite imagery showed that is was similar to the plutonium production reactor at Yongbyon in North Korea, using natural uranium. However the fuel wasn’t loaded to the reactor because of the Israeli air strike. In 2007 Israel destroyed a reactor site, where allegedly Syria was trying to construct a plutonium production plant and since then blaming Syria in clandestine nuclear program.623 Allegations claimed that reactor would have been capable of producing enough plutonium for one or two weapons per year. The remains were demolished and buried aftermaths not leaving evidence on the existence of the reactor and making it hard for

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621 Walsh (2010), p. 266.
623 Allegations have been made by US and Israeli Intelligence Agencies.
the IAEA inspectors to verify the facts. As asserted the reactor evidently aimed at production of weapons grade plutonium; it was not declared activity and was not in line with Syria's obligations under the NPT. However Syria declared, that it was a military non-nuclear facility. There were allegations that Syria has received a direct assistance from Russia, China, Iran and North Korea to develop WMD and its ballistic missile program, however, Syria has denied all these allegations. Taking into account these allegations, the issue of Syria’s non-compliance with its safeguards commitments has been involved in the agenda of the IAEA Board of Governors and since 2008 it remains one of the outstanding issues of Agency’s concerns. The IAEA visited the alleged site in June 2008, and results of the environmental samples taken there, showed traces of man-made uranium. The Board has called Syria to cooperate with the IAEA to resolve all outstanding issues and to provide the IAEA with access to all information, persons, sites and materials in order to verify the peaceful nature of Syria’s nuclear program. In Director General’s 2010 report, the IAEA said that cooperation with Syria has reduced and Syria didn’t provided access to several alleged cites. After the investigation of the issue by the Agency, which lasted three years, in May 2011, Director General of the IAEA in its report concluded, "that it is very likely that the building destroyed at the Dair Alzour site was a nuclear reactor which should have been declared to the Agency." Based on these findings of the report the IAEA Board of Governors passed a resolution on Syria’s non-compliance with its safeguards obligations and reported the case to UN Security Council.

Current nuclear program

Syria’s nuclear facilities have been constructed with the assistance of the IAEA technical cooperation projects since 1970s. Under those projects Syria received about $14.5 million assistance from 1997-2007.

624 Nuclear Proliferation Case Studies, World Nuclear Association (2016).
625 Syria, NTI (2016).
626 GOV/2008/60 (2008).
628 Nuclear Proliferation Case Studies, World Nuclear Association (2016).
630 Syria, NTI (2016).
631 Nuclear Nonproliferation: Strengthened Oversight Needed to Address Proliferation and Management
Currently Syria has the miniature neutron source reactor (constructed with the assistance of China) and a cyclotron facility (was built with Belgian company), which carry out mainly R&D activities, they are both placed at the Atomic Energy Commission of Syria. Having phosphate rocks country tried to find processes to recover uranium from rocks. Currently Syria carries out mining activities at several sites. IAEA provided with the uranium recovery micro-pilot plant at Homs, which is currently operational. That was the first step in country’s civil nuclear program. Country operates the phosphoric acid pilot plant at Homs since 2001. Syria today has no conversion, enrichment or fuel fabrication capacities, and from financial point of view it would not be feasible for Syria to industrialize its limited uranium extraction capabilities.\textsuperscript{632}

But one should know that the analysis of the results of verification activities carried out by the IAEA showed that by 2012 Syria had approximately 50 tons of natural uranium, which would be enough material for three to five bombs once the enrichment procedure is completed.\textsuperscript{633}

\textit{Country’s position to the adherence to the Additional protocol}

Though the IAEA and the Board of Governors have constantly called on Syria to sign and fully implement the Additional Protocol, Syria hasn’t signed it yet.

Desire to have nuclear weapons can be seen as an incentive for a State not to put itself under the strict safeguards measures. First of all, if allegations are grounded then Syria was developing a clandestine nuclear program, which means the country would not agree to join the AP (as an INFCIRC/153 State) under which it is almost not possible to develop a hidden nuclear weapon. In case of any suspicion, Agency under the AP would go any site and location of alleged activity. Thus in case country has still ambitions and plans to develop a nuclear weapon, then it will be not possible in the near future to see Syria joining the AP. So absence of the desire to sign the AP and refusal to ratify it can be a sign of the clandestine nuclear program or that they have

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\begin{itemize}
\item \textsuperscript{632} Changes in IAEA's Technical Cooperation Program (2009).
\item \textsuperscript{633} SYR/3/003: Uranium Recovery from Phosphoric Acid, IAEA TC Project (1986); Syria: Past, Present and planned Facilities, NTI (2016).
\item \textsuperscript{633} Nuclear Weapons Programs, Global Security (2015).
\end{itemize}
something to hide. However, one should not forget the current devastated situation in the country after the civil war. In these circumstances country would not be in position to develop any industry capable of developing a nuclear weapon. Second, after the Israeli airstrike of the alleged reactor site and extensive international investigation as a consequence of Syria’s non-compliance with its safeguards obligations and the fact that Syria’s issue is still in the Board of Governors’ agenda since 2008, possibility that Syria will join the AP regime is relatively low. Thus in the light of the ongoing nuclear dispute, international pressure and interference in domestic issues, Syria will be hesitant to sign the AP.

Thirdly, as in the case of Egypt, Syria also had historically called for a Nuclear Weapon Free Zone in the Middle East. Syria together with other Arab States continuously raised the issue of the discriminatory character of the NPT and failure of the NWSs to implement Article IV of the Treaty. Syria in many occasions underlined the right of the States for peaceful use of the nuclear energy. Even if Syria would not have an intention or ambition to develop a clandestine nuclear program and nuclear weapons, Israel’s policy towards the nuclear non-proliferation regime and being outside of the NPT is strong enough justification and explanation of Syria’s position of not joining AP. Iran, Egypt and Syria want to see the balance in the region, which, in the present stand of the Israel’s nuclear capabilities, is not far “ideal” for Arab States. Thus only Israel’s policy explains Syria’s hesitance in ratifying AP. So “the use of the AP as leverage for addressing Israel’s nuclear weapons status comes closest to providing a general explanation for the MENA region”.

Analyzing the Arab States positions, one can conclude that their rejections of the AP are interconnected with the Israel’s nuclear program. Furthermore, it is evident that Israel will not undertake any steps to make its nuclear program transparent or put it under the IAEA strict safeguards. Taken into account that fact, in that context, it is unlikely that Syria’s position would change in regard of the AP. However, one of the possibilities that Syria might join the AP could be a change of the positions of other States in the region. For instance, if Iran and Egypt join and implement the AP it could be harder for Syria to explain its position and reject the AP. Given the fact that currently Iran provisionally implements AP, such a nuclear deal might be reached with

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Syria as well, especially taking into account the situation in Syria and that dominant states can use that situation to enforce the country to sign and ratify AP.

## 5.1.3.1.3 Iran

**Non-proliferation commitments**

Iran is a Party to the NPT since 1970. Country has Comprehensive Safeguards Agreements (INFCIRC/214) in place since 1974. Though Iran signed the Additional Protocol in 2003, to date it didn’t ratify it. Since December 2015, Iran provisionally and indefinitely started to implement the provisions of the AP under the nuclear deal reached with P5+1. Iran didn’t sign the CTBT. Though, being an Annex II country Iran’s ratification of the CTBT is vital for entry into force of the Treaty. Iran is an advocate of nuclear disarmament and balanced and non-discriminatory safeguards obligations for NWSs and NNWSs.

**History**

Iran has been engaged in peaceful nuclear program since 1950s and in order to realize it received technical assistance from the US, which ended in 1979 after the Iranian revolution. Under the assistance program US provided Iran with the research reactor (TRR) in 1967, which operates with highly enriched uranium. Despite the fact that US stopped to assist Iran, country continued to be interested in nuclear technology. In 1973 Iran announced its plans to develop a nuclear power, and for that purposes it has signed contracts with foreign companies and trained its staff. Though, already by 1979 Iran had developed nuclear capabilities and technologies, after the revolution works on nuclear projects have been suspended because of Khomeini’s policy towards nuclear program. However, in 1984 Khomeini changed his policy course and started to find partners to complete the construction of the suspended Bushehr Nuclear Power Plant. Iran signed nuclear cooperation agreements with China and Pakistan according to which China had to provide miniature neutron source reactor and power reactors, while Pakistan to train the staff. As US intelligence had doubts about the

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635 Iran invested in uranium enrichment plant in France, in uranium mine in Namibia and signed contract to buy yellowcake from South Africa.

intentions of Iran’s nuclear program, it started to urge potential suppliers not to provide technologies to Iran. As a result China didn’t provide research reactor and power reactors to Iran.\textsuperscript{637} Iran concluded nuclear cooperation agreements with Russia in 1992 and 1995 as well, under which it was envisaged to assist Iran to complete Bushehr power plant; provide a research reactor, a gas centrifuge plant and a fuel fabrication plant.\textsuperscript{638} In 2002 it became evident the availability of undeclared nuclear facilities in Iran. IAEA conducted inspections in those nuclear facilities to clarify Iran’s nuclear program. As declarations provided by Iran were inconsistent with the findings of the inspections, starting from 2003 Iran’s nuclear program and it’s non-compliance issue became a significant concern for the international community and since then the issue of Iran’s violation of its safeguards obligations was in front of the IAEA Board of Governors. Under the international pressure, Iran stopped its enrichment activities in 2003. However, it lasted only three years, and in 2006 Iran restarted its gas centrifuge program, its uranium conversion and stopped implementation of the Additional Protocol, which country was implementing on a voluntary basis. Iran also didn’t cooperate in a way to provide the IAEA with satisfactory answers on country’s nuclear weaponization program and development of nuclear warheads for missiles. The U.N. Security Council adopted various economic sanctions against Iran between 2006 and 2010 as country failed to implement provisions of the IAEA BG and UNSC resolutions, i.e. stop enrichment activities and cooperate adequately with the IAEA.\textsuperscript{639} Contrary to all diplomatic efforts, Iran stopped its voluntary implementation of the INFCIRC/540 and restarted its enrichment activities at Natanz in 2006. Under these circumstances the IAEA Board of Governors reported Iran's non-compliance case to the UN Security Council. UN SC passed Resolution 1696 in July 2006, requesting Iran to cease enrichment activities; resolution banned the international movement of nuclear and missile technologies to Iran, and imposed sanctions.\textsuperscript{640} Iran in response to this resolution inaugurated a heavy water production plant at Arak and continued its enrichment activities. As a result of Iran’s ignorance of the resolution, UN SC passed

\textsuperscript{637} Iran, NTI (2016).
\textsuperscript{639} Albright/Stricker (2015).
other resolutions on Iran. In order to address the Iran’s non-compliance issue, all together, UN SC has adopted seven resolutions. Six resolutions\(^\text{641}\) appealed Iran to stop its uranium enrichment and heavy water reactor related activities and as a confidence building measure ratify and implement the Additional Protocol.\(^\text{642}\)

Though negotiations between Iran and P5+1 resumed in 2009, the deal was not able to reach agreement on outstanding issues. Tensions with the international community increased further after Iran announced about its intention to build 10 additional uranium enrichment plants. Already in 2010 experts assured that Iran in one year would be able to produce enough weapon-grade uranium to develop a nuclear weapon. In the IAEA’s report from 2011 on possible military dimension of Iran’s nuclear program, concerns were raised on proofs that country had worked on nuclear weaponization and the development of a missile delivery system.\(^\text{643}\)

After election of more moderate President, Iran was more willing to negotiate. In November 2013, Iran and P5+1 announced the Joint Plan of Action, an agreement that limited some areas of Iran’s nuclear program, while a comprehensive and final agreement were still to be negotiated. Negotiations between P5+1 and Iran finally resulted in the adoption of the Joint Comprehensive Plan of Action (JCPOA) on July 14, 2015. Under the comprehensive 25 year nuclear Agreement Iran agreed to limit its nuclear program, address all issues in relation to the past nuclear weapons program and implement provisionally AP, which would increase the IAEA’s ability to verify the absence of undeclared nuclear activities and facilities.\(^\text{644}\) In return, sanctions on Iran would be removed. UN SC with its Resolution 2231 (July 14, 2015) endorsed JCPOA, laid grounds for lifting the sanctions from Iran and requested the IAEA to report on progress on implementation of the Agreement and Agency’s efforts to reach a broader conclusion about Iran's nuclear program.\(^\text{645}\) On January 16, 2016, all nuclear-related sanctions posed on Iran were lifted in response to its progress implementing the provisions of the Agreement.\(^\text{646}\)

\(^{641}\) UN SC adopted resolutions are as follows: Res. 1696 (July 31, 2006), Res. 1737 (December 23, 2006), Res. 1747 (March 27, 2007), Res. 1803 (March 3, 2008), Res. 1835 (September 27, 2008) and Res. 1929 (June 9, 2010).

\(^{642}\) UN Security Council Resolutions on Iran, Arms Control Association (2015).


\(^{644}\) S/2015/544, UN SC (2015).

\(^{645}\) UN SC Resolution 2231(2015).

\(^{646}\) IAEA Director General's Statement on Iran (2016).
In parallel to JCPOA, Iran has also concluded a "Roadmap for Clarification of Past and Present Outstanding Issues" agreement with the IAEA to resolve the questions the IAEA still has pertaining to the possible military dimensions of its nuclear program. In his report to the Board of Governors on December 15, 2015 the IAEA Director General reported that issue was resolved.647

**Current nuclear program**

Iran has developed an comprehensive NFC, containing sophisticated enrichment capabilities. Country has uranium milling and mining, yellowcake production, conversion facility, enrichment plant, fuel fabrication plant and interim waste facility. Country operates nuclear power reactor in Bushehr. Country carries out extensive research and development activities in many research centers.648 For instance, Tehran Nuclear Research Centre (TNRC), which is multipurpose research complex conducts research on conversion, enrichment, purification and reprocessing.649

**Country’s position to the adherence to the Additional protocol**

As already stated since 2003, the IAEA has been involved in the verification of the Iranian nuclear programme and allegations concerning its non-peaceful nature of the nuclear program. The IAEA repeatedly underlined that to conclude on the nature of Iran’s nuclear program and, especially, on the correctness and completeness of Iran’s declarations Agency would need full verification authority and implementation of the measures contained in the Additional Protocol. Based on the IAEA calls Iran as a confidence building measure decided to sign the Additional Protocol.650 Of course by signing AP Iran tried to obstacle and avoid of reporting Iran’s non-compliance to the Security Council and gain more time to solve the political pressures. As it was already provided above Iran has concluded the Additional Protocol on December 18, 2003, but didn’t ratify it. However, in its letter dated November 10,

647 Director Genera’s Introductory Statement to the Board of Governors, December 15, 2015.
648 Iran, NTI (2016).
2003 addressed to the IAEA it is stated that Iran would act as if its Additional Protocol was in force. 651 Though, according to Iran entry into force of the Additional Protocol needs ratification. As promised, Iran kept its promise to implement voluntarily the provisions of the Additional Protocol without ratification and submitted to the IAEA AP initial declarations in May 2004. Besides, Iran facilitated IAEA inspectors’ access to its nuclear material and facilities as well as locations outside facilities under the CSA and AP and allowed to take environmental samples. 652 Meanwhile, the Agency continued to urge Iran to ratify the Additional Protocol. On September 24, 2005 the IAEA Board of Governors for the first time passed a resolution, which clearly pointed out Iran’s non-compliance with its Safeguards Agreement. At that time the Board didn’t refer the case to UN SC, but gave Iran time to abide with its obligations. 653 The resolution, inter alia, urged Iran to ratify and implement properly the Additional Protocol. After Iran announced in January 2006 that it would restart research and development on its centrifuges at Natanz, the IAEA Board of Governors passed a resolution on Iran’s non-compliance with its Safeguards obligations in February 2006 and referred Iran’s case to the UN Security Council. After the adoption of that resolution, Iran ceased application of the Additional Protocol. 654 In July 2015, after long negotiations final nuclear deal between Iran and P5+1 was reached, known as the Joint Comprehensive Plan of Action (JCPOA). According to which, Iran agreed to provisionally implement the Additional Protocol from October 2015. Per se the JCPOA, AP will be applied indefinitely. 655 However, it should be mentioned that Iran has been hesitant to provide the IAEA inspectors more rights than those provided in the Additional Protocol, for instance access to military sites. Implementation of the measures under the JCPOA will show the success or failure of the IAEA verification regime and, overall the nuclear non-proliferation regime. According to nuclear verification expert Mark Hibbs, JCPOA presents a significant challenge for the nuclear verification for some reasons: the Iranian regime’s history to hide its nuclear activities from the IAEA; the shortage of trust between Iran and other parties to the JCPOA; the complicacy of Iran’s nuclear programme and its nuclear fuel

654 Kerr (2016), pp. 4-6.
cycle; and allegations that Iran has worked on the development of nuclear weapons. Another issue is that comparing with the Iraq after Gulf War, Iran is a fully sovereign state and can undertake all steps and activities to further its national interests while implementing the JCPOA.656

Before the nuclear deal Iran’s position pertaining to the implementation of the Additional Protocol was articulated in many statements delivered during the Board of Governors and communications submitted to the IAEA. Iran was of the view that the IAEA and particularly the Director General in his reports requested illegal measures concerning implementation of the Additional Protocol. Implementation of the Additional Protocol is not a legally binding obligation for Iran, as Iran didn’t ratified AP and was implementing it solely as a sign of confidence building measure. Iran condemned the IAEA for “unconstitutional, politically-motivated and illegal” requests. Despite the fact that Iran was not the only country, which hasn’t ratified AP, it was singled out, urged to ratify and implement it. As of Iran’s position, Iran has a sovereign right not to ratify the Additional Protocol and therefore it is not obliged to implement it. “It is not acceptable that a voluntary instrument to be turned into a legal obligation without consent of a sovereign State. This basic concept regarding Additional Protocol has been affirmed in the 2010 NPT Review Conference (NPT/CONF.2010/50 (Vol. I)) as well as in the Agency General Conference (GC (56)/RES/13) which the latter reads: “it is the sovereign decision of any State to conclude an additional protocol””.657

Signing the JCPOA and agreeing provisionally implement the AP doesn’t mean that Iran agreed to ratify it. Under the JCPOA Iran shall not ratify the AP, which gives Iran a possible legal prospect and opportunity to cease AP implementation once all sanctions against Iran are lifted. Iran’s behavior on this issue may thus have significant meaning and impact on the IAEA endeavors to universalize the AP.

Why does Iran hesitant to ratify the AP?

First of all, as for other Middle East States, rivalry relations with the Israel and Israel’s policy towards the NPT could be considered as one of the main reasons why Iran

656 Hibbs (2015).
hasn’t ratified the AP so far. However, one should not forget Iran’s non-compliance and allegations that country develops a nuclear weapon. Out of five reasons, from realists’ perspective, why states decide not to acquire nuclear weapons, Iran satisfies no one, which means that the country meets almost all preconditions and has all grounds to go for nuclear weapons. This, in its turn explains, why Iran doesn’t want to ratify the AP and place itself under the IAEA’s strict scrutiny. First, Iran doesn’t lack the threat, though Israel is not an immediate neighbour of Iran, country constantly raises the concern of the potential threat from Israeli side. Second, Iran doesn’t lack the regional threat: existence of a nuclear armed adversary in the region, i.e. a state not being a party to the NPT, Israelis conventional forces capabilities, having in mind also the history of wars in the region and airstrike of Syria’s facility one can’t reject absence of the regional threat. Region previously had other experiences of violations of safeguards obligations (nuclear weapon development programs of Iraq and Libya). One shouldn’t forget also potential nuclear rise of the neighboring Turkey, which has nuclear ambitions to become a regional hegemon. Third, there are no security guarantees for Iran from any nuclear State. Though Iran has a history of cooperation with Russia but in case of a possible war Russia will not be a deterrent for Iran’s enemies, at least no evidence for that. Fourth, Iran’s security is not weakened and fifth, Iran hasn’t achieved alternative means of deterrence. According to the US Director of National Intelligence “Iran probably has the capability to produce some [BW] agents for offensive purposes, if it made the decision to do so. We assess that Iran has previously conducted offensive BW agent research and development. Iran continues to seek "dual-use technologies that could be used for BW". This doesn’t mean that currently country has biological weapons. There is also no evidence that country has chemical weapons. To summarize, according to realism assumptions country has all the reasons to develop a nuclear weapon thus also not to ratify the AP.

From neoliberal institutionalism view, Iran would look to the cost-benefit calculations to escape the security dilemma. Cost-benefit calculations should motivate states to join the NPT and the AP, but Iran knows that Israel, its main threat, likely will do so in the near future. Thus ratifying the AP would not make Iran safer, as it is unclear whether

Iran’s ratification would contribute to the change in Israel’s position towards singling the NPT and making the Middle East a NWFZ. Iran and other Arab States such as Egypt and Syria are of the view that until Israel is not inside of the regime security framework is not provided. Joining the NPT they believed that it would provide with tools and measures to resist the Israeli nuclear threat, at the same time they abide themselves with international legitimacy.\(^659\)

Iran’s agreement under the JCPOA to implement provisionally the AP is part of the deal. Under the continuing sanctions and international pressure country had no many choices to follow. Iran’s implementation of the AP should not be seen as a shift in the States interest or expectation of social reward. Though abiding with the strict norms and measures of the voluntary in nature instrument already increases the reputation of the State. However, AP implementation should be seen as a cost-benefit calculation from Iran side. Whether it will be a game changer in the Middle East, it is hard to say. In terms of motivating other Arab States, Iran’s implementation of the AP can impact their policies and decision-making towards the AP. But it is hardly to imagine that it can change Israel’s position at least to join the NPT. Iran’s further ratification and implementation of the AP would widely depend on country’s position towards developing a nuclear weapon. Until Iran implements provisions of the JCPOA, it would be almost impossible to develop within the country a nuclear weapon. Under the pressure of the regular daily inspections, their access to nuclear facilities and locations it would be unrealistic to think that country can secretly develop a weapon. However, at which stage Iran would stop the implementation of the AP would depend on a broader geopolitical context. Contrariwise, Iran can also decide to ratify the AP as well in case they would see no possibilities to further develop their nuclear weapon program.

Another issue with the ratification of the AP is NNWSs rights to develop a nuclear energy and have an access to nuclear technologies and knowledge. As other Non-Aligned Movement States discriminatory nature of the NPT and not-balanced safeguards measures are one of the obstacles of Iran’s ratification of the AP.

To sum, Iran’s ratification of the AP seems rather realistic and likely. Iran’s nuclear deal was long awaited though unexpected. If that were possible to achieve, then the Additional Protocol ratification would be possible to achieve as well. A lot would depend on how much pressure the IAEA and P5+1 will make on Iran during the provisional implementation of the Protocol.

![Figure 47: Key dates on the Additional Protocol implementation](https://www.iaea.org/sites/default/files/gov2004-83_annex1.pdf)

Source: IAEA, iaea.org

5.1.3.1.4 Israel

Non-proliferation commitments

Israel didn’t sign the Additional Protocol. It is one of three States Non-Party to the NPT and remains not bound by the obligations of the NPT. As a non NPT Party, it is
not a member of the Nuclear Suppliers Group, thus any export of nuclear equipment or fuel to Israel should be strongly restricted. All other States in the Middle East are parties to the NPT and have undertaken steps to accept the Comprehensive Safeguards Agreements. Since 1975 Israel has in force only INFCIRC/66 type Safeguards Agreement (INFCIRC/249/Add. 1), which is an Item Specific Agreement as not all nuclear material and facilities are under the IAEA safeguards, but only those that country found appropriate to place under the IAEA safeguards. Israel signed the CTBT on 25 September 1996, but has not ratified it yet. Israel is Annex II State and its ratification of the CTBT is essential for the Treaty to enter into force.

History
Since 1950s, as the only tool to resist the foreign enemies and at the same time compensate the lack of its natural resources, Israel decided to have well-developed science and technology. Israel started to look for nuclear cooperation partners to reach its aim.\textsuperscript{660} In 1952 Israeli Atomic Energy Commission was established secretly. In 1955 Israel signed a nuclear cooperation agreement with the US, under which US provided Israel with a research reactor to be placed under the bilateral safeguards. Though Israel asked US to upgrade the reactor to produce plutonium, US made it clear that it would not provide plutonium or hot cells without safeguarding it. Israel singed also a nuclear deal with France, which resulted in the construction of the Dimona nuclear facility.\textsuperscript{661} Already in 1956 both sides agreed on the sale of a research reactor to Israel. However after the end of the Suez crisis, Israel requested a larger heavy-water reactor, similar to the French reactors at Marcoule, and the technology for a reprocessing facility.\textsuperscript{662} By October 3, Israel had finalized a technical cooperation agreement on the reactor and reprocessing plant, and an general agreement on political level that Israel would only use the plutonium for peaceful purposes.\textsuperscript{663} The construction of the nuclear facility in Dimona has been carried out under extreme secrecy in 1958. French government having the fear from the discovery of a nuclear cooperation with Israel by international community had decided to finish its direct

\begin{thebibliography}{99}
\item \textsuperscript{660} Israel, NTI (2016).
\item \textsuperscript{661} Cohen (1998), pp. 17-18.
\item \textsuperscript{662} Cohen (1998), p. 58.
\end{thebibliography}
involvement and left the country by 1965, while the Israelis finished the reprocessing facility.664 Already in 1958 U.S. intelligence had suspicions that the Israelis were likely constructing a nuclear reactor in Dimona. According to the data from US agencies the reactor went critical in December 1963 and the reprocessing facility became operational between 1965-1966. Under the nuclear cooperation with Norway, country has provided the heavy water necessary for moderating the Dimona reactor. Though Israel promised to use the heavy water for exclusively peaceful purposes, intelligence reports pointed out plans to use the heavy water to facilitate plutonium production. Despite the fact that US-Israeli inspectors carried out verification activities at the Dimona nuclear facility, they didn’t find any evidence of weapons-related activity or a plutonium-reprocessing facility, though they remained highly suspicious of illicit activities.665

After the adoption of the NPT, the US posed a pressure on Israel to join the Treaty. Israel has put forward preconditions for joining the Treaty, i.e. positive security assurances from the US, particularly against the Soviet Union, guaranteed long-term supply of the US conventional arms to Israel and setting an interconnection between Israeli withdrawal from occupied territories to regional peace. In 1969 the US and Israel secretly reached a deal according to which Israel assured not to declare or test its nuclear weapon capability and in return the US agreed not to carry out inspections, not put restrictions on the Israeli nuclear program and not force Israel to sign the NPT.666

According to the US intelligence data by 1975 Israel have produced more than 10 nuclear weapons, their delivery systems and aircrafts. In 1979, a US satellite detected nuclear detonations, believed to be conducted by Israelis.667 Israel showed its nuclear capacity with preemptive strikes on Iraq’s reactor in June 1981 and on a facility alleged to be a Syrian nuclear reactor in September 2007. Based on suspicions that Israel has reprocessing plant, some experts believe that Israel had possibly built about 100 to 200 nuclear weapons of varying yields and complexity though some believe that the figure is above 400.668

Israel has developed a sea-based second-strike capability and commissioned its first

three submarines in 1999-2000, it is considered to be enough to maintain a continuous at-sea deterrent.\textsuperscript{669} Based on the available information Israel has developed a nuclear triad, completed by its Jericho ballistic missiles and modified fighter jets.\textsuperscript{670} After the US-India nuclear deal Israel tried to reach a similar deal with the US, however the US rejected that arrangement.

\textit{Current nuclear program}

Unlike India and Pakistan, Israel has never had a civil nuclear power program. Though there have been plans to construct a power plant by 2020, they haven’t been realized. Israel possesses a research reactor operating with US fuel under the IAEA safeguards due to be shut down about 2017 and replaced by a particle accelerator. Country has a French-built heavy water reactor at Dimona, which according to sources have been used for military plutonium production.\textsuperscript{671} Israel’s Negav Nuclear Research Center has many facilities at the Dimona site. Most of the site's facilities are underground. Country has IRR-2 reactor not under the IAEA safeguards, a heavy water reactor, an underground reprocessing facility with six floors, which extracts plutonium, produces tritium and lithium-6, conversion facility, a waste treatment plant, fuel fabrication plant, a facility for provision of chemicals and a laser isotope reprocessing facility.\textsuperscript{672}

\textit{Country’s position to the adherence to the Additional protocol}

As already has been illustrated Israel is not a party to the NPT and didn’t sign the Comprehensive Safeguards Agreement with the IAEA. However, Israel can sign AP as NWSs and India did, selecting the provisions, which country is ready to undertake. The 2010 NPT Review Conference consensus final document underlined the importance of Israel’s accession to the NPT and full implementation of the 1995 Resolution on the Middle East. UN Secretary-General and the co-sponsors of the 1995 Resolution, in consultation with the States of the Middle East region agreed to convene a conference in 2012 on the establishment of a Middle East zone free of nuclear

\textsuperscript{669} Cohen (2010), p. 84; Israel, NTI (2016).
\textsuperscript{670} Norris et al (2002).
\textsuperscript{671} Emerging Nuclear Energy Countries, WNA (2016).
\textsuperscript{672} Barnaby (2004); Israel, NTI (2011).
weapons and all other weapons of mass destruction.\textsuperscript{673} However, the conference hasn’t been convened. The draft final document of 2015 NPT Review Conference called for the UN Secretary General to convene a conference by March 1, 2016, aimed at “launching a continuous process of negotiating and concluding a legally binding treaty” that establishes a WMD-free zone in the Middle East.\textsuperscript{674} As of May 2016, the stalemate over the MEWMDFZ has not been settled and no date has been agreed for a conference.

Israel’s announced position on the creation of a Middle East NWFZ hasn’t been changed since 1990. According to that position, an agreement on NWFZ in the region is possible only if regional peace is achieved, while for the Arab states peace can be achieved if Israel has renounced its right to possess nuclear weapons.

Policy option for Israel to join the AP would be difficult to reach, as a country allegedly having so many secret nuclear facilities, nuclear material and nuclear weapon, joining the NPT first would mean that country though doesn’t fall into the category of the Nuclear Weapon State according to the NPT, in reality is a Nuclear Weapon State and therefore being a Party to the NPT would result in stopping its nuclear weapon program and being forced to give up its nuclear weapons, i.e. to disarm. To achieve that, it would require a change in the country’s policy towards the nuclear non-proliferation. Looking to the history country has regional security threat, though neighbouring countries currently ss nuclear weapons. The only country that would be able currently to develop nuclear weapon capabilities and to present a nuclear threat to Israel is Iran. However, the threat level is significantly reduced under the JCPOA. From a cost benefit assumption of joining the NPT, CSA and AP, Israel has developed its nuclear fuel cycle and would not require nuclear technologies and nuclear supplies. But would get confidence that neighbours are also not cheating.

Signing the NPT Israel should admit that it possess nuclear weapons. Then country would put itself in a situation in which has been Iran or even under the tougher international pressure. NWSs would not like to have that situation as well, as none of them followed the NPT’s requirements on nuclear disarmament. It means if Israel is a NPT Party then all calls to disarm will not be addressed only to Israel but some how to

\textsuperscript{674} WMD-Free Middle East Proposal at a Glance, Arms Control Association (2015).
NWSs as well.

Israel doesn't rely on international security regimes, as was witness of violations of their international obligations by some States in the region, such as Iraq, Iran and Libya. That’s why Israel seeks its own self-defense. Nuclear weapons give him the possibility to adopt aggressive defensive position. It is hardly possible that Israel would give up its nuclear weapons in current geopolitical context. On the other hand, many doubted that Iranian’s would not give up their enrichment program, but agreement has been reached and so far Iran follows all the provisions of the JCPOA, including implementation of AP. Israel will give up with its nuclear arsenals only by making sure that the other side (Arab States) isn’t developing a nuclear technology.

So what would change Israel’s position in order to overcome revulsion, join the NPT and the CSA and later possibly the AP and contribute in establishing the Middle East NWFZ?

First of all, establishment of the NWFZ in the Middle East and even the process of starting the negotiations depends on Israel’s participation, which in its turn depends on country’s policy choices on its nuclear weapons policy and its relations with Palestinians. Based on the theory expectations, as Israel’s policy options can be considered: a deterrence - nuclear deterrence relationship with Iran; prevention-expanding its nuclear monopoly by preventing other States in the region to develop nuclear capability through diplomatic efforts (as seen during Iran case), through use of military force (as seen in airstrikes in Iraq and Syria), alliance-looking for security assurances from the US and finally, collective security- starting negotiations with Middle East States to establish a security regime in the region, ultimately placing its own capabilities on the negotiating table.\textsuperscript{675}

Israel has already applied the first two options, tried to get security assurances from US, but didn’t make effort to negotiate on a collective security. Furthermore, taking into account the political and regional security context of the region, NWFZ will not be able to establish without extra effort and without external pressure and assistance. But as the discussions during 2011 forum on “Experience of Possible Relevance to the Creation of a Nuclear Weapon Free Zone in the Middle East” demonstrated, other NWFZs also overcame serious political questions “the establishment of NWFZs was

\textsuperscript{675} Foradori/Malin (2012).
possible despite serious obstacles, such as geopolitical complexities, lack of trust, and an often lengthy process of entry into force of NWFZ treaties. This [success] could be achieved through a combination of political will and commitment, dialogue, flexibility, and an incremental step-by-step approach.\textsuperscript{676}

Though Middle East States are very skeptical on any progress towards the establishment of the NWFZ in the region, some progress in the region has been noticed. For example, peace agreements between Israel and Egypt, Israel and Jordan; mutual recognition between Israel and the PLO; the dismantling of WMD programs in Iraq and Libya; accession to the NPT, CTBT, CWC, and BTWC by certain states in the Middle East; the implementation of CSA and the Additional Protocol in several states, and recently reached nuclear deal with Iran represent significant progress towards the creation of the NWFZ in the Middle East. Despite of this progress it is very unlikely that the States in the region will be able to create NWFZ zone without very extra-regional pressure and assistance to compensate for the general lack of trust and cooperation.\textsuperscript{677} To conclude, it is very unlikely that in the near future Israel will adhere to the AP.

\textbf{5.1.3.2 Latin America Region (Argentina and Brazil)}

Argentina and Brazil are relatively big powers with technical, industrial and economic capabilities and political incentives to acquire a nuclear weapon. However, they abstained to pursue nuclear weapons, in order to show that they observe the norm of nuclear non-proliferation. Both countries went the way of cooperation skipping the path of nuclear weapon acquisition, which would give them regional dominance and international reputation. However they decided to cooperate having in front of them also disincentives to acquire nuclear weapons.

Brazil and Argentina haven’t signed an Additional Protocol with the IAEA. They have a coordinated policy and position towards non-ratification of the AP. However, they cooperate within the Brazilian-Argentine Agency for Accounting and Control of

\textsuperscript{676} Summary, Forum on Experience of Possible Relevance to the Creation of a Nuclear-Weapon-Free Zone in the Middle East (2011).
\textsuperscript{677} Foradori/Malin (2012), p. 19.
Nuclear Material (ABACC) and ABACC’s inspections and other safeguards measures are applied in both countries. Quadripartite Agreement between Argentina, Brazil, ABACC and IAEA has been concluded in 1991 and entered into force in 1994. It is the Comprehensive Safeguards Agreement to the NPT (INFCIRC/435). The role of the ABACC is to verify both countries commitments to use nuclear energy only for peaceful purposes. New NSG revised guidelines from 2011 for the export of sensitive nuclear technologies recognized the Quadripartite Agreement as a substitute to the Model Additional Protocol.

While other States argue that the Quadripartite Agreement does not have same objectives as the Additional Protocol and thus is should not be considered as a replacement for it, Brazil and Argentina claim that the safeguards framework provided under the Quadripartite Agreement, especially joint inspections, should satisfy international concerns and provide credible assurance that nuclear activities in both States are for peaceful purposes. At the same time, Brazil and Argentina don’t claim that the Quadripartite Agreement is a substitution for the Additional Protocol. Both ABACC and the Model Additional Protocol are envisaged for confidence building purposes to ensure that nuclear activities are only for peaceful purposes, but they are not the same. The Additional Protocol is a complement document to the CSA containing provisions of extended information and broader access, while ABACC is an institutional arrangement established to control and implement the Common System of Accounting and Control of Nuclear Materials. The Common System is aimed in verifying that nuclear material in both States is not diverted to nuclear weapons. The Quadripartite Agreement is actually a comprehensive safeguards agreement based on INFCIRC/153 model agreement. ABACC is a regional organization similar to EURATOM and applies safeguards together with the IAEA. INFCIRC/435 doesn’t contain elements of the AP as it was signed before the adoption of the AP.

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678 Argentina, Brazil, ABACC, and the IAEA signed a Quadripartite Agreement on December 13, 1991, which is mandated to apply safeguards in both countries, and carries out joint inspections with the IAEA.


5.1.3.2.1 Argentina

Non-proliferation commitments

Argentina is one of the States with significant nuclear activities, which didn’t sign the Additional Protocol to its Safeguards Agreement with the IAEA. Country joined the NPT in 1995, the Treaty of Tlatelolco and the Nuclear Suppliers Group in 1994 and currently is a member of all relevant nonproliferation treaties and organizations.

History

From the 1960-1990s international community was concerned over the Argentina's nuclear program. Despite the fact that Argentina was trying to acquire nuclear weapons through development within the country, it has never produced nuclear weapons, stopped that policy option and in 1990s has already demounted its ballistic missile program. Despite of not going nuclear, Argentina preserves an ambitious nuclear energy program. Before stopping its nuclear program, Argentina launched an aspirant program of nuclear power and technological development by constructing uranium enrichment facility where IAEA safeguards haven’t been applied. During 1960-1990, Argentina also rejected to sign the NPT and Treaty of Tlatelolco.681

Under the new democratic government, the nuclear program has been put under the control and a process to establish trust to its nuclear program has been launched resulting in cooperation with neighboring Brazil and founding a bilateral Agency ABACC. Quadripartite Agreement entered into force for Argentine in 1997 upon Board of Governors approval.682

Current nuclear program/Argentina

Argentina has started to use nuclear energy as a first State in the Latin America. Country has three nuclear power plants in operation supplying 10% of the country's electricity. A nuclear cooperation agreement was signed with In 2014 China, under which China agreed to build a second CANDU reactor. Country possesses training

681 Argentina, Nuclear Threat Initiative (2016).
682 On 18 March 1997, upon approval by the Board of Governors, an exchange of letters entered into force between Argentina and the IAEA confirming that the Safeguards Agreement satisfies the requirements of Article 13 of the Treaty of Tlatelolco and Article III of the NPT to conclude a safeguards agreement with the IAEA (Status List, IAEA).
facilities for scientific and technological R&D, designs and builds research reactors, conducts numerous research activities and has laboratories for experiments, research reactors for medical isotope production, and pilot plants for nuclear fuel fabrication. Country also has UF6 plant, uranium enrichment plants, and heavy water production plant. Argentina supplies Brazil with one-third of its Molybdenum-99 and medical isotopes to Paraguay, Uruguay and Chile. Argentina is considered one of the biggest producers of Mo-99 in the world. Country signed a nuclear cooperation agreement with Brazil in 2010 to design together research reactors for isotope production. Country has various nuclear cooperation agreements including with Russia, U.S.

*Country’s position to the adherence to the Additional protocol*

Argentina contrary to Brazil doesn’t provide explanations why it is not signing the Additional Protocol. During the negotiations of the Additional Protocol Argentina has been insisting on universalization of the Protocol not to have burdened and strengthened safeguards measures imposed only on NNWSs. As said, country is a Party to Quadripartite Agreement and certain measures of the AP, such as unannounced inspections, are included in the Agreement and already carried out in Argentina. Argentina like Brazil explains its non-adherence to AP that NWSs don’t follow their obligations under the NPT and don’t succeed with nuclear disarmament, but at the same time NWSs pose pressure on NNWSs to enhance the nuclear non-proliferation norm.

Current debate in the NSG is to make the adherence to the AP as a prerequisite for nuclear trade. In case this criterion will be approved by the NSG, Argentina and Brazil may reconsider their position towards the AP.

Despite the fact that Argentina and Brazil have a coordinated policy within the ABACC of not signing the AP, in theory, Argentina might agree on AP adherence in the light of its policy in regard of various nuclear arrangements and the IAEA. Furthermore, Argentina’s nuclear program is less ambitious than Brazil’s one. And it has fewer nuclear activities. However, Argentina will not follow the road of the AP

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683 Argentina has sold research reactors to Algeria, Australia, Egypt and Peru.
adherence alone taking into account its relations with Brazil.\textsuperscript{685} Argentina’s decision on any kind of nuclear accountability including to join the AP is closely interconnected to those of Brazil. Taking into account that both countries in the past sought nuclear weapons to become a regional dominant, and currently Brazil has plans developing nuclear submarines, Argentina would not put itself under the additional safeguards measures. Thus Argentina’s adherence to AP will be possible only together with Brazil.

5.1.3.2.2 Brazil

\textit{Non-proliferation commitments}

Brazil became a Party to the NPT in 1998 though signed the Treaty in 1995, it is also a Party to the Treaty of Tlatelolco since 1967 and CTBT since 1998. Though it has Comprehensive Safeguards Agreement in place since 1968 (INFCIRC/110 and INFCIRC/147) it didn’t agree to sign the Additional Protocol. Together with Argentina, country created a joint inspection agency ABACC. As Argentina was not a Party to the Tlatelolco Treaty until 1994, Brazil’s relations were rivalry rather than competing for any arms race. However, Brazil established a bilateral inspection agency ABACC together with Argentina, in order to verify peaceful purposes of both countries nuclear energy. ABACC, Argentina and Brazil signed with the IAEA Comprehensive Safeguards Agreement /INFCIRC/435/.

Starting from 1996 Brazil is a member of the NSG, which adopted amended guidelines concerning the export of sensitive nuclear technologies in June 2011 and accepted the Quadripartite Agreement as a substitute to the IAEA Additional Protocol.\textsuperscript{686}

\textit{History}

Alike Argentina, Brazil followed an ambitious nuclear technology development program from 1960s to 1990s, including construction of uranium enrichment facility, which hasn’t been placed under the safeguards. In the 1970s, Brazil's military government pursued a clandestine nuclear weapons program. The program was

\textsuperscript{685} Hibbs (2013), p. 5.
stopped by the civilian government, which came to power in 1985.\textsuperscript{687} Since then Brazil denied development of nuclear weapons and joined the NPT. Brazil has never produced nuclear weapons and there are no proofs on country’s plans to enrich uranium up to 20%.

\textit{Current nuclear program}

Brazil has capabilities in all nuclear fuel cycle areas including uranium enrichment and fuel fabrication. It has two operating nuclear plant, a third plant is under construction and will be ready in 2018. Country plans to construct another four power plants by 2034. Brazil has one of the largest uranium reserves in the world and could potentially use domestically enriched uranium for its nuclear fuel. Country’s nuclear program includes mining activities, the fuel fabrication, which includes factories for re-conversion, uranium enrichment and fuel fabrication. Country’s five nuclear research centers conduct numerous research and development activities. Brazil is the only NNWS that is developing a nuclear submarine and is the only NNWS with a civilian nuclear power program that borrows technology for uranium enrichment from its military facilities.\textsuperscript{688} Country has nuclear cooperation agreements with other States, including Argentina, France and Russia.

\textit{Country’s position to the adherence to the Additional protocol}

First of all some of the Additional Protocol's provisions, including unannounced inspections, are already contained in the Quadripartite Agreement. Country’s position on the application of the AP is reflected in Brazil’s National Defense Strategy from 2008, which clearly states that Brazil will not undertake any extra commitments to the NPT, including the Additional Protocol, until the NWSs have made tangible progress towards nuclear disarmament.

Brazil as a State with significant nuclear activities and with the past ambitious program to develop a nuclear weapon has been under the international pressure to adhere to the Additional Protocol and thus strengthen the wide application of the provisions of the AP and assure to international community on Brazil’s peaceful nuclear program. Brazil is of view that joint inspection of ABACC gives a higher degree of credibility than a

\textsuperscript{687} Nuclear power in Brazil, WNA (2015).
\textsuperscript{688} Brazil, NTI (2016).
Comprehensive Safeguards Agreement and doesn’t see the need to sign the Additional Protocol. Notable, Brazil asserts that the ratification of the Additional Protocol is discriminatory against NNWSs as it sets more-intrusive requirements for their nuclear programs, while NWSs are not duly complying with their disarmament commitment under the NPT Article VI. Furthermore, Brazil also points out that the Additional Protocol would put unwanted financial burdens and suppress commercial nuclear development by creating new rules. Brazil insists that without significant progress in nuclear disarmament, which should include planned and explicit timetable for disarmament Brazil would not sign the Additional Protocol.

Brazil has not signed the Additional Protocol explaining its position that the established regimes and States within those regimes promote the non-proliferation norm rather than the more fundamental question from their point of view, i.e. observance of the norm of nuclear disarmament. Second, as country develops a submarine program it is unclear how the provisions would be applied there and what would be the future of submarine program. Third, Argentina as a Party to ABACC didn’t accept the AP as well. Thus ratifications of the Additional Protocol should be simultaneous with both Argentina and Brazil, or as in the case of the Quadripartite Agreement (which is in practice a CSA), ABACC should sign with the IAEA the Additional Protocol to be applied in both countries. The AP gives a possibility to be signed not only by States but also by other parties to CSA: „The Board of Governors has requested the Director General to use this Model Protocol as the standard for additional protocols that are to be concluded by States and other parties to comprehensive safeguards agreements with the Agency”. Carlos Feu Alvim, who has been Secretary of ABACC, explains Brazil’s position on the IAEA Additional Protocol highlighting the inconveniences of the AP for Brazil with the following assumptions, though accepting that the previous safeguards system existing before the AP adoption had deficiencies.

➢ In case of the signature of the AP it makes Brazil’s nuclear activities more vulnerable concerning technology. This vulnerability is enhanced in States

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690 INFCIRC/540, Foreword.
691 Carlos Feu Alvim has alternatively been Assistant Secretary and Secretary of the Brazil-Argentina Agency for Nuclear Materials Account and Control – ABACC since its establishment until 2002.
where the nuclear activity is governmental and is not protected by private rights ensured in national legal acts and respected by the Protocol as well;

- It contains risks for the international community, as information on country’s installations and technologies will be known to more people. This would increase the risk of proliferation at the international level and probability of terrorist attacks against nuclear installations.

Though Brazil insisted of its right to develop an independent fuel cycle, it has signed the Quadripartite Agreement, which covers some areas of the AP. Furthermore its constitution bans nuclear weapons. Brazil plays a role of nuclear non-proliferation advocate raising the issue of nuclear disarmament. And, finally, it showed its active engagement on the Iranian issue. All these should be rewarded and taken into consideration.

Taking into consideration all what has been highlighted, Brazil’s adherence to the AP doesn’t look impossible or very unrealistic, as in the case of Israel or other Middle East countries, which have direct regional security threats. First, Brazil doesn’t have nuclear neighbour and not really a nuclear regional threat. So from that perspective Brazil should not seek development of a nuclear weapon. Argentina as a neighbouring country doesn’t have a nuclear weapon and it’s nuclear power program is less developed. Argentina is also advocate of nuclear non-proliferation regime and actively takes part in all non-proliferation initiatives. Both countries nuclear material is verified by ABACC, which gives them assurance of another States nuclear activities. Thus in certain stage, adherence to the AP by Brazil, to increase its reputation and regional dominance, is likely.

5.1.3.3 India

*Non-proliferation commitments*

India is not a Party to the NPT and it is the only non NPT State, which signed and ratified the Additional Protocol. Its AP entered into force in July 2014. Discriminatory nature of the NPT was the main reason of not joining the NPT. Though India carried out nuclear tests in the past, it has retained a moratorium on non-conducting nuclear tests. Country is not a Party to the CTBT as well, despite the fact that it is an Annex II country and its ratification is necessary in order the Treaty to enter into force. India has
facility specific INFCIRC/66 type 6 Safeguards Agreements in place with the IAEA.\footnote{693}{India, NTI (2016).}

As a non NPT State, India is not a member of Nuclear Suppliers Group (NSG), however, NSG allowed it to take part in global civilian nuclear technology trade. Currently, India seeks NSG membership, and presents itself as a State with good record in non-proliferation and supporter of disarmament. It should be noted that NSG has been created in response to India’s efforts to divert nuclear material exported from the US and Canada. But it provides membership only to those states, which are party to the NPT or CTBT.\footnote{694}{Sumbal (2015).}

India endorses negotiations of a Fissile Material Cut-Off Treaty based on principles of universality, non-discrimination and verification. India seeks membership to the Australia Group, NSG, Wassenaar Arrangement and MTCR. However, India continues to remain outside of the nuclear non-proliferation regime, and considers nuclear weapons as the main part of its national security. India’s precondition to join the NPT is global elimination of all nuclear weapons.\footnote{695}{India, NTI (2016).}

\textit{History}

After the independence in August 1947, Prime Minister Jawaharlal Nehru started India’s ambitious nuclear program to increase the country’s prestige and produce electricity. India decided to develop all stages of nuclear fuel cycle, which developed country’s technical capabilities to produce nuclear weapons. One should note that there was a political debate within the country on the issue; some were arguing that nuclear weapons will not guarantee India’s security, and that the nuclear disarmament pursued by all is the only resolution of the nuclear proliferation. Based on these considerations, political parties agreed not to sign the NPT until there will be an agreement and concrete plan for nuclear disarmament.\footnote{696}{India, NTI (2016).}

India started its work on nuclear project and on 1974 tested its first fission device, which was condemned by international community as a bridge of bilateral agreements with the US and Canada on transfer of nuclear technology for peaceful purposes. That contributed to establishment of the NSG. In response to that test US applied sanctions against India. Later in 1986 Pakistan's efforts to acquire nuclear weapons convinced
Prime Minister Rajiv Gandhi to work on nuclear weapons program, though
simultaneously endorsed efforts for nuclear disarmament. On May 11 and 13, 1998,
India conducted two nuclear tests, with that declaring itself as a NWS. According to
Indian Nuclear Doctrine country applies nuclear no first-use policy. India accepted IAEA safeguards in its civilian nuclear facilities in return to the nuclear cooperation agreement with the US and NSG’s decision to allow India to participate in nuclear trade. Inspections are not carried out in civilian nuclear facilities and not in military ones. In October 2009, India provided the IAEA with the list of 14 civilian nuclear facilities to be placed under the IAEA safeguards by 2014. India’s 22 reactors are under safeguards since end of 2014. India and the US concluded a bilateral agreement in July 2010, under which India could reprocess nuclear material in 2 reprocessing facilities, to be built and placed under the IAEA safeguards. India signed cooperation agreements in the field of nuclear energy with Russia, UK, South Korea, Canada, Australia, France, Argentina, Kazakhstan and other countries.

**Current nuclear program**

The country’s civil nuclear strategy was based on independence in the Nuclear Fuel Cycle. Because of the previous ban in nuclear trade and shortage of natural uranium, India has been developing a NFC to exploit its thorium resources. The long-term goal of India's nuclear program was to develop a thorium cycle. Currently India’s NFC ranges from exploration and mining, reactor design and construction, heavy water production, reprocessing, fuel fabrication to waste management. India has 21 operating nuclear power reactors, 6 power reactors are under construction and 35 reactors are planned or proposed. A fuel fabrication plant as well as a reprocessing plant are planned. India's main nuclear fuel cycle complex is at Hyderabad, which has six facilities under the IAEA safeguards, contained in the Annex to India’s Additional Protocol. Hyderabad Complex includes facilities for refining and conversion of uranium and fuel fabrication, small centrifuge enrichment plant, reprocessing facility

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697 India, NTI (2016).
699 INFCIRC/754/Add.3 (2009).
700 India, NTI (2016).
to extract reactor-grade plutonium for use in the fast breeder reactors.\textsuperscript{701} India has a small fast breeder reactor and is building six fast breeder reactors that will raise production capacity of plutonium to be used for weapons.\textsuperscript{702} According to the 2015 SIPRI Yearbook, India possesses about 90 to 110 warheads based on analysis of India’s stockpile of weapons-grade plutonium.\textsuperscript{703} The plutonium for India's nuclear weapons is most probably received from its two research reactors: CIRCUS and Dhruva, which started to operate in 1963 and 1988, respectively. According to the US-India nuclear cooperation agreement and separation plan, the CIRUS reactor was decommissioned in 2010.\textsuperscript{704}

\textit{Country’s position to the adherence to the Additional protocol}

India’s primary motivations for the nuclear weapon program have been security concerns, which can be explained by realism assumptions. Facing external security threats from neighboring two nuclear weapon States, i.e. Pakistan and China, and another nuclear State Russia in close distance; country has chosen a self-help system. Country Leaders’ decisions on nuclear tests were in support of the security model and as a security driven action in the context of rising Pakistan. Furthermore, it was aimed to demonstrate country’s nuclear capability and increase India’s prestige. Ratification and entry into force of India’s AP contributes to efforts aimed at achieving universalization of AP. India is the only country, which is not a Party to NPT, however, signed and ratified the AP. This move by India can be seen as a confidence building measure and also as efforts to increase its international reputation, which places its adversary Pakistan in worse position.

Under the “India-specific” agreement and Additional Protocol with the Agency, India agreed to place some of its facilities under the IAEA safeguards, while other facilities to be used for nuclear weapon program hasn’t been placed. However, that agreement provided opportunity for Nuclear Suppliers Group to adopt an exemption for sharing nuclear technology with India. Although signature the Additional Protocol is not mandatory and it is a voluntary measure, in order to be engaged in nuclear trade with

\textsuperscript{701} Nuclear Power in India, WNA (2016).
\textsuperscript{702} Subramanian (2015).
\textsuperscript{703} World Nuclear Forces, SIPRI Yearbook 2015.
\textsuperscript{704} Implementation of the India-United States Joint Statement of July 18, 2005. India’s Separation Plan.
India, India's Nuclear Separation Plan stipulated that India must make "substantial progress toward concluding an additional protocol consistent with IAEA principles, practices, and policies that would apply to India's civil nuclear program".\textsuperscript{705} The US initiative has opened the door for India to receive the benefits of the NPT without taking any of the NPT’s obligations. John Carlson, counselor to the NTI, sees this situation as widely damaging the NPT. Though US plan was intended to encourage India to accept and abide with international nuclear non-proliferation norm and become a regime member, India doesn’t stop its weapon’s program, doesn’t respect obligations under the NPT, but instead gains its benefits. Moreover, India hasn’t underlined the limits of its nuclear ambitions. Despite the fact that Pakistan has been a historical enemy of India, India’s decision-makers believe that China is the main adversary. That means that India might increase its nuclear weapon capabilities.\textsuperscript{706}

India’s Additional Protocol is substantially different from INFCIRC/540 Model Additional Protocol. It is based on those provisions from the AP that India agreed, neglecting many key provisions concerning the provision of information and granting access. For instance, India hasn’t agreed to provide information on NFC related R&D, uranium mining and nuclear related import, but agreed to report on nuclear related export. AP doesn’t contain a provision on national security exemption, but it includes an exemption for any nuclear activities outside the scope of India's safeguards agreement.\textsuperscript{707} Measures such as environmental sampling, complementary access, utilization of radiation detection and measurement devices are not envisaged by India’s AP. Though India showed that it is ready to take responsibilities in order to receive the same benefits as leading States, in reality, India accepted less provisions and obligations under the AP comparing with those accepted by NNWSs and even with NWSs. In previous chapter comparative analysis of the provisions of the AP committed by NWSs and India have been analyzed, which showed that India undertook the least obligations under the AP. Actually, India has some 20 facilities under the IAEA safeguards and another 20-30 facilities used for military purposes without safeguards. Non-safeguarded facilities are for mining, milling, uranium


\textsuperscript{706} Carlson (2015).

\textsuperscript{707} Crail (2009).
enrichment, reprocessing, heavy water production and other NFC related activities. The sense of verifying those facilities under safeguards and spending huge human and financial resources seems to be not justified. Having so many facilities, which are not safeguarded, India can produce plutonium there, and it is difficult to imagine that India would divert any nuclear material in safeguarded facilities. As India’s highly enriched uranium is not reported nobody can find losses there.\textsuperscript{708}

To sum, India’s AP is in force, but it is doubtful whether it presents a really advantage for the IAEA safeguards regime. Receiving nuclear assistance influenced India’s cost-benefit calculations in regard of ratifying the AP, from another side; nuclear suppliers see that ratification as a sign that State is unlikely to proliferate. Anyway, regardless of motivations and calculations forcing India to ratify the AP, its ratification is a great signal for other Non-NPT States and NPT Parties, particularly, for Pakistan to follow that pattern and receive the benefits that AP might provide. Despite of its little or great significance for robustness of the IAEA safeguards regime, India is considered a State with the AP, which contributes to the universalization of the AP.

\textbf{5.1.3.4 Pakistan}

\textit{Non-proliferation commitments}

Pakistan didn’t sign the Additional Protocol. Country is not a Party to the NPT and the CTBT\textsuperscript{709}. Country is CTBT Annex II State, whose ratification is necessary for the entry into force of the CTBT. It is the only country blocking the negotiations of the Fissile Material Cut-Off Treaty (FMCT)\textsuperscript{710}. Despite of not being a party to the NPT, Pakistan has INFCIRC/66 type facility specific Safeguards Agreements with the IAEA. Being a non NPT State, Pakistan has been banned to take part in global nuclear trade.

\textit{History}

Pakistan started to develop a nuclear program with an aim to acquire a nuclear weapon. \textit{“If India builds the bomb, we will eat grass or leaves, even go hungry, but we will get...”}\textsuperscript{708}

\textsuperscript{708} Kelley (2014).

\textsuperscript{709} Pakistan declared that even if India signs the CTBT, they might not follow the road (Pakistan Rules Out Test Ban Treaty Endorsement,” Global Security Newswire, June 19, 2009).

\textsuperscript{710} Pakistan doesn’t want to stop its fissile material production as India increases its conventional capabilities. Moreover, they are of view that the FMCT legitimizes India’s fissile material.
one of our own”, these are the famous words of Pakistan’s President Z.A. Bhutto, who chose the nuclear option for its country.\(^{711}\) The reasons for the country’s nuclear weapons program can be found in its rivalry relations with neighboring India. The two countries have been engaged in several conflicts. After detonation of India's nuclear device in 1974, Pakistan further insisted in its nuclear weapons program. In response to India’s 5 nuclear explosions, Pakistan detonated 6 explosions in 1998 and declared itself as a NWS. As declared by Pakistan its nuclear weapons were only "in the interest of national self-defense... to deter aggression, whether nuclear or conventional"\(^{712}\). However, it is not clear in which circumstances, Pakistan would use its nuclear weapons. The most probable case to use them would be India’s attack. Initially, Pakistan opted a plutonium route for nuclear weapons development using material from its safeguarded nuclear plant, however restrictions set for nuclear exports in the light of the India’s test obstacle the progress.\(^{713}\) A.Q. Khan\(^{714}\), who had centrifuge designs, came back to Pakistan to assist his country in embarking a uranium enrichment program. Khan’s strategy was based using separate components instead of the complete units to escape export controls.\(^{715}\) Pakistan already in 1980 had its covert uranium enrichment plant and in 1984 had a capability to assemble a first-generation nuclear device.\(^{716}\) Other states including China also assisted Pakistan with its nuclear program providing various sensitive technologies.

**Current nuclear capabilities**

Comparing with India, Pakistan has a smaller nuclear power program. As it is outside of the NPT due to its weapons program, it is largely excluded from nuclear trade, which undermines its development of civil nuclear energy. Given that fact Pakistan's nuclear weapons capabilities has been developed independently of the civil nuclear fuel cycle. Pakistan has operating 3 power reactors, 4 reactors are under construction and there are

\(^{711}\) Khan (2012).


\(^{713}\) Khan (2012), p. 100.

\(^{714}\) A.Q. Khan was a metallurgist working at a subsidiary of the URENCO enrichment corporation in the Netherlands.


\(^{716}\) Interview with Abdul Qadeer Khan, The News (Islamabad), May 30, 1998.
plans to construct another 5 power plants. Pakistan operates a small uranium centrifuge enrichment plant since 1984. Country carries out exploration, mining and milling activities.\textsuperscript{717}

Pakistan's weapons-grade plutonium for its nuclear weapons program receives mainly from the Khushab Complex, which is not under the IAEA safeguards. Complex includes plutonium production reactor, heavy water production, three reactors producing plutonium; fourth reactor is under construction. The Belgian firm Belgonucléare allegedly constructed the Multan Heavy Water Production Facility in 1980, however no other open source information is available on the issue. Country has also fuel fabrication facility, three reprocessing facilities and two research reactors. Pakistan reportedly produces tritium.\textsuperscript{718}

Country has civilian nuclear cooperation with China. Country tried to reach a nuclear cooperation agreement with US, similar India’s agreement, as well as tried to get country-based exemption from NSG for nuclear cooperation with NSG members, however both efforts brought no positive results.

Pakistan has growing nuclear arsenals as country operates four reactors, three of which are capable of producing weapons-grade plutonium. According to some sources\textsuperscript{719} Pakistan possesses between 100 and 120 nuclear weapons. However, the International Panel on Fissile Materials in 2013 declared that Pakistan has fissile material sufficient for over 200 weapons. Country’s annual production of highly enriched uranium (HEU) would be enough for 10 to 15 warheads per year.\textsuperscript{720}

\textit{Country’s position to the adherence to the Additional protocol}

On global nuclear norm observance India outperforms Pakistan. Pakistan always argued that the NPT is a discriminatory treaty and Pakistan will not sign such a Treaty. Country declared its right for self-defense. Pakistani officials continue to reject to sign the treaty unless it recognizes Pakistan as a NWS or unless India also signs it. Though Pakistan has Safeguards Agreements with the IAEA, only some of its facilities are

\textsuperscript{717} Pakistan, NTI (2016).
\textsuperscript{718} Pakistan, NTI (2016).
\textsuperscript{719} SIPRI 2015 Yearbook.
\textsuperscript{720} Pakistan, NTI (2016).
under the safeguards and it continues to increase its nuclear arsenal to resist India and China, which have both nuclear weapons as well as superior power in conventional arms.

As India succeeded with its nuclear cooperation agreement with the US and became exempted by the NSG to participate in nuclear trade, Pakistan as a rivalry to India places the same demands to the NSG and the US. India seeks NSG’s membership, however the process is slowed down; besides other reasons (such as Non-NPT Party), NSG States consider the prospects that with India’s accession Pakistan may have similar demands. But contrary to India, Pakistan is considered as one of the most dangerous countries in the world taking into account its nuclear weapons and unsteady internal situation. However, country has strong national legislation regarding nuclear security and independent regulatory authority.\(^\text{721}\)

Pakistan has no articulated position on AP adherence. That Pakistan would follow India in signing the AP is not clear yet. However, India’s AP, because of its very few measures accepted from the Model Additional Protocol, has been seen as establishing a bad case not only for Pakistan but for Brazil as well because of its limited measures.\(^\text{722}\)

Not to be behind of India, and in order to increase its regional reputation and prestige, Pakistan may follow India’s experience and sign a similar Additional Protocol, with limited provisions, which will anyway allow Pakistan to develop its nuclear program.

5.1.3.5 Findings

The analysis of selected eights states show that though there are serious difficulties for certain states to join the AP, for some states such a possibility is visible. Despite the fact that Iran implements its AP provisionally and for indefinite timeframe, it can finally lead Iran to ratify the AP. As it has to implement all provisions of the Protocol, it can also officially ratify it to show more transparency in its nuclear program, reduce concerns of the international community and build the confidence and international trust. That will increase country’s reputation as a state, which follows the accepted behavior and respects commonly accepted safeguards norms. Iran’s provisional

\(^\text{721}\) Panda (2016).
\(^\text{722}\) Ramana, India ratifies an additional protocol and will safeguard two more nuclear power reactors (Article), on July 1, 2014.
implementation of the AP can impact on Middle East States’ policy choices in the field of nuclear non-proliferation. For instance, it can positively affect Syria’s and Algeria’s position on AP, somehow moderate Egypt’s stance on AP and of course greatly contribute to a dialogue and negotiations directed towards creation of the Middle East Nuclear Weapon Free Zone.

So far the discussions and consultations have shown that there still continues to be a long-lasting and radical discrepancies of governments’ positions between Israel and Arab States especially in connection to the application of comprehensive Agency safeguards to all nuclear material and activities in the Middle East region. “Israel takes the view that Agency safeguards, as well as all other regional security issues, cannot be addressed in isolation from the creation of stable regional security conditions and that these issues should be addressed in the framework of a regional security and arms control dialogue that could be resumed in the context of a multilateral peace process”.

Israel insistently tries not to connect the NPT Review Conference (as a non NPT party), with the conference on establishment of MEWMDFZ, but links the creation of such a zone with the peaceful resolution of the Arab-Israeli conflict. At the same time for Arab states regional peace is possible to reach only if Israel disarms. Though this is the most sensitive issue in the Middle East region, but Iran’s nuclear deal might positively affect to the future developments.

Israel’s acceptance of AP is the least possible in the MENA region however certain positive developments can be accepted, particularly, in its rhetoric towards Iran’s nuclear weapon program. Syria’s signature of the AP can be possible under the comprehensive deal, taking into account devastated situation in the country, which might force Syria to accept the AP under the international pressure. India’s ratification of AP can be a game changer in the region and Pakistan, wishing to get all the benefits that India currently receives under the nuclear cooperation deal with the US as well as NSG exemption for nuclear trade, may accept the AP with similar provisions as India’s AP. Though currently such perspectives are less likely.

723 GOV/2013/33-GC(57)/10 (2013).
724 NPT Briefings: 2010 & Beyond; Middle East Nuclear-Weapon-Free Zone: the need for practical regional and international approaches, The Acronym Institute for Disarmament Diplomacy (2016).
Concerning ratification of AP by Brazil and Argentina, Brazil’s position and ratification will lead to Argentina’s ratification. Both countries are seeking dominance in the region, thus they will accept the AP only if other does so. Any deal between these countries and their signature of the AP may take a form of the Quadripartite Agreement between ABACC, Argentina, Brazil and India. But NWSs should somehow succeed with their disarmament obligations that the acceptance of AP by these states becomes realistic. Progress on disarmament issues will bring signature of the AP by Venezuela, another state with significant nuclear activities in South America that so far didn’t sign the AP.

To conclude, findings of the case studies show that there are some prospects that AP can be universalize but before that NWSs and Middle East States should make significant efforts towards that end.

5.2 Universalisation of the IAEA Additional Protocol

5.2.1 Introduction

IAEA safeguards regime from the date of its formation have been encountering various challenges and threats, taking into account particular peculiarities of the issues under the IAEA’s mandate and its susceptibility for States. Dual character of the nuclear energy as well as interconnection of the national sovereignty in terms of economic development of the nation and national security and nuclear energy has their repercussions on international security.725

Interest in nuclear power generation is currently undergoing global resumption. Projections are shown that “expects the future expansion of nuclear worldwide to depend principally on 30 countries that already use nuclear power, a number of “newcomer” countries are expected to introduce nuclear power”.726 Studies show that about twenty new states might launch a nuclear program and will operate their first nuclear power plants already by 2030. New three enrichment plants are currently being built. Agency currently verifies over two hundred nuclear power reactors and 130

major other Nuclear Fuel Cycle (NFC) facilities in the world. The nuclear expansion means that more nuclear material and activities and as well as nuclear facilities will need to be safeguarded. Fast changing world and globalization, development of new technologies and nuclear energy as an option for many newcomer states will make it easier for non-state actors to obtain nuclear material. International trade and procurement of nuclear equipment will increase. Nuclear terrorism will become a serious threat. A major challenge to the nuclear non-proliferation regime will be a clandestine trade in nuclear material and technologies.\textsuperscript{727}

States with ambitions to develop a nuclear weapon pose certain challenges as well not only to the IAEA, but to the whole international community. All these will increase the role of the IAEA to verify nuclear material and indeed, increase the volume of nuclear verification activities. Based on projections by 2030 about three hundred fifty reactors and hundred sixty NFC facilities will be under the IAEA safeguards system. IAEA currently conducts inspections at 196 nuclear reactors in 24 NNWSs, which have INFCIRC/153 based Comprehensive Safeguards Agreements in place. Study shows that by 2030 this number will vary between 210-350 nuclear power reactors. Larger quantities of spent fuel will be under the safeguards and more research reactors. New enrichments processes and other reprocessing methods will be introduced.\textsuperscript{728}

Having all these in mind the Agency have to increase its capabilities to verify nuclear material in order to effectively support the nuclear non-proliferation regime \textit{``by detecting the misuse of nuclear material or technology and by providing credible assurances that States are honoring their safeguards commitments under the NPT and other non-proliferation agreements''}.\textsuperscript{729}

With an eye to achieve the safeguards objective and the goal of the nuclear non-proliferation regime as well as to provide credible assurances to international community and regime members on non-diversion of nuclear material to nuclear weapons, the IAEA needs more legal authority to carry out its verification mission, which means broader access to all relevant information and locations.

Currently, the legal obligation for States (only for the NPT Parties) is to sign the Comprehensive Safeguards Agreements, but for those countries the IAEA is not able to

\textsuperscript{727} External Environment Executive Summary, STR-365 (2009), pp. 6-9.
\textsuperscript{728} External Environment Executive Summary, STR-365 (2009), pp. 6-9.
\textsuperscript{729} External Environment Executive Summary, STR-365 (2009), p. 9.
draw safeguards conclusions and provide assurances that there is no undeclared nuclear material and activities in those States and that they don’t pursue nuclear weapons path. In order for the Agency to conclude on undeclared nuclear material, States having the CSA in place should sign and bring in force the Additional Protocol. Not having the AP in force Agency would not be able to draw safeguards conclusion that there is no undeclared nuclear material or activities in a State.

5.2.2 Universalization of the Additional Protocol

“It is now to be hoped that states that have signed additional protocols, but not yet brought them into force will do so as soon as possible and that states which have not yet initiated the conclusion of an additional protocol will do so without delay.”


Since the adoption of the Model Additional Protocol the significance of the measures under the Protocol for strengthening the safeguards have been continuously underlined by States. For instance, the NPT Review Conferences and the UN General Assembly always highlighted the importance of the Additional Protocol. Notwithstanding that the NPT 2010 Review Conference didn’t approve the proposal from States to make signature and ratification of the AP for States with CSAs as a legal obligation, the Action Plan of the Review Conference contained two provisions concerning the AP: to encourage all States Parties to sign and bring into force AP and implement it provisionally pending their entry into force and to facilitate and assist States to sign and ratify CSAs and APS. The NPT 2015 Review Conference noted that implementation of the provisions specified in the Model Additional Protocol increases certainty about the absence of undeclared nuclear material and activities in a State as a whole effectively and efficiently; though it is the sovereign decision of any State to conclude an Additional Protocol, but if it enters into force, the AP is a legal obligation for that State; and encourages all States parties that didn’t sing AP so far to sing and to

Contrary to these all calls as provided in previous chapter only 127 States have ratified Additional Protocols from 182 States having the Comprehensive Safeguards Agreements. These figures are frustrating after almost 20 years of the entry into force of the Additional Protocol. The full potential of the strengthened safeguards can be achieved only via universalization of the Additional Protocol, which will allow the Agency to assure about the absence of the undeclared activities in the States. In order to succeed with universal adherence the IAEA and States should continue to encourage non-signatories to sign and ratify the most robust safeguards instrument. For that purposes numerous guidelines and supporting documents have been elaborated to assist States in preparing declarations under the AP, or assisting in conducting complementary accesses. Universalization of the Additional Protocol now rests by States to demonstrate their willingness to have effective safeguards regime in place and support the document, which they initiated, negotiated and adopted.

Impediments to sign the Comprehensive Safeguards Agreements with the Agency seem to be more technical, legal and administrative nature, whereas for conclusion of the Additional Protocol political considerations have a major role. “The universalization of APs in particular is likely to depend on a number of factors over which the IAEA has little or no control. These include the larger international security context, regional security issues, as well as the extent to which countries can advance nuclear non-proliferation and disarmament through multilateral diplomacy”. Having this in mind universal and effective implementation of verification activities both under CSAs and APs will be the main obstacles to nuclear non-proliferation.

What does impede States to sign AP?

“'Inalienable right of the state to develop nuclear energy for peaceful purposes”’ should be respected in taking any measures of nuclear non-proliferation. For such states pursuit of national interests, i.e. development of nuclear energy, accordingly acquiring or developing nuclear technology, should be accepted as a sovereign right.

What are the interpretations of the NPT Article IV “inalienable right of peaceful use of nuclear energy”? In what extent can that right be limited by international instruments

734 NPT, Article 4.
including by Comprehensive Safeguards Agreement and the Additional Protocol? Would all states agree to join the nuclear fuel cycle control arrangement? States, which want to launch a peaceful nuclear program claim that safeguards under the Additional Protocol are too invasive and supersede their inalienable right and national sovereignty.\textsuperscript{735} For states, which see the nuclear proliferation as a serious threat to their national and international security, put the non-proliferation norm, in the system of norm hierarchy, on the highest place. Some states follow the rules of the regime as they think that it is the right way to behave. Safeguards measures under the Additional Protocol though are strong and intrusive; their application does not hinder state sovereignty, “\textit{but rather plays a role in strengthening the legitimacy of the nuclear program}”.\textsuperscript{736} According to N. Akiyama, certain countries, for example Japan, can present best practice in complying at the highest level with the norms and rules of the nuclear non-proliferation regime and the NPT verification regime and at the same time promoting peaceful use of nuclear energy. Though such states security against nuclear threats depends largely on US deterrence.\textsuperscript{737} Recent years States positions on safeguards and their implementation started to vary. In the light of recent cases of non-compliance with their safeguards obligations, atmosphere in the Agency’s policy-making bodies became more politicized. Vienna’s consensus spirit was infringed. Resolution on Strengthening Safeguards tabled for adoption by the IAEA General Conference vividly showed divergence of the Member States positions. It clearly exposed the priority areas certain states or group of states pay more attention. States are not eager easily to accept more intrusive AP measures seeing hesitance of NWSs to follow their disarmament obligations. Thus efforts both of the Agency and States should be directed to pursue remaining states to join the AP in order to strengthen the IAEA safeguards regime and global nuclear non-proliferation regime. This can be achieved only by universal application of the AP and IAEA’s capabilities of assuring correctness and completeness of States’ declarations must be universally endorsed and pursued.\textsuperscript{738} Based on the case studies one can conclude that it is unlikely that significant progress

\textsuperscript{735} Akiyama (2013), p. 15.
\textsuperscript{736} Akiyama (2013), p. 18.
\textsuperscript{737} Akiyama (2013), p. 21.
\textsuperscript{738} Akiyama (2013), p. 22.
can be achieved towards conclusion of the APs in “states with significant nuclear activities”, including in DPRK, Pakistan, Israel, Syria and other states without strong political support, external assistance and various compromises reached with the dominant States within the regime.

As the NPT Review Conferences encouraged the IAEA to facilitate universalization of the Additional Protocol, the IAEA should continue its efforts to facilitate adherence and application of the AP in the IAEA Member States. Indeed, the IAEA will partially succeed in its endeavor and more states, including those with nuclear activities, will sign and ratify the AP, however, the underlying reasons of not signing the AP by certain NNWSs should be looked in the context of the NPT Article 4 and 6. This means that states should not have a fear that AP ratification will limit their rights under the Article 4 of the NPT and that they will not be able to exercise their right to develop nuclear energy for peaceful purposes, carry out research, participate in exchange of equipment, materials and scientific and technological information without discrimination. NWSs should undertake efforts and practical steps to implement their obligations under the NPT Article 6, to start negotiations to cease the nuclear arms race and succeed with nuclear disarmament. Respect of NNWSs rights under the Article 4 and implementation of Article 6 by NWSs, would greatly contribute to universalization of CSA and AP.

Outreach activities and discussions with Argentina, Brazil and Egypt need to be carried out on broader political terms. As in case of Iran provisional implementation of AP without legal obligation should be suggested as a capacity building measure to states. Identification of areas where AP implementation brings more advantages for States with AP than those of without AP need to be carried out to be used as additional tools and justification in order to persuade States to adhere AP.

5.2.3 AP Impact on the IAEA Safeguards Regime and Overall Nuclear Non-Proliferation Regime

Does the Model Additional Protocol significantly contribute to the robustness of the
IAEA safeguards regime and prevention of nuclear proliferation? To answer this question one needs to assess whether the authority given to the IAEA under the Additional Protocol is sufficient for such a contribution and whether the IAEA fully realizes the whole scope of that authority. The level of the contribution depends on political will of the IAEA and the number of AP ratifications by NNWSs.

Concerning the legal authority of the IAEA provided by the AP, as seen from the analysis of the measures under the instrument in the fourth chapter, one can conclude with certain level of confidence that the Agency has authority to apply tools and measures, which definitely impact the IAEA safeguards regime and nuclear non-proliferation. These measures dramatically increase the likelihood of detection of undeclared nuclear activities, as the measures contained in the Additional Protocol if applied give the comprehensive picture on State’s nuclear program, including many of its non-nuclear material components as well as provide an overview on the future plans and programs.

AP provisions such as short notice inspections and environmental sampling enhance the probability of detection of a clandestine program. Agency’s right to access a location where inconsistency was observed or there are still open questions, constitutes a crucial non-proliferation tool. The Additional Protocol provisions of access to a broader range of declared and not declared areas can make a great contribution to nuclear non-proliferation regime. However, whether in the future it will make such a contribution, as mentioned, depends on broader acceptance of the Additional Protocol. If there are still States without the AP international community can’t be sure about the absence of clandestine nuclear programs. So impact on the nuclear non-proliferation regime can be assessed only with the breadth of the AP ratifications, as well as with the IAEA’s political will to pursue all the prescribed measures equally in all AP States.

The IAEA should widely apply its right of short-notice inspections and wide environmental sampling, in case of open questions. “Realizing the protocol’s potential to promote nonproliferation will require not only its vigorous implementation, but also the determination of the agency, and its member states, to act on the information gained from such implementation.”

As of today 182 States have IAEA Comprehensive Safeguards Agreement in place, the

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number of the states having Additional Protocols in force reached to 127, IAEA verification activities are carried out in all NNWSs that have nuclear activities. However, the figures of ratifications are disappointing. “The Additional Protocol has not become the new standard for NPT safeguards, and the countries of greatest proliferation concern have been slow to embrace it[.]”  

The Additional Protocol contains strengthened tools to assist the IAEA in its verification mandate and equips the IAEA to tackle new challenges as a result of growth of nuclear energy. As described in previous chapters the Additional Protocol provides a broader picture of the States’ nuclear fuel cycle including policies of the State, national nuclear related legislation, holdings of the nuclear material, mining and conversion capacities and annual production, R&D activities both involving and not involving nuclear material in relation to the Nuclear Fuel Cycle, industrial capabilities and existing infrastructure supporting NFC activities. Tools like complementary access, which is an extended access to nuclear facilities and to other locations, are contributing to transparency and reducing uncertainty about state’s nuclear intentions. It gives possibility to clarify inconsistencies between state declared and all other available information to the IAEA. AP produces large quantity of information. This information is possible to obtain just on the basis of willingness of the states to abide by the rules of the regime and by allowing inspections in their nuclear facilities as well as by providing various state reports and declarations.

Adoption of the Additional Protocol first of all was directed to enhance measures to verify declared and undeclared nuclear material and nuclear activities, provide the IAEA with new authority or larger authority and make states to take new commitments in terms of cooperating and providing with more access to information and locations necessary to draw sound safeguards conclusions.

The impact of the Additional Protocol has gone further than just providing additional measures to safeguards implementation. From one side it has introduced new elements in verification activities, more comprehensive and information driven; from another side it has generated a broad revision of the conceptual basis for implementation of safeguards. One of the issues, the Agency has faced, was to balance the resources allocated for the new verification activities and those allocated to traditional

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measures.\textsuperscript{743}

Resulting from previous experiences Agency had in Iraq, the DPRK and South Africa, it was obvious what a value would present a broad picture and knowledge on State’s Nuclear Fuel Cycle. On top of it new system of information driven safeguards added to State provided information and declaration, also information obtained from other sources, such as open source and third country information.\textsuperscript{744}

New document increased the probability of detection of undeclared nuclear material and activities. However with the new instrument certain issues raised in relation to implementation of new measures in States having Additional Protocol in place, for instance, how to conduct complementary access, in what format states should provide information requested in Additional Protocol, which sites and buildings to visit, etc.

In the light of raised issues, new conceptual frameworks have been put forward.

How will the IAEA safeguards regime evolve further to become more robust and to strengthen nuclear non-proliferation norm will depend on all shortcomings identified during the implementation of the safeguards latest instrument AP and ways to solve that deficiencies. It is obvious that the countries that have been interested in launching nuclear programs didn’t join AP immediately, before joining they analyzed the situation looking for other states behavior and best practices. It is more advisable that governments before joining any international instrument would have a closer look first of all to previous practices and consider if it makes sense to build on that success before looking to alternative solutions. “\textit{Policy successes provide decision makers with instruments that are proven to be effective and more certain than untested alternatives.”}\textsuperscript{745}

Not only in relation to AP but also to other regimes and Agreements, some consider it as a success story with high impact others see that as a failure. Indeed, there are some shortcomings in AP. The first and the most important shortcoming of the AP is the voluntary nature of the instrument; universalization norm would increase the value of the instrument, abolish discriminatory nature arising from the NPT classification of states into NWSs and NNWSs and strengthen the robustness of safeguards regime and overall non-proliferation regime. And in order to reach universalization of the AP, the

\textsuperscript{745} Walsh (2005), p. 6.
instrument need to become legally binding.
The second shortcoming of the AP is the absence of enforcement provisions, existence of which would definitely greatly contribute to effectiveness of the regime.
To conclude the Model Additional Protocol can make a great impact to the NPT verification regime and the nuclear non-proliferation regime. It contains important safeguards and verification measures, which increases efficiency and robustness of the NPT verification regime and can significantly contribute to strengthening of the nuclear non-proliferation regime, however, this contribution greatly depends on political will of the IAEA and NPT Parties. The IAEA should demonstrate its determination to realize its authority under the AP and the Board of Governors should be ready to address the non-compliance cases. And the most significant contribution leans on broader AP adherence and implementation by the NNWSs.
Analyzing all the measures under the AP and their implementation, one can confidently conclude, that the Additional Protocol has significant impact on the IAEA safeguards regime and the nuclear non-proliferation regime, it gives larger authority to the IAEA to administer its mandate under the NPT, CSA and AP, as well as better and stronger measures and tools to conclude on States compliance with their safeguards obligations and importantly to deter and detect nuclear proliferation.

5.2.4 Addressing Verification Challenges: a New Instrument and an Enforcement Mechanism

5.2.4.1 New Mechanism to Tackle Non-compliance Cases

As illustrated in this research, the IAEA safeguards regime has no proper enforcement mechanism, which would give possibility to the IAEA effectively and efficiently tackle states’ non-compliances from the early signs of such non-compliance behavior. Which mechanism does apply currently for such cases?
According to the Article III.B.1 of the Statute, IAEA is part of the UN legal system, it is an autonomous organization and reports annually to the General Assembly and to the UN Security Council when it finds that international peace and security are endangered in regard of its activities. Its relationship with the UN is regularized by the

746 IAEA Statute, Article III.B.1.
Agreement on Governing the Relationship between the United Nations and the International Atomic Energy Agency.\textsuperscript{747} The IAEA is the key organization responsible for verifying State’s compliance with their non-proliferation commitments under international agreements.\textsuperscript{748} The Agency took a responsibility of establishing and administering nuclear safeguards under the Statute with the key purpose of ensuring that nuclear energy is not diverted to military purposes.\textsuperscript{749} Thus the essence of the safeguards is legal and results from international instruments.

UN Security Council is the only body endorsed with the legal instruments in order to enforce compliance with the IAEA safeguards obligations.\textsuperscript{750} It is the only body to which the IAEA reports in case of member states’ non-compliance. The last decades we have been witnessed of such non-compliance cases referred to the UN SC. The responses and actions of the main body responsible for international peace and security have been diverse depending mostly on the larger international security and political context. In certain cases of violations of obligations UNSC was not united in considering and reacting on state’s non-compliance with their obligations, which made difficult to respond to such cases in a timely and proper manner. Certain proposals have been made in order to improve the situation pertaining Security Council’s ability to administer compliance and Agency’s capability better investigate alleged non-compliances. It has been suggested to provide the Agency with an authority for “special, temporary and expanded verification” in cases when States don’t demonstrate transparency and necessary cooperation in resolving outstanding issues concerning their nuclear program. The IAEA 20/20 Commission\textsuperscript{751} in its report recommended such measures to include in new modified instrument “AP plus”.\textsuperscript{752}

There have been certain cases in the IAEA practice when non-compliance was disregarded. It can be explained by different factors, for example information on violation or alleged violation can be gained by non-legal means and in order not to reveal the agents further actions are not being taken concerning the received information or a country who possessed a high resolution aerial or satellite imagery

\textsuperscript{747} INFCIRC/11 (1959).
\textsuperscript{748} Andres (2008), p. 93.
\textsuperscript{749} IAEA Statute, Article III.A.5.
\textsuperscript{750} Andres (2008), p. 109.
\textsuperscript{751} 20/20 Commission was an IAEA Commission of Eminent Persons, a high level panel of international experts, to conduct a study on 2020 vision.
\textsuperscript{752} External Environment Executive Summary, STR-365 (2009), p. 12.
might not want to disclose its capabilities in that area.\textsuperscript{753} In some cases non-compliance is judged for political or technical reasons. S.uzanna Van Moyland brings some assumptions for ignorance of violation cases: for example, the violation was unintentional or technical, or amount of the fissionable material was too small and not significant, or may be informally the country was warned on further actions by the Agency, in case the violation of safeguards obligation would take place again in the future.\textsuperscript{754}

One of the cases of ignorance of non-compliance was a Romanian case. The ever-conducted IAEA’s special inspection in Romania reported to the Board of Governors that country violated its Safeguards Agreement in 1985 by separating about 100mg plutonium from irradiated uranium. Nevertheless, this non-compliance case was not reported to Security Council. It was ignored. There is no provision clarifying which cases should be considered violations to be referred to the UN SC. Whether non-reporting the separation of 100mg plutonium is significant enough violation to be reported to the Security Council is not provided in any of safeguards documents or in the Statute. So what is missing in order the IAEA safeguards regime becomes robust is clear and detailed non-compliance and enforcement mechanism. To which extent is the IAEA ready and prepared to response to non-compliance cases and how Member States and Board of Governors would accept it, is another issue. Political atmosphere often changes in the Board of Governors upon which depends consideration of each non-compliance case. Depending on the global geopolitical context non-compliance cases are picked and addressed differently.

To bring the example of Iran’s case; Iran’s clandestine program was discovered already in 2002, however it was not referred to United Nations Security Council until 2006. Even after referral to the UNSC and despite the fact that there have been some resolutions adopted by the Board of Governors and the UNSC on implementation of Iran’s obligations under the Safeguards Agreement, they haven’t brought the expected results for more than 9 years. How successful is then the mechanism to address the non-compliance cases? Absence of the consensus on the issue in the Board also is an indicator of the absence of political will to solve certain outstanding issues.

\textsuperscript{753} Van Moyland (1999), p. 13.
\textsuperscript{754} Van Moyland (1999), pp. 13-14.
Syria’s non-compliance case had the same picture. “Even after the Director General reported to the Board of Governors that Syria was in breach of its safeguards obligations, the decision by the Board of Governors to find Syria in non-compliance and report it to the UN Security Council was taken by a vote of seventeen in favor with six against and eleven abstention”. So there are no explicit rules to identify the non-compliance and there are no explicit procedures to address the non-compliance and punish the violator. Even referral to the UNSC in case of a threat to international peace and security is based on political considerations and decisions, as what presents a threat to international peace and security as well as what presents proper response to that are to a great extent political decisions.

The absence of enforcement provision in the NPT, Comprehensive Safeguards Agreement and Model Additional Protocol means that the issue of non-compliance should be addressed within the UN SC and in bilateral responses by individual states. “While lacking in uniformity, this structure has meant that different remedies have been tailored for different cases.” Thus the States need to consider development of a new enforcement mechanism, which would contribute to universalization of the AP.

5.2.4.2 State Level Concept

So far states’ non-compliance cases haven’t been recorded in states that have ratified the Additional Protocol. No significant undeclared nuclear activities have been identified in states with AP, which can be explained by increased legal authority of the Agency as well as states’ commitments to play with the rules of the game and respect the norm of the non-proliferation regime. Though Iran has signed the AP, but allegations of Iran’s non-compliance have been voiced before provisional implementation of the AP in 2003. Iran has never ratified the AP, thus Agency hasn’t been able to implement verification activities as prescribed in the AP. The Model Additional Protocol containing strengthened safeguards measures was adopted in 1997. Almost twenty years later, the measures included in this document demonstrated that

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756 DeFrancia, p. 782.
their implementation is sufficient for robust and effective safeguards regime. Though twenty years is not sufficient time to judge about the effectiveness of the instrument, and point out all the deficiencies and weakness the document has. Thus it is too early to debate whether States would consider starting negotiations over a new safeguards document in the near future or they would try to modify the existing AP, particularly directed to the elimination of the big weakness of the instrument, i.e. making it legally binding for all states having Comprehensive Safeguards Agreement. Measures under the AP are sufficient to detect and deter proliferation if applied in all States. Thus the biggest efforts should be directed to alter the voluntary nature of the AP.

As illustrated in previous chapters nuclear energy landscape grows and current forecast mentions emergence of new types of facilities, bigger amount of nuclear material, which would need application of safeguards and verification activities. Despite the fact that the IAEA already covers huge number of facilities and conducts numerous inspections, these numbers will increase drastically, if the forecast of nuclear renaissance happens. Though it is too early to discuss the need for the AP Plus or another safeguards instrument, the IAEA and States would rather need to reconsider and develop new approaches and concepts to face and tackle future safeguards challenges. New concepts should take into account also issues of budgetary constraints and plan safeguards and verification measures in a way to use them more efficiently and where it is more needed. Taking into considerations all these challenges and developments and in order to implement safeguards measures more effectively and targeted, the latest concept, aimed at strengthening the IAEA safeguards regime in a cost-effective manner, has been introduced to the Board of Governors in September 2013. It has been presented by Director General’s report entitled “The Conceptualization and Development of Safeguards Implementation at the State Level”\textsuperscript{758}.

State Level Concept (SLC) aimed at maintaining efficient and effective safeguards regime over the time within the limits of financial means, being able to tackle new challenges, taking into consideration previous experiences accumulated from implementation of safeguards and meantime taking advantage of new technologies and techniques.

\textsuperscript{758} GOV/2013/38.
The application of strengthened safeguards measures contained in the AP gave the Agency more comprehensive information about a State and made it possible for the Agency to consider the State as a whole. This applies especially to States with an AP in force. With the time the IAEA started to think how this increased information could be used in the process of identification of relevant infield and Headquarter safeguards activities. The possibility to maximize the effectiveness and efficiency of safeguards implementation was easier to plan for States with the broader conclusion. Broader safeguards conclusion is drawn for States where integrated safeguards are applied. Integrated safeguards “[r]efer to the optimum combination of all safeguards measures available to the Agency under a comprehensive safeguards agreement and an additional protocol to achieve maximum effectiveness and efficiency, within available resources, in meeting the Agency’s safeguards objectives”. The AP has paved the way to the so-called “integrated safeguards” system, which is based on classical accounting and results of different inspections. Currently Agency applies integrated safeguards, according to which the States having both Agreements in place and which during the years proved to be reliable by providing correct information and cooperating promptly with the Agency should be inspected less strictly than the states, which were not able to provide such assurances to the Agency. The implementation of the measures under the CSA and AP allow the IAEA to draw the “broader conclusion” for the State – that all nuclear material remains in peaceful activities (i.e. there is no diversion of declared nuclear material from peaceful nuclear activities and no indication of undeclared nuclear material or activities).

Via optimized safeguards measures taking into consideration State-specific factors and assessing of all available information to the Agency of safeguards relevance, the IAEA tries to strengthen the efficiency of safeguards implementation for such States at the same time not endangering safeguards effectiveness. This is the concept of integrated safeguards.

Besides the concepts of “integrated safeguards” and “broader conclusion”, the IAEA has applied safeguards approaches designed for each State individually, for which the IAEA drew broader safeguards conclusion. That approach called “State Level

759 GOV/2013/38.
760 Cooley, IAEA-SM-367/3/01.
761 IAEA SG 2014 rev.4 final.
Approach”. Though the “State Level Concept” for the first time was introduced in 2004 IAEA Safeguards Implementation Report, conceptualizing implementation of the State-level approach based on safeguards objectives and State specific factors and applied only in States with integrated safeguards, IAEA member States, haven’t pay serious attention to the concept at that time. Then the State level concept was included in 2012 Safeguards resolution, but Russia rejected to approve the concept in the resolution, justifying its position that it has never been discussed and approved by the BoG. Russia argued that state-level concept could possibly be used for “[m]aking political and subjective judgments about states; the need for further definition of specific elements of the concept, such as what constituted safeguards-relevant information and safeguards objectives and the authority of the secretariat to implement the concept without approval of the board or General Conference.”

Though the State Level Approach was not a new approach, it was one of the working methods of the Agency and it has been applied since 2001, only in 2013, after introducing the State level concept in Director General’s report submitted to the Board of Governors, it has met several states strong resistance. Agency and states invested many efforts, numerous consultation and discussion on the concept. Though it was aimed at evolution of safeguards, the draft concept triggered a severe response by states, which the IAEA hasn’t been expected and hasn’t been prepared. Certain states raised their voice against some safeguards measures aimed at enforcement of safeguards regime. Some challenged the IAEA authority under CSA to verify the non-diversion of not only declared but also undeclared nuclear material. As all measures aimed at increasing Agency’s authority in implementing its mandate the concept as well became an object of serious debates. Some states raised concerns that SLC has a discriminatory nature and it is drafted in a way to use more for political rather than technical purposes.

The Board of Governors and General Conference in 2013 requested Director General to prepare a report explaining in more details how the concept should be implemented. In 2014 Director General presented to the Board of Governors and the General Conference “Supplementary Document to the Report on the Conceptualization and

763 Rockwood (2014).
Development of Safeguards Implementation at the State Level.” During the 58th session of the IAEA General Conference in 2014 states adopted the Safeguards resolution, first time accepting the State level Concept.

The resolution welcomed GOV/2014/41 and underlined that:

- The State-level concept should not introduce any additional rights or obligations on States or the Agency, should not involve any modification in the interpretation of existing rights and obligations;
- The SLC should be applied to all State but strictly within the scope of each individual State’s safeguards agreement;
- The SLC is not an alternate to the Additional Protocol and Agency should not use it to obtain from a State without an Additional Protocol the information and access provided for in the Additional Protocol;
- The development and implementation of State-level approaches requires close consultation with the State and/or regional authority, especially when implementing in-field verification activities.

Resolution underlined the need for States to take part in the process of development and implementation of State-level approach and State’s agreement on practical arrangements for implementation of safeguards measures. Agency should also inform the Board of Governors on progress of implementation of safeguards under the SLC.

State level concept doesn’t require new legal authority; it should be implemented within the existing safeguards legal framework. It doesn’t put additional obligations on a state. Basically, State Level Concept is designed to consider the state as a whole and identify safeguards objectives and relevant safeguards measures for each state individually based on state-specific factors. The state-specific factors are the following:

- The type of safeguards agreement in force for the State and the nature of the safeguards conclusion drawn by the Agency;
- The nuclear fuel cycle and related technical capabilities of the State;

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765 GOV/2014/41, IAEA.
766 GC(58)/RES/14 (2014).
767 GC(58)/RES/14 (2014).
768 GC(58)/RES/14 (2014).
769 Cooley (2014).
The technical capabilities of the State or regional system of accounting for and control of nuclear material (SSAC/RSAC);

- The ability of the Agency to implement certain safeguards measures in the State;
- The nature and scope of cooperation between the State and the Agency in the implementation of safeguards;
- The Agency’s experience in implementing safeguards in the State.

State Level Concept is the latest concept of the IAEA aimed in concentrating the IAEA infield verification activities on areas, where safeguards significance is higher, thus designing allocation of Agency’s human and financial resources more efficiently.

States and the IAEA in the forthcoming years may concentrate their efforts on developing new approaches and concepts aimed at implementing the existing safeguards measures under the existing legal documents in order to strengthen the IAEA safeguards regime rather than to develop a new safeguards instrument and new strengthened safeguards measures, as the potential of full implementation of the AP and its provisions hasn’t been used and evaluated fully yet. There is a huge space to fill the gap of the regime robustness, which is possible to achieve with more ratifications of the AP with the final goal of its universalization, and more efficient implementation of the measures under both CSA and AP.

5.3 Findings

This chapter had the purpose of analyzing the perspectives of the universalization of the Additional Protocol based on selected case studies. As such, it first provided theoretical expectations on Additional Protocol adherence from the perspective of neorealism, neoliberalism and constructivism. Secondly, methodology on carrying out case studies has been provided and this chapter has examined the possibilities of adhering to AP of chosen states: underlying reasons not joining the instrument and policy options of those states pertaining to the AP in the near future via operationalizing provided theory expectations. The impact of the AP implementation on other states of the region by selected two states currently implementing the AP has been assessed. In a third step, based on cases studies prospects of AP universalization in the near future has been analyzed and evaluated. In a forth step, impact of the
Additional Protocol on the IAEA safeguards regime and the nuclear non-proliferation regime has been evaluated and illustrated. And lastly, need for more strengthen safeguards instrument has been analyzed and the IAEA new safeguards concepts and approaches has been provided. Overall, the analysis had the objective of addressing the following research sub-questions: “Is it possible to reach the universalization of the Model Additional Protocol or its adherence by all States having the Comprehensive Safeguards Agreement? and “What impact does the IAEA Model Additional Protocol have on the IAEA safeguards regime and overall nuclear non-proliferation regime?”. Main findings assembled as a result of the analysis are provided underneath.

**Only one theory can’t explain why States with significant nuclear activities don’t acquire nuclear weapons**

According to Scot Sagan there are three demand-side theoretical frameworks for proliferation. A Security Model, having a nuclear deterrent when facing a military threat; Domestic Politics Model, according to which political factors prescribe whether to go nuclear or no and Norms Model, where norms and beliefs about the accepted action help to form the State behavior.

**Nuclear weapons are necessary for national security (neorealism)**

State’s security is the most important factor and decisions are made based on cost-benefit calculations. States acquire nuclear weapons to balance their enemies. States not having enemies or security threats will not seek nuclear weapons. Security guarantees can prevent States getting nuclear weapons. Thus States with security guarantees would possibly ratify AP and not develop a nuclear weapon program having a fear to become a target for such a program. States with security dilemma will not sign AP as it will greatly limit their possibilities to develop a nuclear program and comparing with their nuclear neigbours or enemies they would appear in disadvantaged situation.

**Material benefits of the AP will force States to choose nuclear restraint (neoliberalism)**

States wishing to escape a security dilemma will join the NPT and the AP, which provide Treaty verification tools. The benefits of being within the AP regime will change cost-benefit calculations and influence state decisions not to go nuclear. States
will adhere to AP, which increases transparency and compliance control.

Social costs and wish to get social rewards dismotivates states to choose nuclear path (constructivism)
States will join AP because of social conformity and not as a best choice for their national security. Adoption of norms, make certain behaviors unacceptable. States signing AP and observing nuclear non-proliferation norm increase their reputation. Observance of others’ behavior helps understand the accepted and correct behavior. As many actors behave in the same way as more states accept that as a correct behavior.

WMD capabilities to counter regional security threat plays a key role in the national security strategies in the Middle East region
States in the region sought to develop nuclear and other WMD on the ground of mistrust about the intentions of other States in the region. Current adversary is also based on mistrust, which hinders negotiations on disarmament and establishment of NWFZ in the Middle East.
States in the MENA region are occupied not only by a threat perception, which obstacles giving up their desires to acquire nuclear weapons, but they are also concerned by a discriminatory nature of the nuclear non-proliferation regime, which explains their policy choices of not joining the AP.

Egypt rejects to sign the AP because of the non-universal adherence of the NPT
Egypt is the main advocate establishing a Middle East Nuclear Weapon Free Zone. It continues criticizing the nuclear non-proliferation regime and the issue of universalization of the NPT, as some States, mainly Israel, remains outside of the NPT. Egypt is for equal balance of non-proliferation and disarmament measures. Main argument of not joining the AP is Israel’s nuclear weapons. Egypt doesn’t want to take additional nuclear non-proliferation obligations, while the only State in the Middle East Israel continues to develop its nuclear weapons capabilities. Though Egypt declared that non-officially they will follow the AP spirit, but they will not join the AP until Israel’s nuclear issue is not considered. One can expect country’s acceptance of the AP when Israel joins the NPT and puts its nuclear material under the IAEA safeguards, otherwise Egypt’s perspectives to sign the AP is unlikely in current geopolitical context.
Despite of the numerous calls of the Board of Governors on Syria to sign and fully implement the AP, Syria hasn’t sign it

Ambitions to have nuclear weapons can be seen as incentive for Syria not to accept strict safeguards measures. Absence of the desire to sign the AP and refusal to ratify it can be sign of clandestine nuclear program. But country’s devastated situation, will not allow developing any industry capable of developing a nuclear weapon. In the light of the Israeli air strike of the alleged reactor and Board of Governors pressure on Syria, possibility that Syria will join the AP now is relatively low. Even without the plans to develop nuclear weapon program, Israel’s policy towards the nuclear non-proliferation regime is enough justification and explanation of Syria’s position of not adhering AP. Arab States rejections to AP are linked with the Israeli nuclear program. Israel will not undertake any steps to make its nuclear program transparent and put its nuclear material under the IAEA safeguards. Under such circumstances Syria’s position towards the AP likely wouldn’t be changed. However, Iran’s implementation of the AP can have impact on Syria’s position.

Iran has started provisional implementation of the AP under the nuclear deal without ratification

Iran previously implemented the AP as a confidence building measure, but stopped its implementation after Board of Governors referred Iran’s non-compliance to the UN SC. Current implementation of the AP under the JCPOA will show the success or failure of the IAEA verification regime and overall nuclear non-proliferation regime. Iran doesn’t ratify the AP because of 1) a security threat from Israel, 2) regional security threat, 3) no security guarantees from another nuclear State, 4) Iran hasn’t achieved alternative means of deterrence. Iran’s implementation of the AP is a result of cost-benefit calculations, and should not be seen as a shift in State’s interest or expectation of social reward. However, Iran’s implementation of the AP can impact policies of other states towards the AP. At which stage Iran would stop the implementation of the AP would depend on a broader geopolitical context and country’s policy on development of nuclear weapon. Iran may ratify the AP, in case it would not see possibilities further to develop nuclear weapon program.
Israel is a Non NPT State, despite of the NPT Review Conferences numerous calls on Israel to join the NPT

Israel’s position on MENWFZ hasn’t been changed since 1990, i.e. an agreement on such a zone is possible if regional peace is achieved. Peace with Arab States can be reached if Israel renounced its right to possess nuclear weapons. Israel’s accession to the NPT might reveal difficulties for NWSs, as after Israel’s accession numerous calls would be on country’s disarmament, which would touch the interest of NWSs. Israel’s policy change to join the AP would be difficult to achieve. Israel doesn’t rely on security regimes, being a witness of violations of international obligations by some States in the region. It is hardly possible that Israel would give up its nuclear weapons in current geopolitical context. Israel would give up with its nuclear weapons only being assured that Arab States aren’t developing a nuclear weapon. Establishment of the NWFZ in the Middle East depends on Israel’s participation in the negotiations, which in its turn depends on country’s policy on nuclear weapons. Though Iran’s implementation of the AP can be looked as a positive development for the region, it is very unlikely that States in the region will be able to create NWFZ without extra-regional pressure and help to build the trust and cooperation. So it is unlikely that in the near future Israel will adhere to the AP.

Brazil and Argentina haven’t signed the AP and have coordinated position towards that issue

Both countries abstained to pursue nuclear weapons to show their observance of the nuclear non-proliferation norm. They cooperate within the ABACC and ABACC’s safeguards measures are applied in both countries. Though Quadripartite Agreement, which is actually INFCIRC/153 type safeguards agreement, doesn’t replace the AP, Brazil and Argentina claim that safeguards measures under the agreement should satisfy international concerns and provide credible assurances on peaceful purposes of countries nuclear activities. NSG adopted amended guidelines concerning the export of sensitive nuclear technologies and accepted Quadripartite Agreement as a substitute to AP.

Argentina doesn’t provide explanations why it is not signing the AP

Country insisted on universalization of the AP during its negotiations and balanced safeguards obligations. Argentina calls on NWSs to implement their obligations under
the NPT and succeed with nuclear disarmament. Though Argentina and Brazil have a coordinated policy within ABACC of not signing the AP, in theory, Argentina might agree on AP adherence in the light of its policy in regard of various nuclear arrangements. However, in practice, Argentina’s decisions on any kind of nuclear accountability including joining the AP is closely interconnected to those of Brazil.

**Brazil will not undertake any additions to the NPT, including the AP, until the NWSs have made progress towards nuclear disarmament**

Brazil assumes that ABACC’s joint inspections gives a higher level assurance than CSA and doesn’t see the need to sign the AP. Country asserts, that ratification of the AP is discriminatory against NNWSs, as it sets more intrusive requirement for their nuclear programs, while NWSs are not complying with their disarmament obligations. AP will put additional financial burdens and suppress commercial nuclear development. Brazil insists that without notable progress in nuclear disarmament with planned timetable, Brazil would not sign the AP. It is not clear also how AP provisions would be applied on Brazil’s submarine program.

Brazil plays a role of nuclear non-proliferation advocate, rising nuclear disarmament issue and its adherence to AP doesn’t look unrealistic. Joining the AP by Brazil to increase its reputation and regional dominance is likely.

**India’s cost-benefit calculations forced the country to ratify the AP**

India remains outside of the NPT and considers nuclear weapons as the main part of its national security. India is not a member of NSG, but it was allowed to take part in global civilian nuclear technology trade. India seeks a membership in NSG, showing itself as a State with good record in non-proliferation and supporter of disarmament.

India’s ratification of the AP contributes to the efforts aimed at achieving universalization of the AP. It is the only Non-NPT country with the AP in force. This ratification can be seen as a confidence building measure and efforts to increase its international reputation. India receives the benefits of the NPT without taking any of the NPT obligations. This situation can greatly damage the NPT.

**India accepted less provisions and obligations under the AP comparing with those accepted by NWSs**

It is doubtful whether India’s AP has significance for safeguards purposes. However,
India’s ratification of the AP is a great signal for other Non NPT States and NPT Parties, particularly for Pakistan to follow the pattern and receive the benefits that AP might provide. India’s AP brings closer universalization of the instrument.

**Pakistan is largely excluded from nuclear trade and its nuclear weapons capabilities has been developed independently of the civil nuclear fuel cycle**

Pakistan always argued that the NPT is a discriminatory treaty and will not sign it. Pakistan rejects to sign the Treaty unless it recognizes Pakistan as a NWS or unless India also signs it. Pakistan is considered as one of the most dangerous countries in the world taking into account its nuclear weapons and unsteady internal situation. Pakistan has not articulated position on AP adherence. However, India’s AP can establish a case for Pakistan to join the AP accepting limited provisions only.

**Analysis of findings of case studies show that though there are serious difficulties for certain States to join the AP, for some States such a possibility is visible**

Iran’s provisional implementation of the AP can impact on Middle East States policy choices. It can affect Syria’s and Algeria’s positions on AP, moderate Egypt’s stance on AP and of course greatly contribute to a dialogue and negotiations directed towards creation of the MENWFZ.

There are some prospects that AP can be universalized but before that NWSs and Middle East States should make significant efforts towards that end.

**Agency has to increase its capabilities to verify nuclear material in order to support the nuclear non-proliferation regime effectively**

IAEA needs more legal authority to carry out its verification mission. In order for the Agency to conclude on undeclared nuclear material States having the CSA in place should sign and bring in force the AP. Only 127 States have ratified AP out of 182 having CSAs. The full potential of the strengthened safeguards can be achieved only via universalization of the AP. Universalization of the AP now rests by States to demonstrate their willingness to have an effective safeguards regime. States are not eager to accept more intrusive AP measure seeing hesitance of NWSs to follow their disarmament commitments. Efforts of the IAEA and States should be directed to pursue remaining states to join the AP in order to strengthen the IAEA safeguards regime.
The AP provisions of access to a broader range of declared and undeclared locations make great contribution to nuclear non-proliferation regime

AP’s future contributions depend on its broader acceptance. If there are still States without AP international community can’t be sure about the absence of clandestine nuclear programmes. Impact on the nuclear non-proliferation regime can be assessed only with the breadth of the AP ratifications, as well as with the IAEA’s political will to pursue all the prescribed measures equally in all AP States.

AP contains strengthened tools to assist the IAEA in its verification mandate and equips the IAEA to tackle new challenges

AP increased the probability of detection of undeclared nuclear material and activities. The IAEA safeguards regime further evolvement will depend on all shortcomings identified during the implementation of the AP. The most important shortcoming of the AP is the voluntary nature of the instrument. The universalization norm would increase the value of the instrument, abolish discriminatory nature arising from the NPT and strengthen robustness of the safeguards regime.

In order to reach universalization of the AP, the instrument need to become legally binding

Existence of enforcement provisions would greatly contribute to effectiveness of the regime. AP has significant impact on the IAEA safeguards regime and the nuclear non-proliferation regime, it gives larger authority to the IAEA to administer its mandate and tools to conclude on States compliance with their safeguards obligations and importantly to deter and detect nuclear proliferation.

UN Security Council is the only body to enforce compliance with the IAEA safeguards obligations

UN SC responses on non-compliance cases have been diverse depending on the larger international security and political context. In some cases UN SC hasn’t been united, which made difficult to respond in State’s non-compliance in a timely and proper manner. There is no provision defining the cases to be referred to UNSC except of broader concept of threat to international peace and security. No safeguards document provides which should be considered as significant violation. There are no explicit
rules to identify the non-compliance and there are no explicit procedures to address the non-compliance and punish the violator. Referral to UNSC in case of a threat to international peace and security is based on political considerations and decisions. Thus States need to consider elaboration of a new enforcement mechanism, which would contribute to universalization of the AP.

**No non-compliance cases have been identified in States with AP in force**

No undeclared nuclear activities have been recorded in AP States, which is explained by increased legal authority of the IAEA and by States commitments to play with the rules of the game and respect the norm of the non-proliferation regime.

**Almost 20 years letter AP measures showed that their implementation is sufficient for robust and effective safeguards regime**

Twenty years is not sufficient time to judge on the effectiveness of the instrument and identify all weaknesses and deficiencies. It is too early to debate whether there will be a need for a new safeguards instrument in the near future. The biggest efforts should be directed to alter the voluntary nature of the AP. IAEA and States would need to develop new concepts and approaches to face new safeguards challenges. New concepts should take into account issues of budgetary constraints and plan verifications activities in a way to use them more efficiently and where it is more needed.

**State Level Concept aimed at maintaining efficient and effective safeguards regime over the time within the limits of financial means, taking into account previous experiences and new technologies**

State level Concept conceptualizing implementation of the State-level approach based on safeguards objectives and State specific factors. SLC doesn’t introduce new rights or obligations for States. It applies to all States and within the scope of their safeguards agreement. SLC is not an alternate to AP and should not be used to obtain information and access provided in the AP. State-level approaches should be developed in consultation with States.

**State Level Concept doesn’t require a new authority, it should be implemented within existing safeguards legal framework**

States and the IAEA would need to concentrate their efforts on developing new
approaches and concepts aimed at implementing existing safeguards measures under
the existing legal documents in order to strengthen the IAEA safeguards regime rather
than to develop a new safeguards instrument. As the whole potential of full
implementation of the AP and its provisions haven’t been used and evaluated fully yet.
There is a space to fill with more ratifications of the AP with the final goal of its
universalization and more effective implementation of the measures under CSA and
AP.
6 CONCLUSIONS

The purpose of this research was to analyze whether the IAEA Model Additional Protocol is a new verification regime under the nuclear non-proliferation Meta regime or a new safeguards instrument aimed at strengthening the existing IAEA safeguards regime as well as to examine the prospects of universalization of the instrument. As a key theoretical framework regime theory has been used for this dissertation: its assumptions and arguments have been confronted with those of neorealism and constructivism. Assumptions of these theories have been used to identify regime characters and features of the Additional Protocol. Comparative analysis of regime analytical elements has been carried out pertaining Comprehensive Safeguards Agreement and Model Additional Protocol and contrasted with the analysis of the NPT principles, norms, rules and decision-making procedures. Case studies have been conducted to understand political motivations and reasons for policy choices of States and based on these findings prospects for universalization of the Additional Protocol have been evaluated.

6.2 Theoretical Findings

No International relations theory alone explains the complex world. While realists emphasize the role of the power in affecting the content and the robustness of international regime and neoliberals underline self-interest as a precondition for cooperation and establishment of a regime, the constructivists stress importance of social knowledge. Neorealist arguments couldn’t explain why states created the IAEA safeguards regime as for them the role of the regime is limited, though practice showed that IAEA verification regime despite of certain deficiencies is effective in realizing its mandate. Regime theory arguments explain the creation of the IAEA safeguards regime and adoption of the AP with existence of conflicting and complementary interests, and states’ desire to adjust their behavior to desired or existing preferences of others. States realized their egoistic-self interest collectively developing a strengthened safeguards instrument to assure themselves that no stat develops a clandestine nuclear program. Even if states with AP doesn’t receive tangible benefits, in a global context their national security benefits from wider application of AP. Costliness of AP makes it important for States. As an element of the IAEA safeguards regime, AP reduced
transaction costs associated with monitoring and enforcement of implementation of State’s obligations. It is designed to provide information and access to the Agency to verify State’s compliance. AP also reduces information costs by providing with information on significant questions of collective interest. Safeguards regime members exercise their interest collectively. They preferred cooperation against their not limited individual choice to ensure that no one cheats.

Constructivism argues that States join the AP and IAEA safeguards regime shaped by interest and international norms. Formal norms and rules of the safeguards regime motivates states to take part in collective knowledge. AP is an accepted behaviour, adherence to which increases States’ reputation as they abide with commonly accepted norms. Constructivism assumptions that interest and new knowledge bring changes in a regime, can be applied to AP as well. Though in a great extent corresponding to assumptions of regime theory, the analysis of the negotiations of the Model Additional Protocol and events preceding them also underline the validity of constructivist assumptions, that regimes or changes within the regimes have emerged in some degree as an outcome of social process.

6.3 NPT and its verification regime

Findings show that a verification regime in contrast with verification system and mechanism contains verification of compliance with the treaty obligations and adopted procedure of making such a judgment. As all other arms control treaties verification, IAEA’s verification is also a political process that comes up with assessment and judgment on state’s compliance. As such IAEA safeguards identified as a verification regime with centralized and multilateral verification mechanism and with both positive and negative verification; positive verification aimed at verification of declared activities, whereas negative verification to assure absence of undeclared activities. IAEA safeguards regime members provide State declarations, clarifications and amplifications and cooperate as a confidence building measure to increase transparency in their nuclear activities. IAEA safeguards aimed at detecting non-compliance and allowing international community to respond in a timely manner to a violator, deterring States to proliferate and building confidence among regime members. IAEA safeguards regime measures the extent the NPT, CSA and AP goals are achieved. In order the regime is robust and effective, it should possesses with proper verification measures and technologies. Moreover, regime robustness measures with compliance
with regime norms.

As seen from the findings, the nuclear non-proliferation regime doesn’t contain only the NPT, but many other agreements and regimes under umbrella of the Meta regime. Thus the verification regime of the NPT is different of those of the nuclear non-proliferation regime, which contains various verification mechanisms which directed to support the nuclear non-proliferation norm from various angles, for instance, Wassenaar Arrangement and NSG have their guidelines and control lists to monitor members’ compliance with export control lists, the CTBT when enters into force, has its comprehensive verification mechanism already reflected in the Treaty to detect nuclear tests, UN Security Council Resolution 1540 has its monitoring and reporting mechanism, etc. All conflicts in the NPT are related to the conflicting norms and inequality of rights and obligations of NWSs and NNWSs. Many non-nuclear weapon states agreed not to develop nuclear weapons in return that NWSs respect nuclear disarmament norm and share nuclear technology and knowledge and provide security assurances. However, so far there is not substantive progress in implementation of disarmament obligation. For the observance of the NPT norms such as nuclear non-proliferation norm and peaceful uses of nuclear energy there are established rules and standards, contrary to the disarmament norm, for which there are no adopted rules.

The NPT verification regime, which is actually comprised of the IAEA Comprehensive Safeguards Agreement /INFCIRC/153, INFCIRC/66, Voluntary Offer Safeguards Agreements, the Model Additional Protocol/ INFCIRC/540 and other instruments hasn’t been negotiated and included in the Treaty text at the time of the Treaty adoption, but negotiated afterwards. Findings prove that widely used terms such as “NPT verification regime”, “IAEA safeguards regime” and “IAEA verification regime” are in essence the same regime. While these terms are widely used in publications, no research and theoretical analysis pertaining these terms have been carried out. However, based on findings they all are based on the IAEA Statute, the NPT, all safeguards agreements, Additional Protocol, NSG guidelines, agreements of NWFZs. They all have the same decision-making procedures and decision-making bodies (IAEA Board of Governors and General Conference) and in case of non-compliance the same enforcement mechanism applies with referral to the UN Security Council. Furthermore, all analysis showed that the principles and norms of these three
regimes are the same as they are based on the same agreements and documents. IAEA safeguards regime (which is the same IAEA verification regime) has been established upon introduction of safeguards and verification norms in the IAEA Statute, evolved with adoption of the Tlatelolco Treaty and once again endorsed by the NPT. Safeguards Agreements are documents laying down rules for the IAEA safeguards regime. Thus not the NPT’s safeguards norm founded the IAEA safeguards regime but the IAEA Statute. First safeguards rules have been contained in INFCIRC/26, which has been modified by the time to meet new developments. Hence, the IAEA safeguards regime existed before the adoption of the NPT. NPT expanded the safeguards regime to all its Parties and called for a new comprehensive verification document. The regime rests on the norm of safeguarding nuclear material from not peaceful uses and on the norm verifying that the safeguarded nuclear material is not diverted to nuclear weapon or explosive device, however, the Meta norm is the nuclear non-proliferation norm. Comprehensive Safeguards Agreement INFCIRC/153 (Corrected) called “full scope” safeguards is the type of Agreement that the IAEA signs with the NPT Parties to verify the State provided information on nuclear material and activities.

IAEA is the main verification organization entrusted by its Statute, the NPT and Nuclear Weapon Free Zones Agreements to verify nuclear material and activities with the purpose of deterring and detecting diversion of nuclear material from peaceful purposes. The Statute and early safeguards documents didn’t envisage all potential changes and were not able to meet all the challenges of the fast changing and developing nuclear landscape, thus the need for more sophisticated and intrusive measures and technologies arose. Additional Protocol was the last safeguards document containing new measures to verify state’s compliance.

6.4 Additional Protocol and operationalization of the theory
IAEA Additional Protocol has been negotiated and adopted as a result of failure of the existing safeguards system, which weaknesses had been exposed by Iraqi case. However, based on Krasner’s definition of the regime, findings of the comparative analysis of Comprehensive Safeguards Agreement and Model Additional Protocol showed that explicit and implicit principles and norms of CSA are valid for AP. Both instruments are based on the main norm of the NPT, nuclear non-proliferation norm. No new principles and norms have been introduced and developed under the AP. With the approval of the AP, safeguards and verification principles have been prioritized in
the hierarchy of the principles. Findings confirm that principles of CSA didn’t undergo any transformation, evolution or change, they remained unchanged providing amplification for State’s behavioral prescriptions and proscriptions. Thus no regime revolutionary and evolutionary change occurred in the context of the regime principles and norms given unchanged character of the principles and norms. New elements introduced in the AP relate to rules of the safeguards regime only. Those are new intrusive verification measures aimed to strengthen the safeguards regime. Based on the IR theories no new regime has been developed, as only changes in normative framework would lead to the emergence of a new regime or revolutionary and evolutionary change of the regime. New Rules evolution was observed. As changes in the rules and decision-making procedures are not changes of the regime or emergence of a new regime, the Model Additional Protocol can’t be qualified as a new verification regime. Changes occurred within the rules are changes within the regime. AP itself contains no decision-making procedures. As AP can’t be considered as a separate document, decision-making procedures defined in CSA should be applied for AP as well. Majority of decision-making procedures are contained in the IAEA Statute. For non-compliance cases both documents apply the same decision-making procedures with the same decision-making bodies. No new Institution and Institutional framework has been established to implement AP. Though all IAEA members took part in elaboration of AP via “negotiated order” far not all signed and ratified it. As the theory proved the AP is not a new regime, it should be considered as one of the instruments of verification mechanism of the NPT to achieve the goals and principles of the Treaty. In case of non-compliance not only AP states, as there is no separate AP regime, but states with Comprehensive Safeguards Agreements and IAEA members will take part in making a judgment of non-compliance.

Findings confirmed the hypothesis that AP is an evolution of rules and change within the regime itself. No change in the distribution of power within the safeguards regime happened.

Findings of this dissertation show that safeguards under the CSA had significant weakness, as safeguards have been applied to the declared nuclear material only, which didn’t provide credible assurances about the absence of the clandestine nuclear activities. Thus the IAEA was able to verify only correctness of State’s declarations. Analysis showed, that States with INFCIRC/153 having intention to acquire nuclear
weapon could establish clandestine nuclear program without being detected. Additional Protocol aimed at increasing the effectiveness of the IAEA safeguards regime based on mainly INFCIRC/153 type Comprehensive Safeguards Agreements. After Iraq “Program 93+2” has been initiated to reform the safeguards system. First time Board of Governors allowed to use information from open sources and third party during verification activities. Part I and Part II measures have been suggested within Program 93+2. While Part I measures have been able to apply within the Agency’s existing authority, Part II measure required additional authority. After lengthy of negotiations in Committee 24, in 1997 the Board of Governors has adopted the Model Additional Protocol. The analysis point out that Additional Protocol is not a stand-alone document and should be considered in connection with CSA. It can be signed only by States or other entities having Comprehensive Safeguards Agreement. AP has to be concluded by each state separately on a voluntary basis after approval of the Board of Governors.

Measures contained in AP though aimed at strengthening the effectiveness and improving efficiency of the IAEA safeguards system, should not hamper economic and technological development and international cooperation in the field of nuclear activities. These are the explicit norms underlined in the NPT, CSA and AP. In the hierarchy of norms and rules, those of the AP were given higher degree as in case of the conflict between provisions of CSA and AP, the provisions of AP should be practiced. Universality, though with the different level of implementation is one of the most important features for strengthened safeguards system. Under the AP States should be provide expanded information and broader access. It contains more intrusive measures such as Complementary access to verify state declarations and clarify inconsistencies. State should provide the Agency with an access to any place on a site or any location of interest. In order to provide clear guidance and facilitate implementation of the provisions of AP States should negotiate and conclude with the Agency Subsidiary Arrangements. Which are as such procedures for implementation of CSA and AP.

Additional Protocol has a voluntary nature, only the Parties to Semipalatinsk Treaty are obliged to ratify it. However, the Foreword of AP calls all states to sign and implement the AP in an extent they can. All NWSs ratified AP, though they all diverged from the original text of the Protocol. Their efforts aimed at political support of the
universalization of the instrument. The information that NWSs provide under the AP has little value from safeguards perspective.

Comparative analysis of CSA and AP showed that both documents overall objective is the verification of State’s obligations under the NPT. Only implementation of both CSA and AP makes it possible to achieve overall safeguards objective. Measures provided in CSA aimed at verifying “correctness” whereas measures under AP “completeness” of State declarations.

According to findings, AP has been adopted as a new safeguards’ standard to strengthen the NPT verification regime and eliminate observed weakness. Non-compliance cases considered in the Board of Governors demonstrate safeguards regime weakness and non-observance of the Meta norm of nuclear non-proliferation.

6.5 Case Studies

This thesis has dealt with one of most challenging theoretical puzzles and safeguards challenge today to strengthen the IAEA safeguards regime, why not all States with Comprehensive Safeguards Agreement in place signed Additional Protocol and are there any prospects for such policy options especially for states with significant nuclear activities. To address this issue, I have argued to investigate states histories of developing nuclear weapons or ambitions of nuclear programs, social environment, reasons for such choices, current nuclear programs and views on Additional Protocol and for some states their positions to general nuclear non-proliferation regime and the NPT.

*Theory expectations on AP adherence*

In the light of IR theories, realist would expect that states not having security threat, or having security guarantess would possibly ratify AP and not proliferate, contrary to that states with security dilemma will not sign AP as it will greatly limit their possibilities to develop a nuclear program as comparing with their nuclear neighbours or enemies they would appear in more disadvantaged situation. Based on arguments of the Regime theory states wishing to escape a security dilemma will join the NPT and AP, which provide Treaty verification tools. The benefits of being within the AP regime will change cost-benefit calculations and influence state decisions not to go nuclear. States will adhere to AO to increase transparency and compliance control. Constructivist assumptions would expect states to join AP because of social conformity
and not as a best choice for their national security. Social costs and desire to get social rewards dissuade states to choose nuclear path and be outside of the AP. Adoption of the AP made certain behaviors unacceptable. Observance of others’ behavior helps states understand the accepted and correct behavior, and states will follow that behavior. As many actors behave in the same way as more states accept that as a correct behavior. All three theories somehow explain adherence and not adherence by states to AP.

Policy choices of states in the light of IR theories have been analyzed during the case studies. Though these case studies furnish understanding, to confirm or confront the findings more states need to be analyzed. Notwithstanding, general conclusions can be made. In the absence of the nuclear non-proliferation norm some of those states, for example, Egypt, Argentina, Brazil would choose the nuclear path. However, international norms, particularly the NPT and Comprehensive Safeguards Agreements were main drivers for their policy choices, though other underlying reasons for their choices also have been identified. Though some states having faced security challenges and not having security guarantees didn’t conform realist arguments why states choose nuclear weapons as deterrence. International regimes, their norms and accepted behavior guided many of decision-makers and leaders to change their policies and make public commitments to nuclear non-proliferation. Though it might be looked that some states not joining the Additional Protocol haven’t been giving up with their ambitions of developing nuclear weapons but in reality they want non-discriminatory, equal and balanced non-proliferation commitments for all NWSs and NNWS. Policy implication can be derived from the findings. The Additional Protocol has provided with powerful tools and measures and legal authority to IAEA to implement its mandate and for States to abide with international norms more strictly. Case studies brought convincing evidence that the IAEA and States have to work together using various tools to discourage proliferation and encourage States to join the Additional Protocol. Realist measures such as great power pressure, sanctions or export controls made a difference, they persuaded Iran to agree on provisional implementation of the AP and for India to ratify it. For others how the successful state with good reputation should look like can be incentive to join AP, with adhering and accepting to the whole normative framework of the nuclear non-proliferation regime. Thus various measures would make a difference. While only regime theory don’t
provide a comprehensive answer why States haven’t adhered the AP so far, together with arguments of neorealism and constructivism they evidently give thoughts to puzzle. If realism explains why states decided for a nuclear option and fails to explain why so less states choose that option, constructivist assumptions explain why states remain non-nuclear and adhere the most intrusive safeguards document, i.e. AP, despite altered material conditions, but not able to explain states initial decision to refuse nuclear weapons.

Though selected case studies show that there are serious difficulties for certain states to join the AP, for some of them that possibility is visible. Iran’s provisional implementation of AP, can finally lead Iran to ratify it as a confidence building measure to show more transparency in its nuclear program. That will increase country’s reputation as a state, which follows accepted behavior. At which stage Iran would stop the implementation of the AP would depend on a broader geopolitical context and country’s policy on development of nuclear weapon. Iran’s implementation of AP might impact on Middle East States policy choices in the field of nuclear non-proliferation and contribute to a dialogue and negotiations directed towards creations of the Middle East Nuclear Weapon Free Zone. However, States in the region will not be able to create NWFZ without extra-regional pressure and assistance to build trust. It can positively affect Syria and Algeria’s positions on AP and moderate Egypt’s position. Though Egypt is criticizing the nuclear non-proliferation regime and its universalization, as Israel, remains outside of the NPT. Egypt doesn’t want to take additional nuclear non-proliferation obligations, while the only state in the Middle East, Israel keeps on developing its nuclear weapon capabilities. Israel’s acceptance of Additional Protocol is the least possible in the Middle East, however certain positive developments might be observed. Israel doesn’t rely on security regimes, being witness of violations of international obligations by some States in the region. It is hardly possible that Israel would give up its nuclear weapons. Ambitions to have nuclear weapons can be seen as incentive for Syria not to accept strict AP measures. Syria’s signature of AP can be possible under comprehensive deal, taking into account devastated situation in the country, which might force Syria to accept the AP under the international pressure. Otherwise, in the light of the Israeli air strike of the alleged reactor, Board of Governors pressure on Syria, that Syria voluntarily will join AP is relatively low.

India receives the benefits of the NPT without committing to the NPT obligations,
which is damaging the NPT. India’s ratification of AP can be a game changer in the region. Pakistan, wishing to get all benefits that India currently receives under the nuclear cooperation deal with the US as well as NSG exemption for nuclear related trade, may accept the AP with similar provisions as India’s AP. Though India’s AP plays no significant role of safeguards relevance because of the minimum provisions undertaken under the AP, however, its ratification of AP is a great signal for other Non-NPT States and NPT Parties to follow the pattern. India’s AP brings closer universalization of the instrument. Signature of the AP by Brazil and Argentina most probably will take a form of the Quadripartite Agreement between ABACC, IAEA, Argentina and Brazil. But without notable progress in nuclear disarmament acceptance of AP by these states becomes non-realistic. It is also not clear how AP provisions would be applied on Brazil’s submarine program. Progress on disarmament issues will bring signature of the AP by Venezuela, another state with significant nuclear activities in South America that so far didn’t sign the AP. Findings reveal that there are some prospects that AP can be universalized but before that NWSs and Middle East States should make significant efforts towards that end.

6.6 Universalization of AP and impact on the nuclear non-proliferation regime

IAEA need more legal authority to carry out its verification mission and to conclude not only on declared nuclear material but also on undeclared one. To do so States with CSA have to sign AP. The full potential of strengthened safeguards can be achieved only via universalization of AP, which is now rests by States to demonstrate their willingness to have an effective safeguards regime. Efforts of the IAEA and States should be directed to pursue remaining states to join the AP in order to strengthen the IAEA safeguards regime. The AP measures of access to a broader range of declared and undeclared locations make great contribution to nuclear non-proliferation regime concluding on States compliance with their safeguards obligations and importantly deterring and detecting nuclear proliferation. It has significant impact on the IAEA safeguards regime. However, AP’s future contributions depend on its broader acceptance. If there are still States without AP international community can’t be sure about the absence of clandestine nuclear programme of States. Impact on the nuclear non-proliferation
regime can be assessed only with the breadth of the AP ratifications, as well as with the IAEA’s political will to pursue all prescribed measures equally in all AP States. Furthermore, as UN SC responses on non-compliance cases have been different depending on the larger international security and political context and enforcement mechanism and definitions of violations are not defined very well under the safeguards regime, States need to consider elaboration of a new enforcement mechanism, which would contribute to universalization of the AP.

No non-compliance cases and no undeclared nuclear activities have been identified in States with AP in force, which is explained by increased legal authority of the IAEA and by States commitments respect accepted norms and behavior. AP measures showed that their implementation is sufficient for robust and effective safeguards regime though 20 years period is not sufficient to judge on the effectiveness of the instrument and identify all weaknesses and deficiencies. The IAEA safeguards regime further evolvement will depend on all shortcomings identified during the implementation of the AP. States and the IAEA would need to concentrate their efforts on developing new approaches and concepts aimed at implementing existing safeguards measures under the existing legal documents in order to strengthen the IAEA safeguards regime rather than to develop a new safeguards instrument. As the whole potential of full implementation of the AP and its provisions haven’t been used and evaluated fully yet. There is a space to fill with more ratifications of the AP with the final goal of its universalization and more effective implementation of the measures under CSA and AP. In order to reach universalization of the AP, the instrument need to become legally binding. The universalization norm would increase the value of the instrument and strengthen robustness of the safeguards regime.


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ABBREVIATIONS AND ACRONYMS

ABACC  Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials
AEC    The Egyptian Atomic Energy Commission
ANWFZ  African Nuclear-Weapon-Free-Zone
AP     Additional Protocol
BG     Board of Governors
BW     Biological Weapon
CANWFZ Central Asia Nuclear Weapon Free Zone
CPPNM  Convention on Physical Protection of Nuclear Material
CSA    Comprehensive Safeguards Agreement
CTBT   Comprehensive Nuclear Test Ban Treaty
CW     Chemical Weapon
dg     Director General
DIQ    Design Information Questionnaire
DIV    Design Information Verification
EEZ    Exclusive Economic Zone
EU     European Union
FMCT   Fissile Materials Cut off Treaty
GC     General Conference
GRULAC Group of Latin American and Caribbean States
HQ     Headquarters
HEU    Highly Enriched Uranium
INFCIRC Information Circular
IAEA   International Atomic Energy Agency
ISA    Item Specific Agreement
IO     International Organizations
IR     International Regime
JCPOA  The Joint Comprehensive Plan of Action
MAP    Model Additional Protocol
ME     Middle East
MENA   Middle East and North Africa
MTCR   Missile Technology Control Regime
OS     Open Source
NAM    Non-Aligned Movement
NFC    Nuclear Fuel Cycle
NM     Nuclear Material
NMA    Nuclear Material Accountancy
NNWS   Non-Nuclear Weapon State
NPT    Nuclear Non-Proliferation Treaty
NPTREC NPT Review and Extension Conference
NSG    Nuclear Suppliers Group
NTI    Nuclear Threat Initiative
NWS    Nuclear Weapon State
NWFZ   Nuclear Weapon Free Zone
SA     Safeguards Agreement
SEANWFZ Southeast Asian Nuclear Weapon Free Zone
SIR    Safeguards Implementation Report
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>SLA</td>
<td>State Level Approach</td>
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<tr>
<td>SLC</td>
<td>State Level Concept</td>
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<tr>
<td>SQP</td>
<td>Small Quantity Protocol</td>
</tr>
<tr>
<td>SSAC</td>
<td>State System of Accounting for and Control of Nuclear Material</td>
</tr>
<tr>
<td>TNRC</td>
<td>Tehran Nuclear Research Centre</td>
</tr>
<tr>
<td>UNIDIR</td>
<td>United Nations Institute for Disarmament Research</td>
</tr>
<tr>
<td>UNSC</td>
<td>United Nations Security Council</td>
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<tr>
<td>VOA</td>
<td>Voluntary Offer Agreement</td>
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<td>WNA</td>
<td>World Nuclear Association</td>
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ZUSAMMENFASSUNG


Fakt ist, dass in Staaten mit Zusatzprotokoll bisher keine Nichteinhaltung identifiziert werden konnte. Dies illustriert die erhöhte Rechtsautorität der IAEO und das erhöhte Engagement dieser Staaten, die sich an die Normen halten und sich an die Verhaltensvorgaben anpassen.


Daraus ergeben sich bestimmte Fragen, welche diese Forschung zu beantworten versucht.


Da die IAEO eine stärkere Rechtsautorität benötigt, um ihre Verifikationsmission durchführen zu können und um nichtdeklariertes Nuklearmaterial erfassen zu können, müssen Staaten mit umfassenden Sicherheitsabkommen das Zusatzprotokoll unterzeichnen.

Es wurden Fallstudien durchgeführt, um die Perspektiven der Universalisierung des Zusatzprotokolls zu verstehen, welches die Robustheit und Effektivität des Regimes
erhöhen würde. 
IAEA safeguards regime has been instrumental to identify non-compliance cases of safeguards obligations under the NPT and safeguards agreements and to contribute to nuclear non-proliferation. However, Iraqi case showed that existing safeguards were not sufficient for thorough verification. In order to strengthen the safeguards system, a new instrument, Additional Protocol has been negotiated. Additional Protocol gives the IAEA a new mandate to verify undeclared nuclear material and activities. The fact that so far there have been no non-compliance cases identified in States with AP in force, explains the increased legal authority of the IAEA, States commitments to abide with norms and follow patterned behavior. AP measures showed that their implementation is sufficient for robust and effective safeguards regime and it makes a great contribution to the nuclear non-proliferation regime. However, AP is not a legally binding instrument and after 20 years of its adoption the numbers of ratifications are still disappointing.

This raised certain questions that this research tried to answer. Based on comparative study of regime analytical elements pertaining to Comprehensive Safeguards Agreement and Additional Protocol as well as operationalizing mainly regime theory assumptions on various features and elements of regime, this dissertation tried to find out whether the last verification standard Additional Protocol is a new verification regime or evolution of the rules of the regime. As IAEA needs more legal authority to carry out its verification mission and to conclude not only on declared nuclear material but also on undeclared material, states having Comprehensive Safeguards Agreements have to sign Additional Protocol. In order to understand the prospects of universalization of AP, which would significantly increase the robustness and effectiveness of the regime, case studies have been carried out.

The main findings show that Additional Protocol is not a new verification regime. Analysis of principles and norms of Comprehensive Safeguards Agreements and Additional Protocol didn’t reveal any changes or new developments in the normative framework of the regime. Evolution of the rules of the IAEA safeguards regime has been observed. Based on theory assumptions changes within the IAEA safeguards regime has been identified only.

Though selected case studies show that there are serious difficulties for certain states to join AP, for some states such a possibility is visible. Results of analysis showed that
the full potential of strengthened safeguards can be achieved only via universalization of AP, which is now rests with States to demonstrate their willingness to have an effective safeguards regime and with the IAEA to pursue all prescribed measures in all AP States.