THE POLITICS OF NUCLEAR WEAPONS: THE INFLUENCE OF “MUSHROOM CLOUDS” ON INTERNATIONAL RELATIONS

By

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The Politics of Nuclear Weapons: The Influence of “Mushroom Clouds” on International Relations

Omar Al Majzoub

ABSTRACT

This paper is designed to study the various models and examples about incidents directly related to nuclear power, and how they proved to be very tough challenges for the International Community to deal with. The paper will also try to prove that despite all the effort and pressure exerted by the United Nations in its ongoing attempts to contain and safeguard nuclear stockpiles and power plants, the final results never matched the severity of the issue at hand.

This thesis will provide a new model that could be adopted by both the IAEA (International Atomic Energy Agency) and DISEC (Disarmament and International Security Committee) in order to achieve maximum efficiency in nuclear non-proliferation to prevent the possible escalation of the problem, and to hold nations accountable for their actions should they threaten the International Security at any given time.

# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHAPTER 1: THE NUCLEAR CLUB OF NATIONS: SPLITTING THE ATOMS OF</strong></td>
<td></td>
</tr>
<tr>
<td><strong>“RADIOACTIVE POLITICS”</strong></td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Nuclear Energy in International Affairs</td>
<td>6</td>
</tr>
<tr>
<td>The Sagan VS Waltz Theoretical Clash</td>
<td>9</td>
</tr>
<tr>
<td>The Absolute Need for Nuclear Non-Proliferation</td>
<td>11</td>
</tr>
<tr>
<td>Criticism of the IAEA</td>
<td>13</td>
</tr>
<tr>
<td>The Nuclear Non-Proliferation Treaty (NPT)</td>
<td>16</td>
</tr>
<tr>
<td><strong>Chapter 2: Challenges Faced by the United Nations and the IAEA:</strong></td>
<td></td>
</tr>
<tr>
<td>How Politics Plays a Role in Intensifying the Problem</td>
<td>27</td>
</tr>
<tr>
<td>IAEA: Governance, Membership and the Future of the Non-Proliferation</td>
<td>27</td>
</tr>
<tr>
<td>Treaty</td>
<td></td>
</tr>
<tr>
<td>Literature Review</td>
<td>32</td>
</tr>
<tr>
<td>DISEC and the Role of the United Nations</td>
<td>37</td>
</tr>
<tr>
<td><strong>Chapter 3: Dissecting the Work of the IAEA and DISEC</strong></td>
<td>41</td>
</tr>
<tr>
<td>In the “Disarmament and International Security Committee” (DISEC)</td>
<td>43</td>
</tr>
<tr>
<td>and the “International Atomic Energy Agency” (IAEA)</td>
<td></td>
</tr>
<tr>
<td>Facing the Reactors</td>
<td>45</td>
</tr>
<tr>
<td>The Nuclear Club of Nations</td>
<td>46</td>
</tr>
<tr>
<td>The United States of America</td>
<td>47</td>
</tr>
<tr>
<td>The Russian Federation</td>
<td>50</td>
</tr>
<tr>
<td>The United Kingdom</td>
<td>53</td>
</tr>
<tr>
<td>France</td>
<td>55</td>
</tr>
<tr>
<td>The People’s Republic of China</td>
<td>56</td>
</tr>
<tr>
<td>India</td>
<td>58</td>
</tr>
<tr>
<td>Pakistan</td>
<td>60</td>
</tr>
<tr>
<td>North Korea</td>
<td>62</td>
</tr>
<tr>
<td>Israel</td>
<td>65</td>
</tr>
<tr>
<td>Iran</td>
<td>67</td>
</tr>
<tr>
<td><strong>Chapter 4: Preventing a New Catastrophe: What Must Be Done to Contain</strong></td>
<td></td>
</tr>
<tr>
<td>the Threat of</td>
<td></td>
</tr>
</tbody>
</table>
Nuclear Weapons and Power Plants ................................................................. 70
Militarization of the Arctic ........................................................................... 73
Safeguarding Nuclear Materials .................................................................. 78
Chapter 5: The Future of Nuclear Energy: Dreaming of a Better and Safer Tomorrow ... 82
Governmental Challenges and How We Can Move Forward ............................. 82
Policy Recommendations ............................................................................. 84
Mutual Assured Destruction (MAD) ................................................................ 86
Conclusion ................................................................................................... 88
REFERENCES ............................................................................................... 92
LIST OF TABLES AND FIGURES

Table 1: The Nuclear Non-Proliferation Treaty (NPT) ……………………Page 18

Table 2: IAEA State Membership …………………………………………..Page 28

Table 3: The Interview ……………………………………………………..Page 34

Table 4: The Challenges Faced by MAD ………………………………Page 87

Figure 1: The Amount of Nuclear Weapons Stockpiled ……………….Page 50

Figure 2: Letter sent to North Korean leader …………………………Page 63

Figure 3: Nuclear Arsenals in Numbers of Warheads …………………Page 81
LIST OF ABBREVIATIONS

A

ACPSR: Advisory Committee of Project Safety Review
AERB: Atomic Energy Regulatory Body
ASME: American Society of Mechanical Engineers
ATHLET: Analysis of Thermal-Hydraulics of Leaks and Transients
AUDR: Soviet All-Union Dose Registry

B

BARC: Bhabha Atomic Research Centre
BART: Best-estimate Analysis of Re-Flood Transients' computer code

C

CAM: Continuous Air Monitor
CCS: Carbon Capture and Storage
CINDA: Computer Index of Nuclear Data. Online database

D

DAC: Design acceptance confirmation
DBA: Design basis accident
DCH: Direct containment heating

E

EAF: European Activation Files
ECCS: Emergency core cooling system
ECR: Equivalent cladding reacted
EDG: Emergency diesel generator
ENSREG: European Nuclear Safety Regulators’ Group

EOL: End of life

ETS: Emission Trading Systems

F

FALCO: PSI Computer Code for Fuel Behavior

FEBA: Flooding Experiments with Blocked Arrays

FBR: Fast Breeder Reactor

G

GDA: Generic Design Assessment

I

IAEA: International Atomic Energy Agency (IAEA)

ITAAC: Inspection, Tests, Analyses, and Acceptance Criteria

ITER: International Thermonuclear Experimental Reactor

L

LANL: Los Alamos National Laboratory

LBB: Leak Before Break

M

M&O: Management and Operations

MAPRAT: Maximum Average Power Ratio

N

NDE: Non-Destructive Examination

NEA: Nuclear Energy Agency (OECD)
NGNP: Next Generation Nuclear Plant

NGO: Non-Governmental Organization

NHDD: Nuclear Hydrogen Production Development and Demonstration (Korea)

NPE: Nuclear Pressure Equipment

NPS: Nuclear Power Station

NPT: Treaty on the Non-Proliferation of Nuclear Weapons

NLC: NEA Nuclear Law Committee

WENRA: Western European Nuclear Regulators' Association

WASSC: Waste Safety Standards Committee (IAEA)

WG: Working Group
CHAPTER 1

THE NUCLEAR CLUB OF NATIONS: SPLITTING THE ATOMS OF “RADIOACTIVE POLITICS”

Introduction

Upon setting his first footstep on the moon, Neil Armstrong said “That’s one small step for a man, one giant leap for mankind”. Reaching the moon and roaming its rocky landscape and inhaling its moon-dust (through suit vents) was indeed a great achievement for all of mankind, a victory for science and technology. Yet again, humans also excelled in other “aspects” of science, a far more dangerous and deadly form of art and beauty. The result of a sadistic love affair between humans and nature itself was to become a reality. A reality that had one purpose only: inflicting pain and agony on all those who oppose its wielder.

Over a dazzling and endless landscape of cement, dust, sand, rubber, metal and wood arose an enormous “Mushroom” cloud. From above, the view was spectacular. On a cold winter night in New Mexico, the newborn opened its eyes for the first time as it “radiated” its warm and colorful rays and turned a dark cold night into a sunny summer day within seconds. The heat waves could be felt hundreds of kilometers away from the “birth site”; even those who were lucky enough to get a top-down view from their choppers had to welcome the new comer with their special sight-protecting glasses on. Out of all the people who were present on that night in Jornada Del Muerto, nobody could have guessed the magnitude and scale of what they were about to witness. The audience can now tell many fascinating stories to their grandchildren as they were
present on the site of the first ever man-made nuclear explosion. The “Manhattan Project” produced the first atomic bomb, nicknamed “The Gadget” for the sole purpose of putting an end to the Second World War as soon as possible and beating the Nazis to this much sought-after “treasure”. Originally, the bomb itself was a dream that nobody expected to become a reality. A single warhead that could change and alter the tides of the tightest wars between nations, and that can also outrank all of the other weapons on the defensive side as well. Having such a weapon in your arsenal could grant you the “superpower” status on the spot.

Since the dawn of history, humans were always trying to find some sort of a magical ingredient that could help them control nature as they see fit, and with the eruption of the two world wars, an open race for technological advancement aimed at discovering a new weapon that could alter the power balances and prove to be the decisive factor for the competing nations was unleashed. Nazi Germany, under the leadership of the Fuhrer Adolf Hitler, thought that it finally acquired such a weapon when they produced the “V-2” rocket. To the Nazis surprise, the V-2 proved to be a weak strategic weapon as it was only used against random civilian targets for its great explosive power, but had almost zero impact on the tactical approach of the war.

The real race for the bomb was ignited when scientists finally found a way to split the atoms of radioactive elements, a method that produced an enormous amount of energy that kept on “duplicating” itself until it created a string or bond of highly radioactive and fragile atoms that only needed a “push” to release their inner energy. The needed push was a small explosion that would then result in a combustible chain reaction in a highly radioactive sequence. The final result would be a deadly colossal blast that could wipe
The New Mexico incident highlights the beginning of the Atomic Age, a period in which many nuclear weapons were developed and upgraded to have larger yields of explosive power. The atomic age was also about re-directing efforts towards using Nuclear energy for peaceful activities (mostly as a fuel-substitute for power production) in what was later known as the “Atoms for Peace” project. As with all new large-scale inventions, new challenges emerged and the world had to deal with many incidents that resulted in catastrophes. Two nations in particular had the largest (and worst) share of this “Nuclear disasters pie”: Japan and Ukraine. Both nations still suffer from high levels of radioactivity and have what is coined as “ghost towns”; completely abandoned cities that were evacuated and left intact hours only after the disaster occurred.

The new era’s challenges stimulated the idea of developing an international committee that dealt with nuclear energy (for both peaceful and military-oriented activities) and UN chartered treaties that promoted nuclear non-proliferation as part of the “Nuclear-Free World” initiative. The IAEA (International Atomic Energy Agency) was founded on the 29th of July 1957 while the United Nations also came up with the NPT (Nuclear Non-Proliferation Treaty) that was ratified by most nations.

Yet again, despite all the new methods for handling this new challenge, many incidents obliged the international community to think about other ways to approach this highly sensitive issue.

The main question that this thesis is trying to tackle is: why did all the efforts made by the International Community fail in preventing the spread of nuclear weapons among

out everything around and inside its detonation radius.
nations ever since the end of the Cold War? And to what extent are nations being held accountable for their nuclear activities?

As a methodology, comparative country case analysis would be mainly used. Many examples will be taken into consideration like the Israeli case (a nuclear nation that haven’t signed the NPT nor officially declares that it hosts nuclear weapons in its arsenal) as well as the unique example of Pakistan’s “Nuclear Merchant” Abdel-Kadeer Khan which proved that acquiring nuclear bombs was no longer a domestic-production process which, on the other hand, opens the door for the possibility of having to deal with nuclear-armed terrorist groups in the future.

The threat of Nuclear Energy should never be taken lightly. Studying in what way(s) politics influence how the world sees and deals with these weapons and power plants is of utmost importance to ensure the safety of our planet, and to prevent the deaths of an estimated number of 2 Billion People within the first 24 hours of a very-much possible nuclear world war (Baxter, July 2012). It is also very interesting to dig into the world of radioactive material, as those substances are usually shaped by the purpose of their usage. The same radioactive element could easily be tuned to become the main ingredient for a detonable mass-destructive device or a fuel that feeds power plants to produce electricity without polluting the atmosphere. With both cases casting considerable threats on all nations, a lot of work must be done in order to regulate and, if possible, contain the spread of radioactive elements circulating among states.

Natural disasters could also lead to nuclear disasters similar to those that took place in Chernobyl (Ukraine) and Fukushima (Japan). Hence, the challenges faced by the UN
and the IAEA go way beyond controlling or even getting rid of “militarized” nuclear stockpiles which, in return, show that we could well be talking about the world’s most sensitive and dangerous topic. “Nuclear awareness” is of vital importance nowadays with many nations upgrading their arsenals and scientists figuring out many new ways to make the most notorious WMD an even deadlier weapon.
Nuclear Energy in International Affairs

According to Brandon Ott, the author of the famous article “Nuclear Energy: The once and future power source” that was published in the Real Clear Politics magazine, the fact that the “Atoms for Peace” program failed in limiting the spread of radioactive material in all of its forms proves that everything is still possible when it comes to dealing with substances like enriched Uranium or Polonium. Without any international “caretaker”, the situation becomes much more difficult, as containing nuclear activities as well as monitoring what each and every state in the Nuclear Club of nations is doing would prove to be futile. According to Ott: “To say the nuclear industry has had highs and lows in the last 35 years is an understatement. The “atoms for peace” that were intended to wean Planet Earth off fossil fuels, make Western nations energy independent, and provide a clean environment all but screeched to a halt after the disasters at Three Mile Island in 1979 and Chernobyl in 1986. Add in 20 years of weapons of mass destruction talk and sensational sci-fi movie explosions -- all before a tsunami overwhelmed a reactor on the coast of Japan -- and nuclear energy was on the verge of going full dodo” (Ott, 2014). The fact that even in 2018, 73 years after the first Atomic Bombing of Hiroshima, we still fail when it comes to controlling nuclear activity raises many question marks over the statuses of many nations. Take Israel for example, a “country” that denies any links that talk about their possession of a staggering 60+ nuclear warheads within their arsenal, or Pakistan that managed to secure their first atomic bomb via what is known as a black merchant (Abdel Kadeer Khan) in which illegal underground business was used to smuggle in the necessary material to build the weapon in multiple installments. The likes of France, Great Britain, Russia and the United States
never shy away from showcasing their “assets” while also working on developing new technology to upgrade their aging warheads. Nuclear power plants on the other hand are also rarely checked or monitored, and the IAEA itself doesn’t rule out the possibility of another nuclear disaster similar to that of Chernobyl in Ukraine or Fukushima in Japan. Those two nations in particular teach us a lot of lessons about the many variant challenges of dealing with the multiple forms of nuclear activity. Nuclear energy or everything related to atomic dynamism cannot be packed under the military aspect alone. On the contrary, safeguarding and defending nuclear power plants from any possible terrorist attacks or natural disasters proves to be much more challenging than dealing with Proliferation that is chartered by the IAEA according to Ukrainian nuclear specialist Yablokov. In the article “Chernobyl: Consequences of the Catastrophe for People and the Environment”, the authors (including Yablokov) talk about how human error, as well as natural disasters, are much tougher to deal with the in the post-Manhattan Project era (Oppenheimer’s Project during ww2 that resulted in the production of the world’s first nuclear bomb) than simply working on amending the nuclear-related treaty to monitor the military aspect of such activities internationally. The article focuses on international laws and how they failed to cope with the first real non-military nuclear challenge (Chernobyl Nuclear Disaster, April 1986). The authors tackled the issue by giving the example of Fukushima and Chernobyl as they worked on comparing those two cases to the infamous cases of Hiroshima and Nagasaki. The article then expands on the idea and explains how and why nuclear disasters (in the case of Fukushima) and human errors (in the case of Chernobyl) can provide a serious challenge for the international community, as unlike the atomic bombings of Japan, the handling and safeguarding of nuclear power plants and radioactive wastes and materials is a
constant threat that is not limited to the duration of certain battles or full-scale wars.
Many conflicting theories have shaped up the academic study of nuclear proliferation and its effects on international politics. The most striking and important theoretical clash is the clash between the theories of both Paul Sagan and Kenneth Waltz.

Whilst both theorists agree that nuclear weapons are dangerous, it is the means of their existence what differentiates between both views. According to Waltz, nuclear weapons are defensive weapons that are not intended to be used in wars, as they act as a deterrent rather than a lethal offensive weapon which, in his opinion, decreases the chances of war. Waltz is the founder of the “more may be better” view which is based on the idea that the spread of nuclear weapons internationally should not be feared at all, as they would make wars much harder to start. Waltz considers nuclear proliferation to be inevitable and unchangeable, but he backs his optimistic view that the spread of such weapons is to be welcomed by giving the example of the Cold War between the only 2 (back then) nuclear states (The Soviet Union and the United States of America) and how, despite all the tension, they managed to avoid an all-out nuclear war as a result of them actually deploying such weapons in their arsenals.

Unlike Waltz, Paul Sagan is the founder of the “more will be worse” theory which states that military aspirations will eventually nullify deterrence and lead to many nuclear disasters. Sagan describes the Cold War as a “way too close” experience in which only a thin line separated us from nuclear disaster, ad with more nations currently achieving the status of nuclear powers, the threat would most definitely increase and what we narrowly managed to avoid in the Cold War could come to haunt us all back again.
nowadays. Waltz also explains how international treaties and organizations failed in regulating the spread of such weapons, and gave the example of the offensive Israeli approach against other nations such as Libya and Iraq and suggested that in the near future, any similar incident might actually lead to a total nuclear war. Sagan also highlights that dropping nuclear weapons on targets isn’t the only form of “nuclear disaster”, but also attacking nuclear power plants that produce Uranium-enriched nuclear warheads would lead to catastrophic results, hence widening the spectrum of nuclear threats whereby non-nuclear states might be able to provoke and hit nuclear powers on home soil without even owning any nuke in their arsenal.
The Absolute Need for Nuclear Non-Proliferation

Considering the devastation that could be inflicted internationally in case of an atomic world war, and aiming at facing such dangers and safeguarding people’s security, the International Atomic Energy Agency (IAEA) created, amended and adopted a new treaty on March the Fifth of the year 1970. The main ideas that were discussed at that time failed to give much needed attention to other aspects of challenges presented besides the military factor. The main debate themes focused on various ideas such as securing the IAEA applications regarding peaceful nuclear activities” (in which member states were encouraged to resume peaceful nuclear activities, but were expected to fulfill their promises regarding safeguarding their power plants.) Although the idea of preserving and maintaining a safe and functional power plant was part of the main resolution, no specific work was assigned and no real interest developed in non-military aspects until the Chernobyl disaster that occurred 16 years later.

Other ideas included expressing support for research, development and other efforts to further the application of the principle of safeguarding effectively the flow of source and special fissionable materials. By special fissionable materials, IAEA wanted to include uranium enriched in the isotopes as well as Plutonium-239 and Uranium-233. Hence, substances that could be later used to produce and develop a nuclear warhead. Focusing on principles related to applications in atomic and radioactive technology in which treaty parties are expected to participate in the outmost exchange of scientific information between each other is also a major point, just like declaring the intention to achieve the cessation of the nuclear arms race and to undertake effective and direct measures when dealing with nuclear disarmament in which the cessation of the arms
race was expected to be executed by the year 2000, a thing IAEA failed in achieving.

Other themes include urging co-operation of all states to achieve the designated objectives (the Cuban missile crisis for example could have been averted way before had it not been for lack of proper cooperation and negotiation between all the involved parties as well as the international community); highlighting on the 1963 atomic treaty regarding the atmospheric ban of atomic tests (a determination that soon proved to be futile as nations continued producing, developing and safeguarding their radioactive arsenal); breaking the ice and raising awareness among all states whereby at that time, this meant loosening the tights on the Iron Curtain that mainly separated Communist and Liberal states during the Cold War (1946 – 1990) and finally, stressing on the fact that all parties must refrain from using threats or force against other states, as when it comes to nuclear threats, those threats should never be taken lightly as any escalation could lead to a global disaster. The DEFCON meter was also created to measure the nuclear threat levels internationally in order to monitor and, if possible, act ahead of time in order to prevent a catastrophe.
Criticism of the IAEA

Despite providing the international community with the first and much needed nuclear non-proliferation treaty, the International Atomic Energy Agency (IAEA) was bombarded with criticism that mainly targeted its inability to successfully control and monitor nuclear and non-nuclear states (mainly states with nuclear ambitions).

The most interesting source of such criticism was a book by Richard Rhodes called “The Making of the Atomic Bomb”. This book criticized the International Atomic Energy Agency work after the formation of the “Nuclear club” which included all states that had access to nuclear abilities. Rhodes states that there were many gaps in the classification of states as many countries like Israel didn’t sign nor ratify the NPT (Nuclear Non-Proliferation Treaty) and thus were not included in the official list, although it is no surprise that they do have nuclear weapons deployed in their arsenal. As for the nuclear disasters, Rhodes talks about the “Three Pillars” of nuclear disasters. These are the ones that are caused by military struggles (ex: Hiroshima and Nagasaki), weak security measures like in Pripyat (Chernobyl, Ukraine) and natural disasters (ex: Fukushima, Japan). The IAEA focuses its interest on the military side only as it underperformed greatly in Ukraine due to many contributing factors like weak preparation and not having a plan to deal with non-military radioactive disasters (Rhodes, 1987).

Professor Edward Wright of the University of British Columbia talks about the shortages of the IAEA on one hand, and their unattainable dreams of completely eradicating nuclear weapons and other explosive radioactive devices from the world. Dr. Wright explains that nations will never get rid of their nuclear arsenal despite the fact that many of them already reduced the number of warheads within their grasp, but the main issue is
that nowadays the nuclear weapon acts as some kind of super defensive weapon or a
deterrent that gives “superpower” status to those who do have them in their arsenal.
According to Dr. Wright, superpowers view such weapons as extremely vital and
important in case they ever get attacked or to translate their military might into
diplomatic negotiations regarding certain issues. He adds that even if all nuclear
weapons were dismantled and destroyed, the fact that we still have the necessary
ingredients like nuclear power plants, radioactive isotopes and wastes, heavy water and
advanced technologies, the hope of building and acquiring an atomic warhead will never
be wiped out as nations continue to seek that shiny “superpower” status.
Under the title “The dream that failed”, The Economist magazine released a 20-page
study regarding the current failures of the IAEA and its weak commitment to the
economic factors of dealing with Nuclear power plants. They state that “In any country
independent regulation is harder when the industry being regulated exists largely by
government fiat. Yet, as our special report this week explains, without governments and
the IAEA consent, private companies would simply not choose to build nuclear-power
plants. This is in part because of the risks they face from local opposition and changes in
government policy (seeing Germany's nuclear-power stations, which the government
had until then seen as safe, shut down after Fukushima sent a chilling message to the
industry). But it is mostly because reactors are very expensive indeed. Lower capital
costs once claimed for modern post-Chernobyl designs have not materialized. The few
new reactors being built in Europe are far over their already big budgets. And in
America, home to the world's largest nuclear fleet, shale gas has slashed the costs of one
of the alternatives; new nuclear plants are likely only in still-regulated electricity
markets such as those of the south-east. The IAEA should get itself more involved in the
economic aspects as well”. (The Economist, Pages 5-7). The article then jumps to the military side of the nuclear energy and gives the example of Pakistan’s nuclear weapons program and refers to the DISEC (Disarmament and International Security Committee) fiascos as it failed in tracking and stopping Abdel Kadeer Khan (Also known as The Black Merchant) who was the person responsible of stealing nuclear technology and designing a nuke for Pakistan.
The Nuclear Non-Proliferation Treaty (NPT)

“The Nuclear Non-Proliferation Treaty contains the only binding commitment to nuclear disarmament in a multilateral treaty, and it became an international law as of 1970. At its debut year, there were five nuclear states: China, France, the United Kingdom, the United States, and the USSR. After them came India, Israel and Pakistan who developed nuclear weapons whilst North Korea developed a nuclear explosive capability. These four nations are the only countries which are not part of the Treaty. 190 governments have ratified this Treaty (yet it eventually included only 189 parties after North Korea withdrew directly after ratifying the treaty). Every five years, member states meet at a Review Conference (RevCon) to evaluate the implementation of the treaty. In the three years leading up to the Conference, The Preparatory Committee (or PrepCom) meets for around two weeks. For example, in the preparation phase for the 2015 Review Conference we had three PrepComs: in 2012 (Vienna), 2013 (Geneva), and 2014 (New York). New York is the stable venue and host of all The Review Conferences”. (The NPT Original Text, 1968).

As for the preparation Committees, according to the treaty; “During the PrepComs, many working papers are tabled, and the Chairman drafts a Final Summary statement, but none of these documents are binding. Rather, these statements, working papers, summaries, and reports are to be used as assessment tools at the Review Conference. Only the Review Conferences produce a consensus document. NGOs have become significant, visible, and important players at these conferences, and we have included the materials that they have circulated at these conferences as well. Originally intended as a temporary treaty, the NPT stipulates that 25 years after entry into force, a conference
shall be convened to decide whether or not the Treaty shall continue indefinitely, or be extended for an additional fixed period or periods. In 1995, this conference was convened, and a package of decisions extends the Treaty indefinitely. Five years later, at the 2000 Review Conference all 187 governments - including the five official nuclear weapon states - agreed to 13 practical steps for the systematic and progressive disarmament of the world's nuclear weapons. At the 2005 Review Conference, states parties could not agree on a final document, and the five week-long conference was considered to be a failure. In 2010, states parties adopted a 64-point action plan in order to move forward. However, their fulfilment of this action plan, in particular the disarmament requirements, is so far significantly lacking” (The NPT Original Text, 1968).
Table 1: THE NUCLEAR NON PROLIFERATION TREATY (NPT)

“ARTICLE I
Each nuclear-weapon State Party to the Treaty undertakes not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices directly, or indirectly; and not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices, or control over such weapons or explosive devices”

ARTICLE II
“Each non-nuclear-weapon State Party to the Treaty undertakes not to receive the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices”

ARTICLE III
“1. Each Non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, 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. Procedures for the safeguards required by this Article shall be followed with respect to source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility. The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere”

2
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“2. Each State Party to the Treaty undertakes not to provide: (a) source or special fissionable material, or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material, to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the safeguards required by this Article”

3.” The safeguards required by this Article shall be implemented in a manner designed to comply with Article IV of this Treaty, and to avoid hampering the economic or technological development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of this Article and the principle of safeguarding set forth in the Preamble of the Treaty”

4. “Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either
individually or together with other States in accordance with the Statute of the International Atomic Energy Agency. Negotiation of such agreements shall commence within 180 days from the original entry into force of this Treaty. For States depositing their instruments of ratification or accession after the 180-day period, negotiation of such agreements shall commence not later than the date of such deposit. Such agreements shall enter into force not later than eighteen months after the date of initiation of negotiations”

ARTICLE IV

“1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty”

“2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also cooperate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world”

ARTICLE V

“Each Party to the Treaty undertakes to take appropriate measures to ensure that, in
accordance with this Treaty, under appropriate international observation and through appropriate international procedures, potential benefits from any peaceful applications of nuclear explosions will be made available to non-nuclear-weapon States Party to the Treaty on a non-discriminatory basis and that the charge to such Parties for the explosive devices used will be as low as possible and exclude any charge for research and development. Non-nuclear weapon States Party to the Treaty shall be able to obtain such benefits, pursuant to a special international agreement or agreements, through an appropriate international body with adequate representation of non-nuclear-weapon States. Negotiations on this subject shall commence as soon as possible after the Treaty enters into force. Non-nuclear-weapon States Party to the Treaty so desiring may also obtain such benefits pursuant to bilateral agreements”

3

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ARTICLE VI

“Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control”

ARTICLE VII

“Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories”

ARTICLE VIII
“1. Any Party to the Treaty may propose amendments to this Treaty. The text of any proposed amendment shall be submitted to the Depositary Governments which shall circulate it to all Parties to the Treaty. Thereupon, if requested to do so by one-third or more of the Parties to the Treaty, the Depositary Governments shall convene a conference, to which they shall invite all the Parties to the Treaty, to consider such an amendment.”

“2. Any amendment to this Treaty must be approved by a majority of the votes of all the Parties to the Treaty, including the votes of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. The amendment shall enter into force for each Party that deposits its instrument of ratification of the amendment upon the deposit of such instruments of ratification by a majority of all the Parties, including the instruments of ratification of all nuclear-weapon States Party to the Treaty and all other Parties which, on the date the amendment is circulated, are members of the Board of Governors of the International Atomic Energy Agency. Thereafter, it shall enter into force for any other Party upon the deposit of its instrument of ratification of the amendment”

“3. Five years after the entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of this Treaty with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized.
At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty”

ARTICLE IX

“1. This Treaty shall be open to all States for signature. Any State which does not sign the Treaty before its entry into force in accordance with paragraph 3 of this Article may accede to it at any time”

“2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics and the United States of America, which are hereby designated the Depositary Governments”

“3. This Treaty shall enter into force after its ratification by the States, the Governments of which are designated Depositaries of the Treaty, and forty other States signatory to this Treaty and the deposit of their instruments of ratification. For the purposes of this Treaty, a nuclear weapon State is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January, 1967.”

4

INFCIRC/140
“4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession”

“5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession, the date of the entry into force of this Treaty, and the date of receipt of any requests for convening a conference or other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations”

ARTICLE X

“1. Each Party shall in exercising its national sovereignty have the right to withdraw from the Treaty if it decides that extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other Parties to the Treaty and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests”

“2. Twenty-five years after the entry into force of the Treaty, a conference shall be convened to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods. This decision shall be taken by a majority of the Parties to the Treaty”

ARTICLE XI
“This Treaty, the English, Russian, French, Spanish and Chinese texts of which are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States”. (The NPT Original Text, 1968).

This Chapter introduced us to the concept of nuclear non-proliferation, and how it became an issue of vital importance despite the hefty criticism that International Organizations like the International Atomic Energy Agency as well as UNSG Committees like the Disarmament and International Security Committee usually receive from critiques.

Hence, the main question that we are trying to study in this thesis is: why did all the efforts made by the International Community fail in preventing the spread of nuclear weapons among nations ever since the end of the Cold War? And to what extent are nations being held accountable for their nuclear activities? The following chapters will answer this enquiry. The next Chapter in particular will focus on the challenges that are facing both the IAEA and DISEC due to political pressure exerted from superior nations, as we rely on Literature Reviews and a small Interview conducted with members of the Ukrainian Embassy in Lebanon.
Chapter 2

Challenges Faced by the United Nations and the IAEA: How Politics Plays a Role in Intensifying the Problem

IAEA: Governance, Membership and the Future of the Non Proliferation Treaty

In order to fully understand the types of challenges faced by the IAEA and the Disarmament and International Security Committee (DISEC) within the United Nations, we must first study the structure of the IAEA.

IAEA’s policy-making bodies decide on the Agency’s budgets, programs and international agendas related to nuclear activity. They comprise the General Conference of all Member States and the 35-member Board of Governors. In September of every year, The General Conference convenes at the IAEA headquarters in Austria. They usually meet five times per year, all in Vienna.

The representatives of the IAEA Member States as well as the invited non-Member States and organizations are encouraged to register for the General Conference in accordance with the same rules as those of the General Conference.

“The General Conference elects a President and members of the General Committee at the beginning of each annual session. They hold office for the duration of the session.

In conjunction with the General Conference, the IAEA regularly organizes a Scientific Forum on topics related to nuclear technology and science” (IAEA Governance).
Table 2: IAEA State Membership

“The 35 Board Members for 2017-2018 are Algeria, Argentina, Armenia, Australia, Belgium, Brazil, Canada, Chile, China, Costa Rica, Côte d’Ivoire, Denmark, France, Germany, India, Indonesia, Italy, Japan, Jordan, Kenya, the Republic of Korea, the Netherlands, Peru, Portugal, Qatar, the Russian Federation, Serbia, Singapore, Slovenia, South Africa, the Sudan, the United Arab Emirates, the United Kingdom of Great Britain and Northern Ireland, the United States of America and the Republic of Bolivia.

“National entries were as follows:

- **1957**: Afghanistan, Albania, Argentina, Australia, Austria, Belarus, Brazil, Bulgaria, Canada, Cuba, Denmark, Dominican Republic, Egypt, El Salvador, Ethiopia, France, Germany, Greece, Guatemala, Haiti, Holy See, Hungary, Iceland, India, Indonesia, Israel, Italy, Japan, Republic of Korea, Monaco, Morocco, Myanmar, Netherlands, New Zealand, Norway, Pakistan, Paraguay, Peru, Poland, Portugal, Romania, Russian Federation, Socialist Federal Rep. of Yugoslavia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, United States, Venezuela, Vietnam

- **1958**: Belgium, Ecuador, Finland, Iran, Luxembourg, Mexico, Philippines, Sudan

- **1959**: Iraq

- **1960**: Chile, Colombia, Ghana, Senegal
<table>
<thead>
<tr>
<th>Year</th>
<th>Countries</th>
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<tbody>
<tr>
<td>1961</td>
<td>Lebanon, Mali, Democratic Republic of the Congo</td>
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<td>1962</td>
<td>Liberia, Saudi Arabia</td>
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<td>1963</td>
<td>Algeria, Bolivia, Côte d'Ivoire, Libya, Syria, Uruguay</td>
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<tr>
<td>1964</td>
<td>Cameroon, Gabon, Kuwait, Nigeria</td>
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<td>1965</td>
<td>Costa Rica, Cyprus, Jamaica, Kenya, Madagascar</td>
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<td>1966</td>
<td>Jordan, Panama</td>
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<td>1967</td>
<td>Sierra Leone, Singapore, Uganda</td>
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<td>1968</td>
<td>Liechtenstein</td>
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<td>1969</td>
<td>Malaysia, Niger, Zambia</td>
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<td>1970</td>
<td>Ireland</td>
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<td>1972</td>
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<td>1974</td>
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<td>1976</td>
<td>Qatar, Tanzania, United Arab Emirates</td>
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<td>1977</td>
<td>Nicaragua</td>
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<td>1983</td>
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<td>1992</td>
<td>Estonia, Slovenia</td>
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<td>1993</td>
<td>Armenia, Croatia, Czech Republic, Lithuania, Slovakia</td>
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<td>1994</td>
<td>Kazakhstan, Marshall Islands, The former Yugoslav Republic of Macedonia, Uzbekistan, Yemen</td>
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<tr>
<td>Year</td>
<td>Countries</td>
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<tr>
<td>1995</td>
<td>Bosnia and Herzegovina</td>
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<td>1996</td>
<td>Georgia</td>
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<td>1997</td>
<td>Latvia, Malta, Moldova</td>
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<td>1998</td>
<td>Burkina Faso</td>
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<td>1999</td>
<td>Angola, Benin</td>
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<td>2000</td>
<td>Tajikistan</td>
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<td>2001</td>
<td>Azerbaijan, Central African Republic, Serbia</td>
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<td>2002</td>
<td>Botswana, Eritrea</td>
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<td>2003</td>
<td>Honduras, Kyrgyzstan, Seychelles</td>
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<td>2004</td>
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<td>2006</td>
<td>Belize, Malawi, Montenegro, Mozambique</td>
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<td>2007</td>
<td>Cape Verde</td>
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<td>2008</td>
<td>Nepal, Palau</td>
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<td>2009</td>
<td>Bahrain, Burundi, Cambodia, Congo, Lesotho, Oman</td>
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<td>2011</td>
<td>Lao People's Democratic Republic, Tonga</td>
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<td>2012</td>
<td>Dominica, Fiji, Papua New Guinea, Rwanda, Togo, Trinidad and Tobago</td>
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<td>2013</td>
<td>San Marino, Swaziland</td>
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<td>2014</td>
<td>Bahamas, Brunei Darussalam, Comoros</td>
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<tr>
<td>2015</td>
<td>Antigua and Barbuda, Barbados, Djibouti, Guyana, Vanuatu</td>
</tr>
<tr>
<td>2016</td>
<td>Saint Lucia, The Gambia, Turkmenistan</td>
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</table>
• **2017**: Grenada, Saint Vincent and the Grenadines

• Total Membership: 169 (As of December 2017)

• The Democratic People's Republic of Korea (DPRK) withdrew its membership of the IAEA in 1994.

• Venezuela”

(IAEA Website, iata.org)

(Source: The IAEA List of Member States. Retrieved From: https://www.iaea.org/about/governance/list-of-member-states)
Rodolfo Quevenco’s article “Connecting, Collaborating and Communicating Globally on Nuclear Safety and Security” praises the “networking” system in the IAEA. He states that: “Networking is an extremely important mechanism for IAEA Member States to share knowledge, experience and good practices in nuclear safety and security. This point was emphasized by IAEA Director General Yukiya Amano in his address to the plenary meeting of the Global Nuclear Safety and Security Network (GNSSN) held at the IAEA headquarters on 24 September 2014. The Network is a platform for the sharing of information among experts in order to achieve a higher level of safety and security at nuclear facilities around the world. It is instrumental in spreading best practices and ensuring continuous improvement in nuclear safety” (Quevenco, 2014).

Professor Majdi Kamil presents an overhaul description and analysis of the whole nuclear age ever since the discovery of radioactive isotopes up until the development of the third generation nuclear weapons. He discusses the dangers of supporting, spreading and upgrading nuclear arms on the international level and shows a bit of concern to the fact that Arab states were declined the “right” of acquiring such energy (vis-à-vis building power plants) for peaceful purposes. Kamil talks about the examples of the Iraqi nuclear reactors (which were later destroyed) as well as the nuclear dreams of Egypt and Libya under Gadhafi. The interesting idea here is that the author dwells into the political and Poli-Economic aspects of nuclear weapons and shows how exactly politics shape up policies that forbids or covers (in the case of Israel) the acquisition of nuclear energy, let alone nuclear arms and enriched Uranium. Kamil goes on to talk about the governance of the IAEA as he criticizes their work and the clear political
influence by some powerful states, mainly the United States of America.

Despite having around 169 member states, it is clear that the IAEA could not align all the members to place them under one agenda with clear and direct plans and objectives. The international community is still politically hostile to nuclear nations, the nuclear states themselves are hostile to one another, and most importantly, many states with nuclear abilities have “gone missing” from under the IAEA radar. The World Health Organization (WHO) have also detected an increase in the number of cancer patients in regions associated with high levels of radioactivity (mainly the Hebron region in occupied Palestine).

Efforts for re-amending and ratifying the NPT have been way below expectations. The incidents at Chernobyl, Fukushima (in addition to those of Hiroshima and Nagasaki) were barely an incentive for the member states to readdress the issue of nuclear non-proliferation. The main issue according to Dr. Slovodian Pirakovich of the University of Moscow is that the IAEA still “drools over nuclear and atomic weapons” instead of rechanneling their interests towards the other forms that, ironically, present a larger threat at the time being; threats in the form of natural disasters and human errors in nuclear power plants.

Representatives of the Ukrainian Embassy in Beirut have also accepted to dwell on the issue, but without going deep into the political aspects and factors behind the work of the IAEA and the UN. The Ambassador was not present at that time, but a couple of the high rank staff working with him were there, and they gladly answered the following questions.
Q: “According to Ukrainians, how did the incident at Chernobyl shape the future of nuclear energy in all of its forms? And what stance does Ukraine take regarding the position of the international community with respect to the post-accident handling of the crisis”

A: Ukraine was hit hard after the incident at Pripyat, Chernobyl in 1986. Actually not just Ukraine or the Soviet Union, but all of the globe and especially Europe. You see, the incident at the infamous reactor number 4 was unexpected and nobody was trained to handle such an issue. The plant itself was approximately 140 km north of the Capital Kiev, and there was this notion that nuclear power plants are very secure and that any incident regarding radiation would only be related to wars. Definitely the officials always talked about the danger of a possible leakage or overheating, but up until that time it sounded like an easily avoidable kind of myth. Everybody was sure that no such disaster would ever occur, and that power plants are run by the best engineers and staff, and that security is a 24/7 guarantee. Human error, that’s it! An unexpected human error led to overheating and later on, leakage and explosion in the 4th reactor. Before everybody knew the scale and magnitude of the disaster, it was already too late and the enormous damage was done. The percentage of radiation in that area is still humungous to the extent that nobody expects Pripyat to host any civilians for more than 100 years from now. The atomic cloud and radiation dust could easily spread around the European atmosphere if any of the remaining “secure” reactors malfunctions. On that,
and to answer your question, the IAEA are doing a good job together with the United Nations. In order to secure the polluted area, highly skilled workers are expected to raise a high cement wall over the power plant boundaries every 4 or 5 years. Cold water is always pumped so that the remaining reactors don’t overheat and explode. The international community did help us a lot, but the thing is (without going into politics), the world will help you after a disaster, but they just fail miserably when it comes to coming up with new ideas and ways to prevent such scenarios from re-occurring. There still is a lot of work to be done.

Q: “Do you think that the Fukushima incident in Japan helped in re-igniting the “interest” of both DISEC and the IAEA in trying to reach a better method of disaster-prevention?

A: To tell you the truth, no. They definitely upped the work and developed new and better laws and methods of prevention, but not on a large scale. They re-visited the old dusty files of Chernobyl but only because they were obliged to. What seemed like an impossible event (nuclear disasters) have now become a reality, and you feel like the international communities didn’t expect that to happen. But on the bright side, many nations including Japan started working on new alarm systems and electronic security systems for the reactors whereby they shut down immediately after an earthquake or tsunami alert, and trap the radiation inside a well-defended wall to prevent leakage. Many countries also started noticing the trouble that this “super substance” creates and opted to get rid of it as soon as possible, a thing Ukraine did after the collapse of the Soviet
Union. Many of what we call the “nuclear host nations” also got rid of the nukes. Such nations signed treaties with other nuclear powers in order to host some of their nuclear warheads within their borders. For example, you can find a couple of American nukes in Sicily, Italy just to give an example. After Fukushima, no major overhauls were made and we are afraid that a similar disaster might occur in yet another country or city, and we honestly aren’t ready yet to face such colossal challenges.
DISEC and the Role of the United Nations

The Disarmament and International Security Committee is the first committee in the United Nations General Assembly. It also deals with the prevention of weapon proliferation (mainly WMDs) as it aims to establish global peace by having a weapon-free world. Many scholars and scientists worked with DISEC on many projects, as they focused their work on coming up with a new internationally-binding resolution to achieve nuclear non-proliferation and to safeguard the current nuclear power plants and reactors. From the research and reviews done by those scientists, it became clear that DISEC, although a very hard working committee, still lacks a lot of credentials and credibility (according to some nations) to deal with such issues (a case similar to that of the IAEA). As such, what we are dealing with here is almost similar to the case of the IAEA. According to Dr. Ahmad Al Baradei, former General Director of the IAEA when giving a speech in front of the DISEC members: “In recent years, nuclear threats have become more dangerous and more complex. The number of states known to have nuclear weapons has expanded to nine. Virtually all are extending or modernizing their nuclear weapon arsenals. Others have tried to develop clandestine nuclear programmes. Extremist groups have shown keen interest in acquiring nuclear weapons. Nuclear materials have become more difficult to control. A new phenomenon of illicit trade in nuclear technology has emerged. Energy security and climate change are driving many countries to revisit the nuclear power option. But the growing interest in mastering the nuclear fuel cycle - seen by some countries as an implicit deterrence or insurance policy - raises the prospect of a steadily increasing number of nuclear-weapon-capable states” (Reviving Nuclear Disarmament Speech by Dr. El Baradei).
The inefficient behavior of the IAEA and DISEC member states have led to the surge of ideas towards an absolute upcoming nuclear disaster. According to Professor Amber Goldstein, the Disarmament and International Security Committee is actually doing a better job than the International Atomic Energy Agency especially when it comes to planning and security levels. Goldstein accuses IAEA members of “laziness” and defends DISEC by publically stating: “at least they succeed in addressing the most important and vital issues that are related to the current nuclear situation. Yes, the threat of nuclear warheads and nuclear apocalypse is always present, but why channel all our thoughts into this highly unlikely scenario? Why not expand our research on maintaining and safeguarding nuclear power plants? Why don’t we try to come up with new plans to secure those plants in cases of possible natural disasters or human errors? The IAEA doesn’t like working like that and I still don’t know why…”

Nowadays, more than 27000 nuclear warheads are in possession of the 9 nuclear nations (let alone those who do not acknowledge their possession of such weapons), of which 95% are in the hands of the United States and Russia, and that is also due to the fact that the nuclear race was a major part in the Cold War between the US and the Soviet Union. The staggering numbers have motivated other nations to follow suite and naturally, the very idea of supporting and improving these weapons became a very lucrative idea for many states.

The Disarmament and International Security Committee have come up with many important resolutions regarding multiple topics not necessary directly related to nuclear weapons. Other forms of WMDs (Weapons of Mass Destruction) like Intercontinental Ballistic Missiles or Biological Warfare have also been discussed extensively. Nuclear
topics like storage of nuclear warheads in the arctic or storing nuclear waste stockpiles underground have been some of the recent highlights. According to the Independent, around 14,995 nuclear warheads are present nowadays globally, and the possibility of a nuclear “doomsday” actually becoming a reality is increasing by the minute. In the article “14995 nukes”, the Independent talks about the Disarmament and International Committee at the UN and how it managed to tackle some of the most important issues (unlike IAEA) whilst also failing in coming up with productive resolutions that could help in managing a highly possible nuclear crisis ahead of time, especially considering the fact that “rogue” states like North Korea for example presumably own much more warheads than what initially thought. “North Korea may have more than triple the number of nuclear weapons that experts recently estimated, according to a story by The Washington Post. The new count comes via a July 2017 report created by the US Defense Intelligence Agency” (The Independent, August 9, 2017).

DISEC remains a vital part of the nuclear non-proliferation process, the work done at the United Nations coupled with that of the IAEA is (usually) expected to tackle all the recent and upcoming challenges of nuclear energy in all of its forms. In the following chapter we will focus on the structure of both DISEC and IAEA as we study the methods of how resolutions are formed, in a bid to understand extensively how each organization work and function, as this would help us understand the effect of politics and international relations on nuclear-related resolutions.

This chapter focused on the structure of the International Atomic Energy Agency as well as the Disarmament and International Security Committee at the United Nations, which showed how the complexity of their governance as well as the intensity of the political
influence that is casted on them act as hurdles in reaching fruitful outcomes. The next Chapter will go even deeper in trying to understand the structures of DISEC and the IAEA as we take and analyze examples from nuclear states around the world and see how the work of such international committees and organizations regulate and influence the activities of nuclear nations, and try to compare between the different state examples and find out if nations are really being held accountable for their nuclear activities as is intended and expected.
Chapter 3

Dissecting the Work of the IAEA and DISEC

The “Nuclear Dream” tingled the minds of many states after the discovery of the highly radioactive elements and most importantly, after the successful attempts of creating a monster weapon out of them. Terms such as WMDs (Weapons of Mass Destruction) and non-proliferation had no real existence before the end of the Second World War (Chemical and Biological Weapons were sometimes referred to as “Weapons of Mass Murder” or simply “Cruel Weapons”) and with the culmination of the Manhattan Project and the atomic bombing of both Hiroshima and Nagasaki, the world entered a new Atomic Age that imposed much bigger threats that highlighted the need for a new international mechanical spectrum to regulate and control the new “demon” so that international security remains stable and under control (Kamil, 2008).

The NPT (Non Proliferation Treaty) became the cornerstone for which nations tried to build on to ensure maximum security in case any of the member states of the Nuclear Club of Nations went rogue and decided to use the warheads in its arsenal, or if for any reason (leakage, natural disasters etc.) a nuclear disaster occurs and a meltdown in any reactor results in a complete shutdown or worse, a radioactive tragedy in any given city/nation. “The nuclear Non-Proliferation Treaty (NPT), which contains the only binding commitment to nuclear disarmament in a multilateral treaty, became an international law in 1970. At the time, there were five nuclear weapon states: China, France, the United Kingdom, the United States, and the USSR. Since then, India, Israel, and Pakistan have developed nuclear weapons and North Korea developed a nuclear explosive capability.
These four states are the only countries not party to the Treaty. 190 governments have ratified this Treaty (though there are 189 States Parties, as North Korea withdrew from the Treaty after it ratified it.)” (Reaching Critical Will, 2018). The member states meet in Revcoms and Prepcoms every three to five years and discuss the latest issues in an attempt to find the best safeguarding protocols to be added and implemented in the NPT.

The issues usually discussed at such important conferences focus on the vital need of a clear and universally-acknowledged protocol that binds all or at least most nations together to safeguard nuclear material and to contain the spread of nuclear weapons as much as possible. The task is not as easy as it might sound on paper, as many nations take pride in hosting nuclear and atomic bombs within their arsenal, while other members still decline any information that assures the international community that they indeed have nuclear weapons (ex: Israel).
In the “Disarmament and International Security Committee” (DISEC) and the “International Atomic Energy Agency” (IAEA)

Just like most General Assembly committees at the United Nations, both DISEC and the IAEA follow the trend of having all nations sitting together in an attempt to come up with first draft resolutions, debate and vote (majority vote) and finally produce a draft resolution that can be further amended by willing states. DISEC is widely known as the First Committee of the UNGA as it is a consensus-building committee that hosts all the representatives of the member states in order to discuss important issues mainly related to world peace and “International Security” and law. The “Disarmament and International Security Committee” was founded under the name of Political and Security Committee (POLISEC), a committee that was later reorganized in the late 1970s in correspondence with the increasing need for having a new specialized international stage or hub in which countries discuss the new matters (decolonization movements, spread of WMDs etc). The committee was later merged with the Fourth Committee which dealt with trusteeship and decolonization matters.

Just like all six committees of the United Nations General Assembly, the Disarmament and International Security Committee opens the floor to all nations to consider and suggest proposals relevant to the subjects being covered. It is worth noting that all the resolutions are not binding, and all nations have the right to accept, reject, amend or even criticize all draft resolutions when the chair opens the floor for voting and/or discussion.

Based on Article 11 of the United Nations Charter, the General Assembly has the “authority to discuss any questions related to the maintenance of international peace and
security and to make recommendations with regard to any such questions to the state or states concerned, to the Security Council, or both” (UN Charter, Article 11). The First Committee serves as a platform for all member states to present and defend their positions on everything related to disarmament (including nuclear non-proliferation) in an attempt to reach common ground, raise awareness on important and vital issues that concern the international security, and to try to agree on some sort of international norms of behavior. In other words, nations can ensure their security through dialogue and diplomacy, instead of by the size of their arsenal and their military “muscles”. DISEC believes that collective security could be achieved through the process of multilateral disarmament.

The Disarmament and International Security Committee have enjoyed, to a certain extent, some successes that proved that this committee remains very important as it plays a role in ensuring the continuity of the fragile international security. Of all the successes DISEC enjoyed over the years, the adoption of the following treaties remains the most striking: The NPT treaty (Nuclear Non-Proliferation), The Chemical Weapons Convention, The Biological Weapons Convention and The Partial Test Ban Treaty.
Facing the Reactors

History will always mention how international organizations and committees such as the IAEA and DISEC failed in monitoring nuclear reactors around the world. Granted, such reactors are usually operated under strict security procedures, but the constant threats (like leakage, core ignition, overheating, etc.) are challenging enough to warrant an internationally-binding set of rules and procedures to safeguard these reactors in order to prevent another Fukushima or Chernobyl.

The IAEA did work on the issue without reaching a futile arrangement. By studying power plants and reactors around the world, it turned out that a Fourth Generation of nuclear reactors was exactly what the world needed, as such reactors usually consume less cooling water while also providing maximum security for all the valves to prevent any substance from leaking out. Yet again, such reactors need at least 20 years to be further researched and built, so the alternative according to the IAEA was the SMR or the Small Modular Reactor. These reactors are efficient and can reach the market much easier than the standard reactors as they also appeal to smaller nations with nuclear ambitions as they are easy to assemble and build, whilst also producing no less than 100MW of power (up to 300MW) on a constant basis. But according to The Economist Magazine, “These advantages do not add up to a conclusive case for a small modular future” (The Economist, 2013) and so the International Atomic Energy Agency failed in convincing the International Community to adopt its reactor plan. Hence, the reactors still act as a major challenge and as an unresolved issue which needs an internationally acknowledged and binding resolution.
The Nuclear Club of Nations

The nuclear club of nations includes the official 5 major powers that signed and ratified the NPT (USA, Russia, UK, France and China), as well as 3 other nations that did not sign the NPT (India, Pakistan and North Korea). In addition to these 8 nations, Israel is widely believed to be the ninth nuclear nation in the world, though no official declaration was made by the Government of Israel regarding the possession of nuclear weapons. Israel is widely suspected to have 350-400 nuclear warheads that were first tested via nuclear triad methods. As for why does Israel refrain from admitting its possession of nuclear weapons, it can be possibly explained as a form of deterrence to secure almost zero political cost on their behalf, and to help shed the international community’s eyes away from their ambitious radioactive activities.

In the following paragraph we will try to highlight the failures and successes of the IAEA and DISEC and try to analyze each case on its own, starting with the state that launched the beginning of the “Atomic Age”, the United States of America.
1) Signatory State Members of the Non-Proliferation Treaty (NPT)

The United States of America

The very first second the “mushroom cloud” rose from the Trinity nuclear test site, the Americans officially completed “Operation Alberta” and opened the doors for the “Atomic Age” to begin. The successful detonation of the very first nuclear weapon (a bomb nicknamed “The Gadget”), which was the product of many years of research in fields like Chemistry and Physics and that involved many iconic names in science like Marie Curie and Ernest Rutherford, may have arguably accelerated the end of the Second World War, but in doing so it widened the horizon of what is often referred to as “vanilla-weaponry” or traditional weapons of war and introduced weapons of much bigger lethal yields coined under the new term of “WMD” (Weapons of Mass Destruction).

The United States remain the first and only nation to have deployed and used nuclear weapons in combat, precisely against Japan after the atomic bombing of both Hiroshima and Nagasaki on August 6 and August 9 of the year 1945 respectively which resulted in the almost complete wipeout of both cities, and a combined estimated deaths toll of more than 227,000 people (Kamil, M.). Under the leadership of renowned scientist Robert Oppenheimer, and by an official order from President Franklin Roosevelt, The Manhattan Project was founded and launched in 1942 with the sole aim of beating the Nazis to the nuclear bomb. After successfully detonating the first ever nuclear bomb and following the surrender of Imperial Japan, the Cold War era saw the United States expanding its research and activities regarding everything related to nuclear energy.
whilst mainly focusing on its decisive military aspect in order to maintain an advantage over its new nemesis, the Soviet Union, and so a universal nuclear race was launched with many nations trying hard to deploy such weapons in their arsenals (they were mainly viewed as the top “defensive” system that any superpower must have, as no one would dare attack a nuclear state). According to the American Consumer Price Index, “Between 1940 and 1996, the U.S. government spent at least $9.08 trillion in present-day terms on nuclear weapons, including platforms development (aircraft, rockets and facilities), command and control, maintenance, waste management and administrative costs Federal Reserve Bank of Minneapolis Community Development Project” (Consumer Price Index (estimate) 1800–". Federal Reserve Bank of Minneapolis. Retrieved January 2, 2018). Safeguarding the American nuclear stockpile proved to be a hefty economic challenge for the US, but nothing compared to the economic burden of constantly deploying nukes around the world during the Cold War to secure a “hit back” option if they were ever to be attacked on home soil, which later led to the formulation of what is known as MAD (Mutually Assured Destruction) which we will talk about later in this study.

Until today, the United States and Russia host more than 90% of the world’s nuclear weapons, as the Americans occupy the runners-up position behind the Russians in the final toll of atomic warheads owned. As expected, the founders and launchers of the Atomic Age were to face many challenges later on, especially after the creation of the IAEA and the Disarmament and International Security committee at the United Nations General Assembly. The main challenge was the limitations imposed on nuclear tests, but numbers show that the United States not only did it breach all international rules and
laws, but it expanded its nuclear activities by conducting more than 1,200 tests that included atmospheric, space and under-water environments, which included the detonation of “Castle Bravo” bomb, the biggest American nuclear bomb ever tested and which had a yield of more than 15 megaton (1000 times more powerful than the Hiroshima and Nagasaki bombs) and considered the fifth largest nuclear explosion in history. The Castle Bravo test in the Marshall Islands was considered a failure due to miscalculation, as the isotopes considered inert in the composition of the supposedly 6 megaton bomb were actually highly reactive, explosive and radioactive which resulted in an explosion of a much higher yield than originally expected, and a 250% more nuclear fallout that contaminated many islands and killed a considerable amount of innocent residents. The American tests left many craters that are still visible today, and increased the radiation levels in most of the sites to more than triple what the IAEA recommends for “safe testing” (The Economist, 2014).

Despite the continuous American breaching of international laws, no sanctions were exerted on the US for political reasons, and whilst the United States did reduce the number of warheads in its arsenal after the end of the Cold War, the number of bombs still deployed on ICBMS (Inter-continental Ballistic Missiles), submarines and in large strategic bombers like the Boeing B52 are still way more than what was planned for the year 2018 by the “Atoms for Peace” initiative which the US unofficially supported. The US also had to transfer some of its nuclear arsenal to five other nations around the world in a NATO “Nuclear Sharing” initiative, a move that left a bad taste in the mouths of all residents of the new host nations (Italy, Germany, Turkey, The Netherlands and Belgium).
The Russian Federation

No nation on earth, not even the United States, could proclaim to have the world’s largest nuclear weapons arsenal, except for Russia (official successor of the Soviet Union). The world’s largest country employs more than 8,000 atomic warheads, the largest sum in the world and by far, the most lethal.

![Graph showing nuclear weapons stockpile](https://example.com/graph.png)

Figure 1: A graph Showing the Amount of Nuclear Weapons Stockpiled by Either Country During the Nuclear Race.


After the dissolution of the Soviet Union on the 26th of December of the year 1991, four nations “inherited” their share of the USSR nuclear weapons arsenal, namely Russia, Ukraine, Belarus and Kazakhstan. The following year saw all four states signing and ratifying the Nuclear Non-Proliferation Treaty (NPT) which shuffled everything as three nations (except for Russia) decided to give up their nuclear weapons and become nuclear-free states. Those weapons landed unsurprisingly in Moscow’s hands, in the hands of a nation already flooded with nuclear weapons inherited from the Cold War.
era. The Russians were quick to define their new protocol for nuclear weapon
deployment and usage; “nuclear weapons could be used by Russia in response to the use
of nuclear and other types of weapons of mass destruction against it or its allies, and also
in case of aggression against Russia with the use of conventional weapons when the very
existence of the state is threatened” (Russian Military Doctrine, 1992).

Just like the Americans, the Soviets conducted many tests without facing much pressure
from the IAEA or DISEC (objections against their actions were only discussed in closed
meetings and committees without successfully condemning and sanctioning those
nations), and with the nuclear race wide and open in the Cold War era, the Soviets
detonated the world’s largest nuclear weapon ever made. The 50 megaton “Tsar Bomba”
was the ultimate muscle flex during that time by any nuclear nation, and with President
Nikita Khrushchev promising to “show the Americans the might of the Soviets” with an
upcoming detonation demonstration of a 100 megaton nuclear weapon, the International
Security reached a very low and dangerous stage whereby a small accident or incident
would lead to a total apocalypse. At that time, nothing managed to stop both the US and
the USSR from “playing” with the globe’s fate, as the IAEA and DISEC again proved to
be weak institutions that only managed to shed the light on nuclear-related issues in the
world.

Ironically, the most challenging incident for the Soviets didn’t come from military-
related issues, but rather from a human error committed inside one of their power plants.
On April 26 of the year 1986, a meltdown in one of the nuclear reactors in Chernobyl’s
Power Plant resulted in a first real catastrophe (the first since the atomic bombing of
Japan), a nuclear accident that could haunt Chernobyl and all of Ukraine for at least 20
millenniums. “During the night, in the worst nuclear power disaster ever, a catastrophic series of explosions had shattered the reactor, blowing the roof of the containment chamber. Firemen had extinguished the initial fire but could not quench the combustion of the molten core that was spewing 50 tons of radioactive isotopes into the atmosphere. Despite the beauty of the springtime scene, everything for miles around was drenched with lethal radiation” (TIME, Disasters that Shook the World. Page 76). The accident transformed Pripyat into a ghost city, a completely abandoned highly radioactive place where everything remained intact from that terrible day in 1986. The Chernobyl accident happened as a result of a human error when one of the employees failed to check the water cooling hydraulic systems in the infamous reactor number 4 which was already poorly functioning. With no proper follow-up and maintenance, the reactor melted down and exploded which released a humongous amount of radioactive elements into the atmosphere and spread a radioactive cloud over all of Ukraine and the neighboring countries. The IAEA and DISEC faced a completely new challenge, as nuclear power plants were believed to be highly secure and environmentally friendly. This time, both entities worked hard on cleaning the polluted area as much as possible to aid the Soviets, but most importantly, the issue of safeguarding nuclear reactors stole the spotlights. The Chernobyl incident showed the world that nuclear energy presents multiple forms of challenges beside the military aspect, and the IAEA managed to formulate a proper resolution that was later signed and ratified by most nations which drastically reduced nuclear power plants in the future. The partial success of the IAEA and DISEC proved that the International Community has more imposing power when it comes to non-politically related issues, a trend that followed throughout the years up until this day.
The United Kingdom

With the help of its longtime ally, the United Kingdom became the third country to acquire nuclear weapons in the world by the year 1952. Being a historically naval power, the UK focused on the production of nuclear submarines, submarines able to carry and launch nuclear weapons to hit targets anywhere in the world. The main challenge for the UK was the delivery systems of those warheads, as not all submarines can launch ICBMs or long-range missiles with nuclear warheads, nor can all submarines safeguard the nuke hosted onboard. Yet again, the British did focus their efforts on developing thermonuclear weapons rather than the ordinary nuclear or atomic weapons, but in much less warhead numbers than those of the United States or the Soviet Union.

With its vast land under control in the British Commonwealth, the United Kingdom managed to secure a lot of lands abroad to transform them into test sites, and it comes as no surprise that the UK’s first nuclear test was executed on Australian soil. The British cooperation with the United States and Canada at The Manhattan Project helped them gain a lot of knowledge about the methods of assembling, producing, detonating and safeguarding nuclear weapons. Unlike its two predecessors (USA and USSR), the United Kingdom usually declared that it considers its nuclear weapons program as simply defensive, and by that the Royal Navy and the Royal Air Force were given strict commands to never use nuclear weapons on any target without the consent of the Parliament which, on the other hand, pledged to never use those weapons except in dire circumstances when they find themselves isolated and under the threat of a possible nuclear attack themselves.
The United Kingdom also tested freely its nuclear weapons, but never faced any real problems with the IAEA or in the United Nations General Assembly committees, namely DISEC. Yet again, the first real challenge is shaping up nowadays as a result of Brexit. According to Kelsey Davenport, author of “Brexit Has Nuclear Consequences for UK” article that was published in the “Arms Control Association” website on August 2017, “The United Kingdom’s decision to pull out of a treaty establishing nuclear cooperation in Europe, as part of its overall withdrawal from the European Union known as Brexit, will have significant implications for UK nuclear activities. If London does not take steps in the next few years to fill the void, the UK’s nuclear trade and access to research projects could suffer.” (Davenport, L. 2017). It remains to be seen how the IAEA in particular will react to such a challenge, but considering the other political examples, it is safe to assume that the IAEA does not have enough influential power to hinder big emerging threats that are mainly the result of political turmoil, which to some extent matches the current political case in the United Kingdom.
France

Renowned French-naturalized scientist Marie Curie had a great impact on the discovery of radioactive elements, namely the Uranium, and it comes to no surprise that her assistant Dr. Bertrand Goldschmidt, who continued Marie’s work, became known as the “Father of the French Nuclear Bomb” due to his contribution in the nuclear field and his collaboration with the French Army en route to producing France’s first nuclear weapon.

Despite being fourth in line to develop and host nuclear weapons within its arsenal, France surpasses the United Kingdom in the number of nuclear warheads it possesses with many reports claiming that the French Army already has more than 290 nuclear warheads deployed and ready to launch at any moment should they be given the green light by the political authorities to do so. If such reports are true, it means that France does not face any transfer and deployment issues, as mobility is an already well-sorted topic. France boasts an incredible collection of strategic bombers and SLBMs (Submarine-Launched Ballistic Missiles) that are more than capable to deliver and execute nuclear operations within time speed records, an essential part in the success of any nuclear weapons program.

The International Atomic Energy Agency and DISEC both consider France a relatively success story, as not only did France comply in limiting its nuclear weapon tests, it did limit and then stop its Chemical Weapons production; a vital factor in limiting the spread of WMDs internationally. The French Government also promises to never expand its nuclear weapons arsenal, but leaves the door open for rapid production in case of a global emergency (a possible eruption of a Third World War).
The People’s Republic of China

China have always relied on Chairman Mao Zedong’s flamboyant ambitions and dreams in order to secure the best results for the modernization of China, and the nuclear ambition was no easy fate but it always tingled the mind of Chairman Mao who sought out the help of his Communist friends, the Soviet Union. Mao’s radioactive ambitions were the result of two major objectives: obliging Taiwan to kneel and to restore and strengthened China’s Diplomatic cause as a superpower negotiating the fate of the East as one of the top major players, if not the most important regional player after the Soviet Union.

With no international monitoring, China managed to cooperate with the Soviets on the Chinese nuclear program project which was later halted due to the Sino-Soviet split up that was caused by the on growing differences between Maoism and Soviet Post-Stalinism. This split postponed China’s nuclear program up until the year 1964 when the Chinese Army managed to assemble and detonate its first ever nuclear weapon. After Mao’s death and the successful modernization of China, the Chinese took a different post-Cold War approach with respect to their nuclear arsenal. China’s official Nuclear Policy states that: “China undertakes not to use or threaten to use nuclear weapons against non-nuclear-weapon States or nuclear-weapon-free zones at any time or under any circumstances.” (Statement on security assurances issued on 5 April 1995 by the People's Republic of China”. United Nations. 6 April 1995. S/1995/265. Retrieved 20 September 2012).

China’s nuclear weapons program have not been inspected nor regulated by IAEA.
inspectors due to the close borders Chinese policy. Even after Mao’s death, China still refuses to open up about its nuclear program and nuclear arsenal, with many nations expecting China to have no less than 500 nuclear weapons, half of them ready to be deployed at once. Like most nuclear nations, China follows the “no first use” rule which puts China on the defensive act of any possible nuclear war. “The first strike will never come from China” according to the Army’s spokesman, but times changed and now China rivals Russia on the status of the dominant force in the East, and is already working on upgrading its nuclear arsenal by mainly focusing on new strategies and ways for quick-assembly. The North Korean case also provides more challenge to China in the Eastern front, but recent political developments between the North Koreans and the Americans might come in handy after all.

The International Atomic Energy Agency and the Disarmament and International Security Committee still treat China as a “state behind the Iron Curtain” which has a vague current nuclear status, and an uncertain future especially considering the fragile situation in the Far East.
2-Nuclear States that are not Part of the NPT

India

“As long as the world is constituted as it is, every country will have to devise and use the latest devices for its protection. I have no doubt India will develop her scientific researches and I hope Indian scientists will use the atomic force for constructive purposes. But if India is threatened, she will inevitably try to defend herself by all means at her disposal” Jawaharlal Nehru, the then-soon to be Prime Minister of India.

India’s nuclear weapons program dates back to the year 1944, but the final outcome came later in the 1960s when the Indians finally produced their own detonable nuclear device. Unlike many nuclear states, India joined the IAEA but never signed nor ratified the NPT, and whilst India already has 17 fully functioning nuclear reactors, only 4 of them are usually inspected by the IAEA audit team.

India’s nuclear ambitions were built on a new coined term, the PNEs which stands for Peaceful Nuclear Explosions; a term used to describe nuclear and atomic explosions which had no military purposes, instead focusing on excavation for the building of canals and harbors, electrical generation, the use of nuclear explosions to drive spacecraft, and as a form of wide-area hydraulic fracturing. Despite its initial attempts to “market” the PNE idea, India later used its vast amounts of radioactive elements (namely Plutonium) to accelerate its nuclear weapons program, a thing that highly irritated nations like France and the United Kingdom, but most importantly its historic rival Pakistan.

Dealing with nations that haven’t signed the Nuclear Non-Proliferation Treaty and
regulating their activities proved to be a major challenge for the International Community, as many “rogue states” tried hard to seek the fulfillment of their nuclear ambitions without the knowledge, consent and regulation of the major International Organizations.
Pakistan

Pakistan’s nuclear weapons program is the strangest and arguably, the most challenging of all non-NPT member states in possession of atomic weapons. As Pakistan saw their historic rivals India rise to claim the status of “nuclear nation”, Pakistan went out to seek a possible tag-match for “security reasons”. What India didn’t initially face was what Pakistan had to deal with; an almost complete international refusal for cooperation under the justification that a nuclear Pakistan and a nuclear India is the perfect recipe for radioactive disaster.

With all Pakistani diplomatic effort with the allies going in vain, the President had to seek the help of “black merchants”. A nuclear Black Merchant is usually a highly acclaimed nuclear scientist that has the ability to steal and assemble nuclear technology and components and smuggle them to any given country for assembly. And so, Abdul Qadeer Khan became the world’s first nuclear black merchant as over the years he helped smuggle and assemble nuclear warheads in Pakistan which he saw as a vital factor in ensuring the safety of his country. In a statement published in Newsweek on the 16th of May of the year 2011, Khan stated that: “Pakistan's motivation for nuclear weapons arose from a need to prevent "nuclear blackmail" by India. Had Iraq and Libya been nuclear powers, they wouldn't have been destroyed in the way we have seen recently.... If Pakistan had an atomic capability before 1971, we Pakistanis would not have lost half of our country after a disgraceful defeat”.

Dismissing all the pressure and threats from other nuclear nations, especially India, Pakistan managed to become a nuclear state as it nowadays boasts more than 130
warheads in its arsenal, naturally helped and supported later by many allies in order to at least match India’s total tally. Pakistan continuous to develop and support more research in its nuclear weapons programs as it spends more than 4.2% of its GDP on safeguarding and developing its nuclear weapons. Pakistan also became the first nation to publically declare that it is ready to “donate” more than 10 nuclear warheads to Saudi Arabia for free should the Arab state ever be attacked by Iran. Pakistani officials consider the Kingdom of Saudi Arabia the leader of the Islamic world, a natural ideological and religious ally that should be defended no matter what. Pakistani President Mamnoon Hussain also declared that “an attack on Saudi Arabia is an attack on Pakistan. We will use all the force necessary to deter the ambitions of the enemies of Islam”.

Pakistan introduced new concepts and new challenges to the International Community. The term “Black Merchant” opened the door for many possible scenarios in which terrorist groups would be one day able to smuggle and detonate a crude nuclear weapon. The “donation” of weapons in case of war also expands on the list of challenges for the IAEA and DISEC, as regulating the flow of such weapons and giving a specific status to nations that can easily get their hands on nuclear weapons is yet to be further researched.
North Korea

North Korea was a member state in the NPT up until the year 2003 when the United States declared that North Korea is building underground nuclear test sites for their then-under development nuclear weapons program; two years later, North Korea officially declared that it is now in possession of a couple of nuclear weapons, with more to follow in the upcoming years. Under the leadership of Supreme Leader Kim Jong-un, North Korea successfully tested more than 4 hydrogen and nuclear bombs and challenged all threats and sanctions, namely from the United States, as it promised to “wipe out” the Americans and destroy South Korea once and for all.

The IAEA and DISEC were quick to denounce the acts of North Korea as sanctions started being imposed and diplomatic tie-offs cut between many states and North Korea. Up until the beginning of the year 2018, North Korea was seen as the most dangerous nuclear rogue state which threatened to destabilize the International Security, yet no clear information were provided as to what extent are the Koreans really capable of delivering and detonating nuclear weapons, and most importantly, nobody could give a clear answer when it comes to the real official count of the warheads in Kim Jong-un’s possession. According to many CIA reports, North Korea had less than 10 functioning nuclear weapons which could never reach and hit nations outside a tight geographical sphere, and considered Kim’s threats as nothing more than a “scarecrow tactic” to help enhance North Korea’s status in the world as a major nuclear power.
Figure 2: Letter sent to North Korean leader Kim Jong-un by US President Donald Trump informing Kim of the cancellation of the summit

The only unexpected breakthrough occurred on the 12th of June of the year 2018 when a historic summit between The United States and North Korea took place in Singapore. The summit hinders North Korea’s nuclear plans null and provided a new example of how political diplomacy could help resolve intense issues even without the help of the IAEA and DISEC. North Korea promised to dismantle all its nuclear power plants and strengthen its relationship with the Americans and with their neighbors, South Korea.

Kim Bussing, author of the “United States and North Korea Strive for Peace at Historic Singapore Summit” that was published on the “Dogonews” website states that: “While the agreement is indeed a step in the right direction, there is much skepticism about Mr. Kim’s intention to keep his end of the bargain. North Korean leaders have, after all,
failed to follow through on similar promises several times in the past. Adding fuel to the fire is the fact that the deal provides little detail on how the denuclearization will proceed. But given Mr. Kim’s declaration that the [the two leaders] had a “historic meeting and decided to leave the past behind” and that “the world will see a major change,” things will perhaps be different this time around!” (Bussing, K. 2018)
3- Undeclared Nuclear Powers

Israel

Israel never officially confirmed nor denied its possession of WMDs, including nuclear weapons, but it is widely believed that they indeed have a large number of warheads in their arsenal that exceed 400. According to many French reports (France used to supply Israel with necessary components for the completion of the Dimona Nuclear Reactor in Negev), the Israelis started working on its nuclear program days after the end of the Six Days Wars, as they feared an allied Arab attack that would one day demolish the Zionist state. Israel is believed to have manufactured all kinds of detonable nuclear devices, including nuclear suitcases and tactical nuclear weapons which, according to ex-Prime Minister Ehud Olmert, “will one day prove to be the decisive weapon in the upcoming war against our enemies.”

Israel never signed nor ratified the NPT as it continues to dismiss all international calls asking it to release all the information about its nuclear weapons program. The history of the Israelis have always revolved around “strike first” tactics, as they were the ones who destroyed multiple nuclear power plants in many Arab states like Iraq and Syria and without hesitation. According to Mustafa Kamil, author of the “Nuclear Secrets” book, the Hebron area records the highest cancer rates in the world due to possible radioactive leakage from the Dimona reactor. That point was built upon by many Arab diplomatic missions to the UN (mainly the Human Rights Committee) in order internationally condemn the Israelis and oblige them to affirm their acquisition of nuclear weapons.

The IAEA and DISEC never managed to hold Israel accountable despite the many
sessions that were made to discuss the Israeli issue. Israel also enjoys a great deal of American diplomatic and political protection, and as such Israel managed to “play under the International Radar” and build its own nuclear weapons arsenal without the slightest of hesitation.

According to Dan Sagir, author of the “From Nixon to Trump, America Has Always Backed a Nuclear Israel” article in Haaretz, “Since the early 1990s, Israel has been asking incoming American presidents, including President Donald Trump, to sign off on letters continuing their predecessors’ policy regarding Israel's nuclear status, as the New Yorker recently revealed. The U.S. The secret letters state that the U.S. will not press Israel to give up its nuclear weapons so long as it faces existential threats in the Middle East. These secret understandings were a major enabling factor behind Israel’s unique nuclear strategy. Behind the thin veneer of nuclear ambiguity, Israel, with American support, became, according to foreign sources, regional nuclear power” (Sagir, D. 2018).

Being a non-NPT member, Israel remains a mystery for the IAEA, which yet again proved how inconsistent the work of monitoring nuclear activities internationally really is. With absolutely zero sanctions against it, Israel still enjoys the role of the “underdog” that nobody could hurt despite being armed to the teeth with radioactive detonable explosives according to all reliable sources.
4- The Case of the Islamic Republic of Iran

**Iran**

Unlike the countries mentioned above, Iran is not considered a nuclear state, but its nuclear program have captivated the world for some time now and obliged a lot of nations to act quickly in an attempt to regulate the Iranian program before another nation joins the nuclear club. Iran is a signatory state of the NPT, and always declares that it has absolutely no interest in developing its own nuclear weapons, justifying that by saying that the fatwa from Ayatollah Khomeini doesn’t allow any Muslim state to deploy and use such a cruel weapon. Regardless, Iran’s foes and particularly Israel have voiced their concern about Iran’s peaceful nuclear program, which warranted a visit from the IAEA late in 2007. Head of the IAEA, Mohamed ElBaradei, stated that he had seen "no evidence" of Iran developing nuclear weapons. The International Herald Tribune quoted him stating that: "We have information that there has been maybe some studies about possible weaponization, that's why we have said that we cannot give Iran a pass right now, because there is still a lot of question marks. But have we seen Iran having the nuclear material that can readily be used into a weapon? No. Have we seen an active weaponization program? No."

The Iranian nuclear deal in 2015 saw them strike a deal with the P5+1 countries which stated that Iran would have very strict access to nuclear materials as well as obliging it to limit its nuclear activities whereby all such activities should be executed with the presence of inspectors. Iran also agreed to the continuation of the UN arms embargo on the country for up to five years, although it could end earlier if the IAEA is satisfied that its nuclear programme is entirely peaceful. A UN ban on the import of ballistic missile
technology will also remain in place for up to eight years (Iran Nuclear Deal: Key Details. BBC 2018).

But after President Trump reached The White House, he pledged to withdraw the United States from the Iranian Nuclear deal and instead ordered a new set of sanctions against them to completely comply with the American demands. Sanctions previously imposed by the UN, US and EU in an attempt to force Iran to halt uranium enrichment crippled its economy, costing the country more than $160bn (£118bn) in oil revenue from 2012 to 2016 alone (BBC), and so a much bigger sanction package was to be imposed on Iran despite the resistance of the other signatory states. The Islamic Republic of Iran continuous to challenge the American actions as it calls on the world’s support in face of “enforced hegemony” according to former Iranian President Mahmoud Ahmadi Najad.

In this chapter we extensively studied the work of the IAEA and DISEC while also giving straight up examples about the successes and failures of these organizations in dealing with the various challenges that nuclear states cast. Not all nuclear states are members of the NPT, while others do not identify themselves as nuclear states in order to avoid international sanctions. The chapter gave a clear idea about how diplomacy could sometimes overcome political rifts (North Korea’s case) and achieve more results than by simply relying on the sanctions imposed by the IAEA and DISEC. Most of the challenges remain unresolved, and the nuclear door remains open for more entities to join (countries or even terrorist organizations) which remains a constant threat for the International Security.
The next Chapter will discuss new ways of containing nuclear weapons and safeguarding nuclear power plants in an attempt to prevent new catastrophes. The chapter will tackle the most important challenges currently facing the International Community, namely: The Militarization of the Arctic and the Safeguarding of Nuclear Materials, and will highlight the Qatari position presented at both summits; a position that is widely considered to be the major cornerstone to build upon in support of major international disarmament organizations.
Chapter 4

Preventing a New Catastrophe: What Must Be Done to Contain the Threat of Nuclear Weapons and Power Plants

Nuclear energy is here to stay, it is the way we revamp the way it is utilized is the thing that we should care most about. According to Oliver Morton, author of “The Dream that Failed” article that was published in The Economist, “Nuclear power will not go away, but its role may never be more than marginal” (Morton, 2012, P.3). The fact is, nuclear energy can never be neglected or simply squashed from existence due to the major threats that it imposes on the whole globe. Hence, the need to study its history, composition, safety protocols, nuclear waste, cost and prospects is of vital importance.

Many studies were formulated in an attempt to come up with plans to prevent major catastrophes similar to those of Hiroshima/Nagasaki/Chernobyl and lately, Fukushima. Wielding an extensive knowledge in radioactive materials, Dr. Jonathan Tah of the German Atomic Research Center in Munich suggested spending less money on the development of new research projects in the IAEA and more money on educating people about the benefits of nuclear energy whilst discussing the dangers of toying with such delicate and destructive materials. For Dr. Tah, nuclear power plants can shape up the future of the planet by providing low cost energy acting as an eco-friendly substitute to current power plants. Unlike the vanilla-type Uranium or its mighty cousin the enriched uranium (U-235), depleted Radium or even Polonium can be used as a low-risk core atom to produce “clean energy” on a large scale, but the main challenge behind this idea is securing these expensive substances without igniting a global race for them in which
politics or even military power might be used extensively.

Dr. Tah might be a huge fan of nuclear power plants, but he forgot to tackle one major issue. It is true that nuclear energy is much more eco-friendly as it produces almost 100,000 times less waste than fossil fuel plants, but he forgot to mention that the nuclear waste is much more radioactive and thus much more dangerous to deal with. According to the nuclearinfo.net website and under the title of The Challenges of Nuclear Weapons; “Humans are exposed to low level radioactivity constantly from naturally occurring radioactive isotopes and cosmic rays from outer space. However, in large doses, radiation has many harmful effects. Therefore, it necessary for Nuclear Power plants to in-build many safety mechanisms in order to keep the population safe. This includes the workers as well as humans living around the nuclear power plant. It is also necessary for independent parties to monitor Nuclear Power plants. This ensures that plants adhere to world safety standards and to make sure none of the waste plutonium is diverted for use in nuclear weapons. The International Atomic Energy Agency (IAEA) have developed programs to detect such activity. Nuclear Power Plants in France, Sweden, Canada and Finland have shown that it is possible for the generation of electricity through nuclear power to be extremely safe. Although other nuclear power plants such as Three Mile Island and Chernobyl have had disastrous accidents, it is important to put them into context. The Three Mile Island accident, which destroyed the economic value of the plant, was caused by design flaws and poor operator training. Nevertheless, most of the radioactivity was contained at the site. The Chernobyl accident was caused by numerous inherent design flaws, poor operator training and a total disregard for safety”. Radiation remains the most challenging factor as it takes up to 100,000 years to be fully depleted
which obliges all nations to bury the nuclear waste deep underground with all the necessary barriers to prevent any possible leakage.
Major challenges currently facing the International Community

**Militarization of the Arctic**

The arctic region is one of the most contested (politically and economically) areas in the world. Whilst the global warming is negatively affecting the whole planet, it did, on the other hand, make it much easier to explore the Arctic’s potentially valuable natural resources where it is estimated that the region holds up to 28% of the undiscovered gas and oil reserves in the world and where several powerful nations such as Russia, the United States, Norway, Denmark and Canada apply a lot of pressure to try to secure an appropriate stance that could help them secure maximum yield of political benefits. Going back to tackle the issue of the sub-intended level of work by DISEC, it is important to note that the only effective international treaty that helps calm the highly contested arctic region is the 1982 UN Convention on the Law of the Sea that dictates that each nation has the right to drill in a 200-mile economic zone beyond its land borders. The treaty was signed and ratified by all involved nations except the United States which considers the whole region to be international waters, just like the European Union (Nieszporowski, 2012).

According to Dominik Nieszporowski, the chair of the DISEC committee at the Harvard World Model United Nations; “Faced with Canada’s plans to build two military bases relatively close to the North Pole, Russian long-range strategic bombers frequently flying over the area (often shadowed by NATO aircraft), and all surrounding Arctic states expanding their patrols and sending expeditions to find evidence supporting their claim to this territory, the United Nations has to address the issue of military presence in the Arctic” (DISEC, WMUN 2012).
In one of his speeches, Soviet leader Mikhail Gorbachev tackled the arctic issue by saying that “The Arctic is not only the Arctic Ocean, but also the northern tips of three continents: Europe, Asia and America. It is the place where the Euroasian, North American and Asian Pacific regions meet, where the frontiers come close to one another and the interests of states belonging to mutually opposed military blocs and nonaligned ones cross (...). Let the North of the globe, the Arctic, become a zone of peace. Let the North Pole be a pole of peace”.

DISEC extensively debated the Arctic issue on several occasions, and came up with following review. Under the title of “The Militarization of the Arctic: Political, Economic and Climate Challenges”, the published review summed up the issue as follows: “The Arctic region has been emerging as a potential conflict zone since the earliest attempts for its militarization. Despite having gained importance during the Second World War, when the region served as a supply line to the Soviet Union from the Allies, it was only during the Cold War that it gained major strategic importance. The division of the international system in two antagonistic blocs created a competition for strengthening military capabilities in order to succeed in the case of a military threat. Also, the prospects for the development of the region in its economic and energetic facets encouraged disputes over it. For this reason, the Soviet Union, especially, through the creation of the Northern Fleet – aimed to become the basis for Soviet emergence as a naval power – but also the United States, strengthened their positions in the Arctic. Indeed, during the Cold War both states developed military capabilities in the region, among which the deployment of nuclear submarines armed with missiles and the antisubmarine patrol aircraft were the greatest threats.
The projections of climate change have shifted the world’s attention to the Arctic. The region is seen as having great potential mainly because of its natural resources. It is estimated that 13% of world’s oil resources and 37% of its natural gas resources are located in the region (Smith 2011a). With respect to these reserves, about 70% are located in the Russian Exclusive Economic Zone. The resources of the Yamal Peninsula, for example, are already being explored. Beyond that, and of major economic relevance, the progressive thawing may open a maritime transit passageway, the Northern Sea Route (NSR) and the Northwest Passage (NP) due to summer ice melts, priority to the Russian and Canadian governments respectively.” (Ufrgusmun, 2013).

The International Community considers the topic of the militarization of the Arctic to be a very sensitive case of international concern. DISEC’s main aim is to help in taking all necessary measures to ensure that peace prevails in the world, hence the unified portfolio of the members of DISEC encourages all involved parties to pursue the process of disarming the Arctic as this would benefit all nations around the world and would ensure that the world can become a better place.

The Stance of the state of Qatar was widely noted for its efforts in tackling this issue as it tried to champion the idea of complete nuclear proliferation in the Arctic region. On the national level, the state of Qatar was mainly worried about the negative effects that the militarization of the Arctic can have on its own safety. The militarization of Arctic and the creation of military bases would lead to consumption and burning of fossil fuels and emissions of CO₂ gas into the atmosphere. The entrapment of these gases leads to rise of temperature. The rise in temperature, which in turn leads to cracking of icebergs and glaciers will create high risk of breaking off from landmasses and fall into
the ocean (Brain, 2012). Melting of the Arctic sea ice will affect the albedo of the Earth's surface in the Arctic region, leading to less solar energy reflection into space, and absorption by the ocean. The warm water will melt the sea ice, warm the atmosphere above the water and melt the ice sheets on Greenland. Melting of ice sheets will result in an increase in the amount of fresh water in the Arctic Ocean. This will cause the shutdown of the North Atlantic thermohaline circulation and decrease in temperatures ("The Arctic Sea Ice Is Melting--How Long Will It Last?"). If all the ice on Greenland melts, sea level would go up by roughly 7 meters ("Consequences of Climate Change on the Oceans"). This would lead to flooding over the State of Qatar as the land elevation is 6 m over the sea ("environment in Qatar").

On the international level, the state of Qatar stands firm on its position that no military struggle should result from the tensions happening in the Arctic region between the involved parties, as this would only increase the risk of the eruption of a huge war between major powers in which the human race can do without. Qatar was also worried about the increasing arctic nuclear-deployment race as many attack nuclear submarines are already patrolling the area. The use of descriptions such as “Arctic Power” to describe some northern nations will also motivate all conflicting parties to pursue their race to obtain such statuses by all means possible.

The state of Qatar thus recommended all the conflicting nations to resort to the Arctic Council to peacefully settle territorial disputes between them ("Western Militarization of the Arctic"). Qatar also recommended the establishment of the Arctic Nuclear Weapon Free Zone (ANWFZ) in order to secure that the arctic region remains nuclear-free and safe which, in return, will cast its positive outcomes on both the human race and the environment.
The Qatar delegation also helped in formulating a draft resolution which was later turned down after it failed in securing the majority vote.
Safeguarding Nuclear Materials

In 2004, Harvard University established a project on “Managing the Atom” which came up with the conclusion that a terrorist nuclear attack would be almost impossible to take place anywhere in the world, yet a state-funded organization might still be able to smuggle, assemble and even detonate a crude nuclear weapon which could well destroy the center of any major city. The study focused on the “worst case scenarios” that the world might face and concluded that a terrorist organization might be able to detonate a 10-kiloton nuclear device and destroy the heart of a city the size of Manhattan which would instantly result in a $1 Trillion economic loss for the affected state. The other major challenge remains that such organizations might still be able to get their hands on two or more nuclear devices which would also make the mission of tracking them even harder.

According to Dr. Dominik Nieszporowski; “The threat of nuclear terrorism has existed for several decades, but it seems to have significantly escalated in the most recent years. With more countries now having access to the nuclear technology, serious concerns are being raised regarding the level of security of nuclear arsenals and civil storage facilities” (Nieszporowski, 2012).

Just like the Militarization of the Arctic issue, the State of Qatar was also trying hard to push its agenda regarding the safeguarding of nuclear materials subject that was being discussed at DISEC. Qatar was the star in both sessions, but it still failed in passing its formulated draft resolution due to the fact that the major involved nations didn’t share a common ground for negotiation, a thing Qatar was building upon.

The State of Qatar views ensuring the safeguarding of nuclear material and nuclear non-
proliferation as two of the most important policy tasks on both domestic and regional levels. The State of Qatar is convinced that strengthening nuclear safeguards will enhance the relations between countries and promote more trust and cooperation mainly between signatory states of the Non-proliferation Treaty. With the advancement of Science and Technology, more countries possess nuclear materials such as bombs and nuclear power, thus a much stronger control unit is needed from the international organizations in an attempt to control these states.

Due to Qatar’s increasing electric power consumption, the State of Qatar promotes the utilization of alternative energy. Therefore, the state of Qatar has already constructed one nuclear power plant in “Mesaieed” Industrial City that was completed in 2010 and has a capacity of 2000 MW and serves the national grid. But due to the growing population, the state of Qatar faces shortage in electricity. The Qatari “General Electric and Water Corporation KAHRAMAA” is pushing cooperation attempts further by holding talks with Russia regarding the Floating Nuclear Power Plant (FNPP).

According to KAHRAMAA engineer's estimations, Qatar's water demands will double by the end of 2012 to approximately 68,100 cubic meters per day. Qatar needs Two FNPPs, each providing 240,000 cubic meters of water (Johnson). Building traditional nuclear power plants puts Qatar under high risk. The nuclear power plants require safety zones that are impossible for small states such as the state of Qatar to provide.

On November 2nd, 2011 the State of Qatar signed a bilateral agreement with Russia’s “Rosatom” company for cooperation in the peaceful use of nuclear energy. It was agreed that both states will work together on the use of nuclear energy for scientific research, electricity production, desalination plants, and production of radioisotopes for industry, medicine, and agriculture. Under this agreement, the Russian Federation will supply
Qatar with nuclear material and will undertake the education and training of the nuclear power industry personnel as its own duty. ("Qatar and Russia sign up for nuclear cooperation")

The State of Qatar has also signed other international treaties with states besides Russia. The most important are the International Convention for the Suppression of Acts of Nuclear Terrorism (ratified on 16 February 2006), the Comprehensive Nuclear Test Ban Treaty (ratified on 3 March 1997) and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. In addition, Qatar is a signatory party for the non-proliferation treaty thus it is willing to abide by all operative clauses, but reserve the right to use nuclear energy for peaceful purposes ("treaties agreement").

The state of Qatar mentioned that its main concern is the health and security issues which are directly related to radioactive emissions in the Middle East region. Studies show that cancer rates in Al-Khalil (Hebron) area in Palestine are the highest in the region, due to the proximity of the Israeli “Dimona” Nuclear Reactor (Kamel, 165-172). The “Dimona” reactor should be re-equipped with 5 radiation protection barriers, in order to avoid radiation leakage that is causing oncolgy in neighboring areas. Qatar also expressed its concern regarding the process of safe burying nuclear waste underground in special containers in order to avoid radiation leakage and its hazardous effects on both the environment and the human health. The secret nature of the Israeli nuclear program is hiding the real problems emerging from the “Dimona” reactor. Due to its adverse health effects we demand the closure of the reactor, and it asked for the help of the World Health Organization in distributing free Potassium iodine tablets to
citizens of the neighboring areas. The graph below shows that Israel, despite its constant refusal to affirm the already known information, does indeed have a lot of nuclear weapons in its arsenal.

![Graph: Nuclear Arsenals in Numbers of Warheads](image)

**Figure 3: Nuclear Arsenals in Numbers of Warheads**

This Chapter talked about the various ways in which we could prevent further nuclear catastrophes in the future. By focusing on the most challenging issues that are currently facing the International Community, namely the Militarization of the Arctic and the Safeguarding Nuclear Materials, and by singling out the Qatari position on those issues, we formulate a possible work plan for the International Atomic Energy Agency as well as a backbone for a DISEC resolution which would help in successfully dealing with challenges of such a high stake.

The next and final Chapter of this study will look into the future of nuclear energy, as it acts as a culmination of this whole thesis and provides answers for the research question that this paper is trying to tackle.
Chapter 5

The Future of Nuclear Energy: Dreaming of a Better and Safer Tomorrow

Governmental Challenges and How We Can Move Forward

Based on our prolonged study, the United Nations’ records show that more work is needed when it comes to regulating and limiting nuclear activities committed by nuclear states. By not taking enough precautionary measures that could help prevent the formation of new radioactive threats especially after the occurrence of natural disasters (ex: Chernobyl and Fukushima), and with sanctions and bans against illegal nuclear tests still not limiting the number of nuclear detonations happening around the world, an improved revision of the actual work and authority exerted by the likes of the IAEA and DISEC becomes of vigorous importance. The increasing number of warheads and the possibility of assembling a crude nuke by black nuclear merchants; the threat of natural disasters on power plants and the constant danger of dealing with the circumstances of human errors remain the pinnacle of what the core focus of IAEA and DISEC should be.

A new system and set of rules can be adopted by the IAEA and in the Nuclear Non-Proliferation Treaty which could help in:

First: Collecting and analyzing data from all members of the “Nuclear Club of Nations”.

Second: Monitoring all kinds of nuclear-related activities occurring on any position.

Third: Granting the IAEA full authority to execute “security-check” shifts on all sites of
nuclear reactors without prior notice, and to take all necessary action to ensure the safety of the power plants and the areas surrounding it.

**Fourth:** Finding a new radioactive-specialized corps that is trained to deal with nuclear disasters that occur after natural catastrophes in order to contain the damage done by the (possible) leaking reactors (prevention of a new Chernobyl or Fukushima case). The Unit should be present in all nuclear states.

**Fifth:** Amending and ratifying the NPT by adding clauses that prohibit the expansion of scientific research by all nations on the thermonuclear bomb (better known as the Hydrogen Bomb, a much more advanced form of Atomic bomb) by resorting to the regulations of Robert Oppenheimer after the Second World War.
Policy Recommendations

1. A transition to reactors burning only low-enriched Uranium
2. Aid in the form of a bilateral (or multilateral) option to obtain loans guarantees provided by willing states to nations in need of, but unable to afford safe nuclear energy programs;
3. Creating an international donor summit to be held within three years of the passing of any topic-related resolution,
4. Creating an institution framework to support the initiatives proposed
5. Suggesting the creation of a Risk Reduction Center under the IAEA that will help any state to safely develop peaceful nuclear energy by a process of determination of scale, alarm verification, incorporation of safety concerns, and mobilization.

Members of DISEC and the IAEA face many challenges that alter between manageable and almost impossible to monitor and handle. The biggest new threat is the possibility of facing a reality in which terrorist groups acquire nuclear capabilities no matter how weak they actually are. A “dirty nuclear bomb” in the hands of an ISIS-like group could turn out to be devastating; as such a bomb could easily wipe out a city of Chicago’s size all in one go. Another new “forms” of radiation releasing could be executed by small well organized special squads or terrorist organizations; mixing special enriched uranium infused with Sarin nerve gas and releasing it in an “atomic cloud” form could potentially kill many people instantly. The fact that such a combination can evaporate almost instantly in the air makes it an even bigger threat. According to Neurologist Bernard Philips, just like all FODs at the airports (Foreign Object Debris, usually manually removed from the takeoff/landing area at the airports to prevent any possible
disasters) toxic chemical substances should follow an identical procedure. Yet, the very fact that such substances are usually invisible and odorless and extremely hard to trace and track down makes the idea of assembling and then detonating such a weapon almost impossible to avert or stop. As with all challenging cases, the best thing that could be done in this case according to Dr. Philips is to safeguard Chemical warheads and impose very strict measures on all factories dealing with these fragile and dangerous substances in order to avoid a potential catastrophe, a method that could also work with radioactive nuclear elements as well.
Mutual Assured Destruction (MAD)

A military doctrine that focuses on the importance of nuclear deterrence between nuclear states, which practically was the focal point of the Cold War between the United States and the Soviet Union when the fate of the world was hanging by a very thin thread. This doctrine discusses how complete annihilation is unpreventable for both the attacker (preemptive strike) and defender (second retaliation strike). Politically, MAD proved to be the most important doctrine during the Cold War, as not only did it shape the type of relation between the Americans and the Soviets, but rather shaped the whole of International Relations between all the states (take into consideration that a possible nuclear war would definitely lead to an Armageddon). According to American President Jimmy Carter, “To continue to deter in an era of strategic nuclear equivalence, it is necessary to have nuclear (as well as conventional) forces such that in considering aggression against our interests any adversary would recognize that no plausible outcome would represent a victory or any plausible definition of victory. To this end and so as to preserve the possibility of bargaining effectively to terminate the war on acceptable terms that are as favorable as practical, if deterrence fails initially, we must be capable of fighting successfully so that the adversary would not achieve his war aims and would suffer costs that are unacceptable, or in any event greater than his gains, from having initiated an attack” (President Jimmy Carter in 1980, Presidential Directive 59, Nuclear Weapons Employment Policy). The Soviet general military staff also responded by saying that it would be catastrophic for any of the two nations to actually use the nuclear weapons within their arsenal.
Table 4: The Challenges Faced by MAD

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<th>Challenge</th>
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<tr>
<td><strong>Second-Strike Capability</strong></td>
<td>By executing a very expensive plan, nuclear states can constantly deploy air, land and sea forces with nuclear capabilities all around the world in order to retaliate in case of a nuclear attack</td>
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<tr>
<td><strong>Perfect Detection</strong></td>
<td>Detection of a launch could be very challenging due to the fact that nuclear states that share borders (Russia and China for example) cannot be distinguished on regular radars. Heavy Bombers carrying nuclear cargo can never be camouflaged too</td>
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<tr>
<td><strong>Perfect Rationality</strong></td>
<td>The possibility of having a madman or a rogue commander in charge of a nuclear arsenal.</td>
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<tr>
<td><strong>Inability to Defend</strong></td>
<td>No anti-nuclear missile technology/No nuclear bunkers or shelters</td>
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Mutual Assured Destruction was tested more than once during the Cold War in instances where false alarm signals could’ve led to nuclear war between the USSR and the United States. People like Vasili Akhipov and Stanislav Petrov are seen as world saviors and heroes for their ability to act rationally against strict Soviet rules and codes in moments when nuclear all out attacks seemed inevitable. MAD proves how the doctrine of “total war” could be averted by the force of mutual deterrence. On a global scale, deterrence due to fear of complete destruction has always been a promotional target by the IAEA; a point that many anti-nuclear activities rallies and NGOs have stressed on.
Conclusion

One thing is certain, and that is nations won’t suddenly disregard nuclear energy or simply forget that it even exists. Despite all its flaws and the serious danger it can cast on the entire world, nuclear energy remains a valuable global asset, and a vital (and clean) source for energy production. As with every new technological advancement, there comes a series of new challenges; and whilst nuclear energy indeed falls into that category, the challenges that were and still are facing the international community are far more serious and dangerous than anything we as humans have ever faced before. The atomic power present in the world nowadays is enough to destroy the whole globe, and if we just consider the magnitude of the Soviet “Tsara Bomb” which produced a heat wave equivalent to 1.4% of what the sun sends out as heat energy rays, we would understand that leaving the issue of nuclear non-proliferation unresolved would almost certainly come to haunt us back again in the future. The number of unsafe nuclear power plants are increasing, nuclear weapons are all over the world and any one of them could detonate at any second. Terrorist groups like ISIS are trying their best to get their hands on a detonable nuclear device, whilst the IAEA have promised to update its working agenda starting 2019-2020. Up until now, the effort exerted by the likes of IAEA and DISEC didn’t help much in improving the current status of nuclear powers due to their initial capitulation in front of political pressure from traditional “superpowers”. States are still working hard to upgrade nuclear weapons while more and more nations are trying their best to join the “Nuclear Club of Nations”, as such an entry would recognize any country’s potential power and ability to both strike the enemies and defend the homeland. What remains to be seen is whether nuclear states, all nuclear states, would
face international sanctions and be held accountable for breaching the universally acknowledged rules that are there to ensure the prosperity of the International Security, or will the current unstable situation continue, and we risk facing a horrible unexpected new radioactive catastrophe?

Conflicting theories from academics like Waltz and Sagan widens the horizons in which we study, analyze and understand nuclear proliferation in international affairs. Can nations, by stacking up nuclear weapons, prevent the eruption of destructive wars as Waltz’s “more may be better” theory implies? Or should the world head into the “more will be worse” theory presented by Sagan which suggests that nuclear non-proliferation would be the ideal solution for the spread the radioactive weapons that threaten the International Security? Various dynamics of modalities help scholars and scientists tackle the issue of nuclear proliferation in a structural-realist theoretical framework and/or in considering the putatively anarchical character of global politics as a cornerstone for further studies. The study of contentious politics as well as critical security studies will further provide us with answers that can better answer the main question of this paper, and possibly provide a clearer framework for the salvation of humanity.

Nuclear weapons as an “aspiration” for many nations also opens the doors for many questions like: Who is allowed to possess such weapons and who is not? When can the international community intervene and what are is the necessary admission protocol to the Nuclear Club of Nations? Nations with nuclear abilities like Israel solely acted and used force to prevent Arab nations, namely Iraq and Libya, from acquiring nuclear weapons by directly attacking and destroying their nuclear power plants. Israel tried to do the same in Syria and it always threatens to do the same in Iran, clearly favoring and
supporting the idea of military intervention on the expense of diplomacy. Such notions will always exploit gaps in international laws dealing with the issue at hand, and will always prove that as long as the world doesn’t adopt a clear and unified pathway which binds all nations together en route nuclear non-proliferation (whether completely or partially), international security will almost always suffer from a high risk of total chaotic eruption.

International treaties failed on almost all levels. Granted, they managed to marginally lower the number of nuclear warheads, but they never really eliminated their threat nor did they manage to draw a clear line for dealing with aspiring nations, or nations that do not open up about their nuclear programs. Questions will always be asked about how and why International treaties failed in being implemented and imposed on some states like India, Pakistan and Israel whilst they clearly tighten the grip over the throats of weaker states who have the ambition of acquiring nuclear weapons. Why do all powers enjoy some kind of international immunity whereas weaker states are almost always subjected to laws and sanctions? To what extent does politics play a role in identifying who can and cannot be a nuclear state? The inability to provide a proper and clear answer to all those enquiries is an indication that international organizations and committees like IAEA and DISEC failed in tackling and regulating the issue of nuclear proliferation, and that in itself puts the world in a grave danger of a highly possible nuclear apocalypse.

Nuclear energy should never be taken lightly or for granted. The NPT should be respected and the IAEA in particular should be supported on all levels and expanded to be capable to cope with all the emerging challenges of the nuclear world. The structure of all treaties focuses on three main Pillars that act as main objectives: Non Proliferation,
Disarmament and the Peaceful use of Nuclear Energy. These pillars are the pinnacle of the work of IAEA and DISEC; objectives that remain within reach despite all the constant and emerging challenges in the field of nuclear energy.

“Although September 11 was horrible, it didn’t threaten the survival of the human race, like nuclear weapons do” (Stephen Hawking).
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