



## Challenges Faced by the International Atomic Energy Agency (IAEA) Towards Nuclear Non-Proliferation

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### Abstract

This work focused on challenges faced by the International Atomic Energy Agency (IAEA) Towards Nuclear Non-Proliferation. Nuclear weapons were used for the first time in battle at the tail end of the Second World War in 1945. It has succeeded in preventing other countries except for those that have already tested and acquired nuclear weapons from obtaining and proliferating nuclear weapons and the technology to assemble one. This paper examined that the International Atomic Energy Agency (IAEA) is the sole international organisation charged with preventing nuclear proliferation. Focusing on the challenges of the IAEA, the paper finds out that it has not been easy as the IAEA is confronted yearly with dynamic challenges, some of which have threatened the security and stability of the world. The paper, thus, argues that efforts at safeguarding and monitoring the use of radioactive materials by the IAEA are inadequate as some radioactive materials are unaccounted for. The IAEA experiences a lack of cooperation from some countries which have refused access to its nuclear facilities for inspection. Also, the failure by some countries especially the US and Russia, to fully disarm or eliminate their nuclear weapon stockpiles has inadvertently increased the risk of nuclear proliferation and has encouraged some other countries to develop and stockpile their own weapons for defensive purposes. This paper is historical; hence, it adopts a qualitative method of analysis. A useful piece of information was obtained from important relevant documents, reports, and array of secondary sources.

### Keywords:

Challenges, IAEA, Towards, Nuclear, Non-Proliferation.

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## Introduction

Many scholars have, right from the beginning advocated against the use and spread of nuclear weapons. Former United States President Dwight D. Eisenhower delivered a speech title “Atoms for Peace” to the United Nation General Assembly in New York City on December 8 1953. In his speech he said,

I feel impelled to speak today in a language that in a sense is new, one which I, who have spent so much of my life in the military profession, would have preferred never to use. That new language is the language of atomic warfare.<sup>i</sup>

Eisenhower used his speech to argue against the development of nuclear weapons and also to form an international forum whereby the need for the establishment of an agency whose job it is in preventing other countries from developing and spreading nuclear weapons would be resolved. His idea would later form the basis of the origin of the International Atomic Energy Agency (IAEA).

On the work of the IAEA regarding nuclear verification, EL Baradei sees the IAEA as a “watchdog”. The Agency, in its role of verifying nuclear non-proliferation, has been much in the public view, often referred to as “The world nuclear watchdog”. He also says that “given the increasing threat of proliferation both by states and by terrorists, one idea that may now be worth serious consideration is advisability of limiting the processing of weapons usable material in civilian nuclear programmes”.<sup>ii</sup> He also observed that the most dramatic outcome has been the clandestine pursuit of nuclear weapons and nuclear weapons capability by a number of countries, coupled with what has been the emergence of a ‘nuclear supermarket’ – an illicit network of trade in sensitive nuclear equipment and designs.<sup>iii</sup> He says further that “The linkage between non-proliferation and disarmament should be obvious by now. As long as some countries continue to rely on nuclear weapons for their security, others will be inclined to emulate them”.<sup>iv</sup> Mary H. Cooper in her work, “Nuclear Proliferation and Terrorism”, looks at the issue of nuclear proliferation and terrorism. She points out that concern about nuclear terrorism rose to new levels when Abdul Qadeer Khan, the father of Pakistan’s nuclear weapons programme confessed to peddling nuclear weapons technology to some rogue states. Given the grim realities of the post September 11 world, fear of nuclear terrorism has dominated the international community as well as its response to Khan’s revelations. As a result, keeping weapons grade plutonium and Highly Enriched Uranium (HEU) out of hands of terrorist is the only sure way to block terrorist from building nuclear bombs.<sup>v</sup> Leonard S. Spector who argues alongside cooper opines that a ‘dirty bomb’ can be made easily with radioactive materials by terrorists. Moreover, he points out that civilian nuclear waste facilities are much easier to penetrate than weapon facilities.<sup>vi</sup>

The paper is divided into seven parts. The first part is introduction. The second section deals with the theoretical framework on which the work derives its analysis. This is followed by an analysis of nuclear proliferation and terrorism and its threat to global security. The fourth part discusses nuclear instability in South Asia using India and Pakistan as a case study. The fifth part examines IAEA and the Islamic Republic of Iran. The penultimate section looks at the International Atomic Energy Agency and the Democratic Peoples’ Republic of Korea (North Korea). The last part is the conclusion. The argument tends to suggest that nuclear proliferation and terrorism are very deadly and cause serious damage to a country’s socio-political and economic system as well as pose threat to global security and as a result if IAEA is given right kind of support and cooperation, could do better and achieve better results.

## **Theoretical Framework**

The theoretical conception of this work is based on the system theory. System theory basically is a theory in which the world or international community is seen as a system.<sup>vii</sup> According to Joshua Goldstein, one of the proponents of this theory views the world as an international system based on a set of relationships among the world's states, structured according to certain rules and patterns of interactions. Some of such rules are explicit, some implicit. They include who is a member of the system, what rights and responsibilities the members have and what kind of actions and responses normally occur between states.<sup>viii</sup> Going by this view of the world as an international system, then theoretically, this system is divided into sub-system. Each sub-system makes up the complete international system. These subsystems are represented by actors, in this case nation state actors while an international organization, in this case International Atomic Energy Agency (IAEA) represents the main system.<sup>ix</sup>

In system theory, any problem or defect in the sub-system affects the rest of the system as a whole. The nation state actors are members of the IAEA and have decided collectively to abide by its statute in order to protect global security. Going by this analogy of the IAEA being the system or the representatives of their own individual or regional systems, therefore, any problem or potential problem within the various sub-systems would inadvertently affect the general system. The IAEA is an international organization made of states that are member of it. The IAEA of the representative of the international system tries to forestall any problem or breakdown of global security by preventing states, both members and non-members states of the IAEA from proliferating nuclear weapon, then it becomes a problem which will affect the international security (in this case the IAEA) as it would lead to political and military tensions which ultimately, would lead to a breakdown of global peace and security. The IAEA thus tries to uphold the values of the international system through its functions. It also tries to uphold peace and security in the international system.

## **Conceptual Clarification**

This work has some terms which, for some, are scientific in nature and definition. But they could be applied in politics. Some of such terms have now come to take up political meaning and interpretations. Some of such terms are:

**Nuclear proliferation** – Is a term now used to describe the spread of nuclear weapons, fissile material and weapons – applicable nuclear technology and information, to nations which are not recognised as nuclear weapon states by the Nuclear Non-Proliferation Treaty (NPT).<sup>x</sup>

**Radioactive Isotope** – These are atoms of an element which have the same proton (atomic number) but different nuclear (mass) number. In this case their nucleons or atoms are unstable.<sup>xi</sup>

**Radioactivity** – This is the phenomenon characterised by the spontaneous emission of radiation from a substance, in this case an element.<sup>xii</sup>

**Nuclear Energy** – This is the energy released when a nuclear reaction or a radioactive decay occurs. It is characterised by large amounts of energy and heat.<sup>xiii</sup>

**Nuclear Fission** – is the process in which a nuclear bombardment of a nucleus of a heavy nuclide by particles such as neutrons results in the splitting of the nucleus into two smaller nuclei with a release of huge amounts of energy.<sup>xiv</sup>

**Nuclear Fusion** – is the process in which light nuclides combine to give heavier nuclides. Mass is lost in the process and large amounts of energy is released.<sup>xv</sup>

**Highly Enriched Uranium** – This is a form of the element called uranium. In this case an isotope of the uranium atom (Uranium 235) has been enriched. Highly enriched uranium is uranium in which one type of unstable uranium atom, an isotope known as uranium 235 has been artificially concentrated.<sup>xvi</sup>

**Nuclear Safeguard** – This is a set of instrument which the IAEA uses in order to contain the spread of nuclear weapons proliferation and ensure that countries do not expose nuclear installations to great risk. They are essentially arrangement to account for and control the use of nuclear material.

## **Challenges Faced by the International Atomic Energy Agency (IAEA) Towards Nuclear Non-Proliferation**

### **1. Limitations of the IAEA and the Nuclear Non-Proliferation Treaty (NPT)**

The IAEA and the nuclear non-proliferation treaty have no doubt, over the past years achieved success in dealing with and the prevention of nuclear proliferation. However, both the IAEA and the NPT have faced and continue to face several problems and challenges in the course of trying to safeguard world peace and security. These problems and challenges have constituted a cog in the wheel of progress for both the IAEA and the NPT. These challenges have also limited the abilities the abilities of both institutions to work effectively and have caused setback in the fight against nuclear non-proliferation.

For all the NPT's success in containing nuclear weapons, one of its biggest challenges is that it has failed to keep non-signatories and even some "renegade states" that signed the treaty, from pursuing nuclear capabilities. The NPT treaty is the most adhered to treaty in the world with the highest number of signatory states. But only 3 countries in the world namely: India, Israel and Pakistan have not signed it.<sup>xvii</sup> These three countries possess the capabilities to manufacture nuclear weapons and they also possess stockpiles of nuclear weapons. Yet the NPT has failed to persuade these three countries from signing the treaty and has failed in preventing them from pursuing or manufacturing and stockpiling nuclear weapons. India, Israel and Pakistan are the only countries that are non-signatories to the NPT. Even some states that have signed the treaty have pursued a clandestine nuclear weapons programme without the knowledge of the IAEA and the International community as a whole. A good example is Iraq. Almost as soon as it signed the NPT in 1986, Iraq began developing nuclear weapons with help from France and Italy, presumably to counter Israel's nuclear arsenal. Israel destroyed an Iraq reactor in 1981, claiming it was being used to produce fuel for nuclear weapons. Nevertheless, Iraq continued its clandestine programme, without the knowledge of the IAEA. Its nuclear programme was eventually discovered by IAEA weapons inspectors upon entering Iraq after its defeat in the 1991 Gulf War.<sup>xviii</sup>

After the war, USA led condemnation of Iraq's nuclear weapons programme resulted in U.N. sanctions that prohibited trade with Iraq. The sanctions were later eased to allow Iraq to sell a limited amount of oil to buy food and medical supplies. Another NPT signatory, North Korea, considered a 'renegade' state by most countries especially western countries, is considered to pose a far greater risk. It signed the NPT in 1985 but launched a clandestine nuclear programme centred on production of plutonium. Although North Korea insisted that its programme was intended to generate electricity, in 1993 it barred IAEA inspectors from inspecting its facilities precipitating a crisis in the non-proliferation regime.<sup>xix</sup>

Another challenge to the IAEA and NPT in carrying out a non-proliferation regime is the smuggling of nuclear materials to individuals or countries. In 2003, it was discovered that a Pakistani Scientist called Abdul Qadeer Khan secretly sold and smuggled materials capable of being used in making

nuclear weapons to countries like Libya and Iran. The nuclear smuggling network established by Khan demonstrated that proliferation can be actively assisted not only by national governments but also by private, non-state actors and organisations that have access to key knowledge and equipment. It was also discovered that Khan's network established machine shops in Malaysia and perhaps in other locations to manufacture key centrifuge components, making these activities extremely difficult to detect by the IAEA and foreign intelligence services seeking to show proliferation. It is not known whether elements of Khan's network still survives and how many customers may have received copies of highly sensitive documents. These non-state actors are far less visible and can be far more difficult to influence than countries, which can be pressurised diplomatically or threatened militarily, to change their behaviour.

The NPT is further limited by its provisions especially Article X which allows a country to voluntarily leave the treaty if its "supreme interest" is endangered. This article is a major loophole as it allows countries especially countries which may have developed various sensitive nuclear fuel cycle facilities and research reactors under full safeguards. Such countries could utilise and have utilised the provisions of Article X. An example of a country that has utilised Article X is North Korea, which withdraws from the NPT in 2003, thus becoming the first country to ever withdraw from the treaty under the provisions of Article X. The safeguards applied by the IAEA are also inadequate as it does not cover or affect nuclear facilities of states that are not signatories to the NPT and thus pose proliferation risks. The IAEA has also not being able to persuade, the major powers of the world that possess nuclear weapons stockpiles, to dismantle their existing nuclear stockpiles. This has led some other countries to aspire to develop their own nuclear weapons capabilities for their own self defence against perceived aggressive states and their aggressive policies. Finally, funding the IAEA has been problematic as it has not been able to operate as effectively as it should because it is inadequately funded and thus limiting its effectiveness.

### **Secret Nuclear Activities**

There growing numbers of cases in which countries have pursued secret activities that violated the NPT and were not detected by the IAEA. In early 2002, for example, the international community first become aware that Iran was pursuing a major uranium enrichment programme, including a pilot enrichment facility, a gas centrifuge manufacturing plant, an early construction of a large scale enrichment plant.<sup>xx</sup> In 2004 Libya's secret acquisition of uranium gas and a portion of the equipment for a similar gas centrifuge facility was also revealed. Similarly in 2004, South Korea's previous experiment with laser isotope enrichment came to light. In that same year (August, 2004), South Korea announced that in 2000, the Korea Atomic Energy Research Institute had conducted uranium enrichment without the governments' knowledge which should have been reported to the IAEA. It later emerged that experiments on uranium and plutonium separation had also taken place about 25 years ago. The IAEA Director General reported these findings to the Board of Governors in November 2004, expressing serious concern with the failure to report such undeclared activities, but underlining that there were no indications that these concerns with regard to failures to report information under South Korea's safeguards agreement with the IAEA.<sup>xxi</sup>

In a similar development, the Libyan government in December 2003 informed the IAEA that it had been conducting a clandestine nuclear weapon acquisition programme and asked the Agency to verify its dismantlement. Later in February 2004, the IAEA Director General reported that Libya, over an extended period of time, had secretly pursued a nuclear weapons programme and had failed to report nuclear material, facilities and activities, including such related to uranium enrichment. He characterised Libya's breach of its safeguards obligations, and its acquisition of nuclear weapon design and fabrication documents as a matter of utmost concern. According to Libya, a foreign expert

(A.Q. Khan) had helped the country gain experience in the design and operation of centrifuge equipment in the 1980's and in 1995 Libya made a strategic decision to pursue gas centrifuge enrichment technology.<sup>xxii</sup>

These clandestine activities of Libya have shown that the IAEA's analysis of Libya's nuclear programme had brought to light a covert network through which Libya and other states gained access to nuclear technology and knowhow.

South Africa also had a similar clandestine nuclear weapons programme which it built and developed between 1979 and 1989. It then dismantled and destroyed its nuclear weapons. North Korea secretly began developing nuclear weapons in 2002 after the US cancelled an earlier agreement in which the US agreed to supply oil as aid in return for North Korea's halting or freezing of its nuclear programme. When the IAEA and the rest of the international community became aware of its activities, it threatened to and did withdraw from the NPT.

## Conclusion

The International Atomic Energy Agency (IAEA) has so far, been able to curtail the spread of nuclear weapons proliferation. Through its safeguards and verification programme, a lot of countries have abandoned the quest to acquire nuclear weapons. Many countries have instead opted to use nuclear power to generate electricity and for carrying out research on medical, agricultural and industrial uses.<sup>xxiii</sup>

Nuclear terrorism is a serious issue besides nuclear proliferation which needs to be tackled with a sense of urgency. Since the September 11 attack on the US in 2001, terrorist have sought to acquire nuclear weapons or the technological know-how needed to make a nuclear bomb. A grim scenario would be a terrorist organisation like Al-Qaeda possessing a nuclear bomb. This seems to be the ultimate aim of Al-Qaeda and other such likeminded terrorist group. Still, IAEA Director-General, Mohammed El Baradei paints a grim picture of the future of nuclear non-proliferation and calls for a revolutionary overhaul of international systems and policies to prevent nuclear terrorism.<sup>xxiv</sup> In conclusion, the IAEA and its efforts at nuclear non-proliferation need to be better supported and equipped to face the arduous challenge of keeping the world safe from nuclear weapons. Through mutual co-operation and dialogue, the IAEA would be in a better position to encourage countries to resist the temptation of making nuclear weapons in order to ensure global peace and security. September 11 has given a new sense of urgency to a danger that the world has been concerned about for some time and in that sense it provide an opportunity. The scope of these attacks has underlined the need for countries and the IAEA to take vigorous action now to end the possibility that terrorist groups or rogue states could launch even more devastating attacks in the future.<sup>xxv</sup> Proliferation of nuclear weapons and missiles is an urgent and profound threat to the security of all state and it requires urgent action. All states should elevate security against nuclear weapons and other weapons of mass destruction and missile proliferation to an overarching imperative that trumps other, secondary considerations.<sup>xxvi</sup>

Chukwu opines that States should increase the effectiveness of their export control systems and assist other states in the same end.<sup>xxvii</sup> The loopholes in the NPT should be closed or amended and only countries which are signatories of the NPT's Additional Protocol should be allowed to import equipment for civilian nuclear reactors. Non-proliferation initiatives such as the Proliferation Security Initiative (PSI) should be improved upon and expanded to allow more countries to participate in it. Research into the peaceful application of nuclear energy in the fields of medicine and agriculture should continue. Also, less developed countries of the world should be allowed to benefit from this. The best way to defeat a man in a battle is to cripple his economy.<sup>xxviii</sup>

The economy of the less developed countries can be boosted when allowed to participate in research into the peaceful application of nuclear energy in the fields of medicine and agriculture. Finally, it is recommended that countries being investigated for alleged NPT violations should be barred from holding positions of influence in the IAEA. Moreover, countries which possess nuclear weapons like the USA, Russia etc., should disarm stop, gun-boat stratagem and engage in disarmament negotiations to ensure cooperation, equity as well as security.<sup>xxix</sup> With the foregoing done, the called for the globalization of worldwide security to prevent nuclear proliferation and terrorism shall be greatly, realised.

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