INTERNATIONAL REGULATORY MECHANISMS AND THE CHALLENGE OF NUCLEAR TERRORISM, 1998-2012

BY

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A THESIS SUBMITTED TO THE DEPARTMENT OF POLITICAL SCIENCE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DOCTOR OF PHILOSOPHY (Ph.D) IN POLITICAL SCIENCE (INTERNATIONAL RELATIONS)

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A Thesis by ILOABANAFOR, TOLLEFE OLISAEMEKA (PG/Ph.D/07/43362). has been approved for the Department of Political Science, Faculty of the Social Sciences, University of Nigeria, Nsukka.

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DEDICATION

TO:

My father, late Chief Robert Evugburuonwu Iloabanafor (Ozogoro) and my mother, Mrs. Karujebe Caroline Iloabanafor (Otugo). Father and mother, I owe all to your love for education and success.

TO:

Valerie ónma Iloabanafor
Phina Nwando Iloabanafor
Chinweuba Ositadinma Illoabanafor
Glory Ndubunma Kalu
Nnenna Maami Jennifer Iloabanafor
Ifeyinwa Aretha Iloabanafor
Ijeoma Assumpta Iloabanafor
Ifemjika Bertrand Iloabanafor

AND THE EVERGREEN MEMORY OF:

Chief Igboekwe Kevin Onyebueke (Ajike)
Chief Eligba Onyebueke (Agunaecheibe)
Ozo James Onyebueke
Mrs Ahiachi Rebecca Onyebueke (Nmonwu Oluoha)
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Mr. Augustine A. Iloabanafor (Captain Blood)
Miss Ndidi Onyechere
Mr. Henry Onyebueke
Mr. Maduekwuriche Onyebueke
Mrs. Uchenwa Roland-Chukwuezue
Captain Ferdinand O. Iloabanafor (Wagger-Wagger)
Captain Dominic Ebube Nwankwo (Tall Trouble)
Mr. Ngbodile Elvis Iloabanafor
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LIST OF ABBREVIATIONS/ACRONYMS

Al Qaeda- The Base

AQIM - al-Qaeda in the Islamic Maghreb

ASEAN- Association of South Asian Nation

ASG - Abu Sayif Group

AU - African Union

BHR - Blast, Heat, Radiation

CIA - Central Intelligence Agency

C.I.S. - Commonwealth of Independent States

CSIS - Centre for Strategic and International Studies

CTBT - Comprehensive Test Ban Treaty

DPRK - Democratic Peoples Republic of Korea

ECOWAS- Economic Community of West African States

EDC - Economically Developed Country

ETA - Euskadi Ta Askatasuna (Basque Fatherland and Liberty Group)

FARC - Revolutionary Armed Forces of Colombia

FDI - Foreign Direct Investment

FIS - Islamic Salvation Front

GIA - Armed Islamic Group

GIS - Gruppi di Intervento Speciale

GITMO- Guantanamo Bay Detention Centre

GWOT- Global WarôOn Terror

HAMAS Islamic Resistance Movement

HEU - Highly Enriched Uranium

HIZBOLLAH - Party of God

IAEA - International Atomic Energy Agency

ICC - International Criminal Court

IED - Improvised Explosive Device

IRA - Irish Republican Army

IT - Information Technology

JI - Islamic Jihad

KGB - Committee for State Security

KMM - Army of Muhammed

LDC - Less Developed Country

LRA - Lordôs Resistance Army

LTTE - Liberation Tigers of Tamil Eelam

MAD - Mutually Assured Destruction

MNC - Multi National Corporation

MUF - Material Unaccounted For

n.d.- no date of publication

NATO - North Atlantic Treaty Organisation

NEST - Nuclear Emergency Search Team

NGO - Non-Governmental Organisation

NIA - National Intelligence Agency

NNWS- Non-Nuclear Weapons State

NPT - Nuclear Nonproliferation Treaty

NWS - Nuclear Weapons State

OAS - Organisation of American States

OPEC - Organisation of Petroleum Exporting Countries

PKK - Kurdistan Workerôs Party

PLO - Palestine Liberation Organisation

PNC - Palestine National Council

PNE - Peaceful, Nuclear Explosives

PU	-	Plutonium
R & D	-	Research and Development
RANSAC	-	Russian-American Nuclear Advisory Council
RMA	-	Revolution n Military Affairs
ROE	-	Rules of Engagement
SALT	-	Strategic Arms Limitation Talk
SIE	-	Speciaa Interventie Eskadron
SIPRI	-	Stockholm Peace Research Institute
SSNM	-	Strategic Special Nuclear Materials
SWOT	-	Strengths, Weakness, Opportunities, Threats
TCO	-	Transnational Criminal Organisation
TNC	-	Trans National Crime
UNSCOM		United Nations Special Commission
US	-	United States of America
USSR	-	Union of Soviet Socialist Republic
WEC	-	World Energy Council
WMD	-	Weapon of Mass Destruction
www	-	World Wide Web

ABSTRACT

Many strategic experts aver that in the 21st century, the most threatening phenomenon to civilization is nuclear terrorism. The study examined this challenge against the background of a global nuclear renaissance, with corresponding dangers to the security, stability, and peace of the globe. We had subjected to scrutiny two pivotal international regulatory mechanisms - the IAEA, and the NPT - put in place to check the spread of nuclear weapons and by extension nuclear terrorism. We had posed three research questions as follows: (1) Do the statutory provisions of the International Atomic Energy Agency (IAEA) undermine its enforcement capacity against nuclear terrorism? (2) Are there impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty (NPT) to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology? and (3) Do the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security? We adopted two theories - the theory of power politics, and the theory of discontent and frustration - to aid the analysis of generated data. Being a qualitative and non-experimental research, we adopted the observation method of evaluating extant literature, and the explanatory single case ex-post facto design, which expressed itself in a Logical Data Framework. We found, that indeed, (1) the statutory provisions of the International Atomic Energy Agency (IAEA) undermined its enforcement capacity against nuclear terrorism; (2) there were impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty (NPT) to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology, and, (3) that the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a treat to global security. The findings would have immense strategic implications, especially in this era of globalization. We, consequently, made recommendations, with emphasis on the restructuring of the UN, especially in relation to the greater empowerment of the IAEA and NPT to enable both to become more effective as international regulatory mechanisms in the fight against nuclear terrorism.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The emergence of the nuclear age on a military note in 1945 revolutionized warfare and life in general, and established the issue of atomic control as a lingering global strategic concern. Since then, however, nuclear proliferation has advanced from vertical nuclear proliferation, through horizontal nuclear proliferation to the contemporary global nuclear renaissance which has largely and perilously popularized and deregulated nuclear technology. This paradigmatic shift in energy choice has created a thriving global plutonium economy and nuclear black market, and also enlarged the contemporary nuclear proliferation list of concern to include the terrorist. In the contemporary age of terrorism, strategic attention has logically been drawn more to the challenge of nuclear terrorism as a critical issue with many strategic experts asserting conclusively that only a firm atomic control capable of denying terrorists nuclear capability suffices to contain the challenge of nuclear terrorism. Nuclear terrorism, the threat or actual application of nuclear technology in the conduct of terrorism, has entered the strategic lexicon and according to strategic experts constitute the greatest threat to global security especially in the 21st century (Barnaby, 2007: Allison, 2004; Ferguson and Potter, 2004). Thus, tackling the challenge of nuclear terrorism through a firm atomic control was the theme of both the April 2010 Nuclear Security Summit in Washington DC, USA, and the subsequent March 2012 Nuclear Security Summit in Seoul, South Korea. For global atomic control, however, the world to a very large extent still rely on the effectiveness of two international regulatory mechanisms under the auspices of the United Nationals (UN), *videlicet,* the 1957 International Atomic Energy Agency (IAEA) and the 1968 Nuclear Non-Proliferation Treaty (NPT).

The foregoing international nuclear regulatory mechanisms are today challenged by the contemporary global nuclear renaissance and the tilt toward sophistication discernible in contemporary global terrorism aptly termed postmodern terrorism which is characteristically noted for mass destruction. Furthermore, recurrent and persistent global energy crisis has created an understandable resurgence in the frantic quest for dual-use nuclear energy fundamentally as a panacea to the daunting externalities and uncertainties discernible in other energy sources. Of utmost strategic concern, however, is that evidently many of those actors pursuing nuclear technology are doing so with a clandestine view to manufacturing nuclear weapons, and not necessarily for civilian applications as permitted by the charters of two international regulatory mechanisms: the IAEA and the NPT. Most of these actors are from the Global South with a plethora of failing and failed states. This trend termed nuclear renaissance has in exchange with a zero-carbon nuclear energy created a more strategically worrisome and thriving global plutonium economy at a very strategically challenging time when international terrorism is snowballing in sophistication, cadred by creative and dedicated micro actors and mercantilist ñholy warriorsò of nihilistic and apocalyptic bent.

Contemporary terrorists enjoy three challenging factors: cadred by hard-to-detect micro actors leveraging advanced technology and the tools of globalization, rare sophistication, and an overlapping with transnational crime (Nemtsova, 2010; *Country Reports on Terrorism*, 2005/2006). There exists a symbiotic relationship between terrorism and transnational crime (Baker, 2009). Southwell (2002) observes that transnational crime constitutes a threat to global security, safety and stability through; the trafficking of arms and weapons of mass destructioné He concludes that ñOne further catastrophic side effect of international criminal activities has been the expansion of terrorist activitiesò (Southwell, 2002:4). Thus, nuclear renaissance, if unchecked, is bound to be leveraged by contemporary

terrorists. Sopko (1996-97:3), observes that ñPreviously distinct issuesï proliferation, terrorism, arms control and organized crime ï are mergingé ò

Knoke (1996:218) notes with apprehension that:

> Even plutonium, the most toxic chemical known to man, is entering the Age of Everything ï Everywhere. International authorities are simply unable to plug every possible leak from among a thousand nuclear sites around the worldé Terrorist organizations *already have* significant plutonium because it has turned up in government raids.

Dickey (2006 ï 2007:74) also captures the frenzy of contemporary nuclear renaissance and asserts that:

> Not every country has nuclear energy or nuclear weapons, but many are headed toward the former, and some still habour dreams of developing the latter. As of 2005, there were 31 nations with 443 reactors in operation; nine countries are now known to have some version of ñthe bomb,ò and dozens more have the power to become what analysts call ñvirtual weapons states.ò The distinction between the sword and the plow is getting ever harder to make. Yet from Washington to Melbourne, Hanoi to Pretoria ï even in sunny Central America and the Caribbean ï there is talk of a ñnuclear renaissanceò that will somehow meet the demands for global energy while helping to reduce the threat of global warming.

Underhill (2006 ï 2007) talks of a resurgent interest in nuclear power, including fission research, as energy prices rise and supply concerns intensify. Peden and Hill (2006:16) asserts that ñIn fact, todayôs world is undergoing a nuclear-weapon renaissance.ò Thus, contemporary global nuclear renaissance, the apex of manôs search for alternative efficient quantum energy to address lingering global energy crisis and containing global warming via the zero-carbon emission of nuclear energy highlights and buttresses the ultimate price of energy in all facets of existence. *The Bulletin of Atomic Scientists* journal cited in *The Watchtower*, (August 1, 2010:3-4) posits that ñThe danger posed by climate change are nearly as dire as those posed by nuclear weaponsò. Thus the choice of nuclear energy as a

panacea to the externalities of the carbon-based energy constitutes a Faustian bargain at best with unraveling and looming strategic consequences.

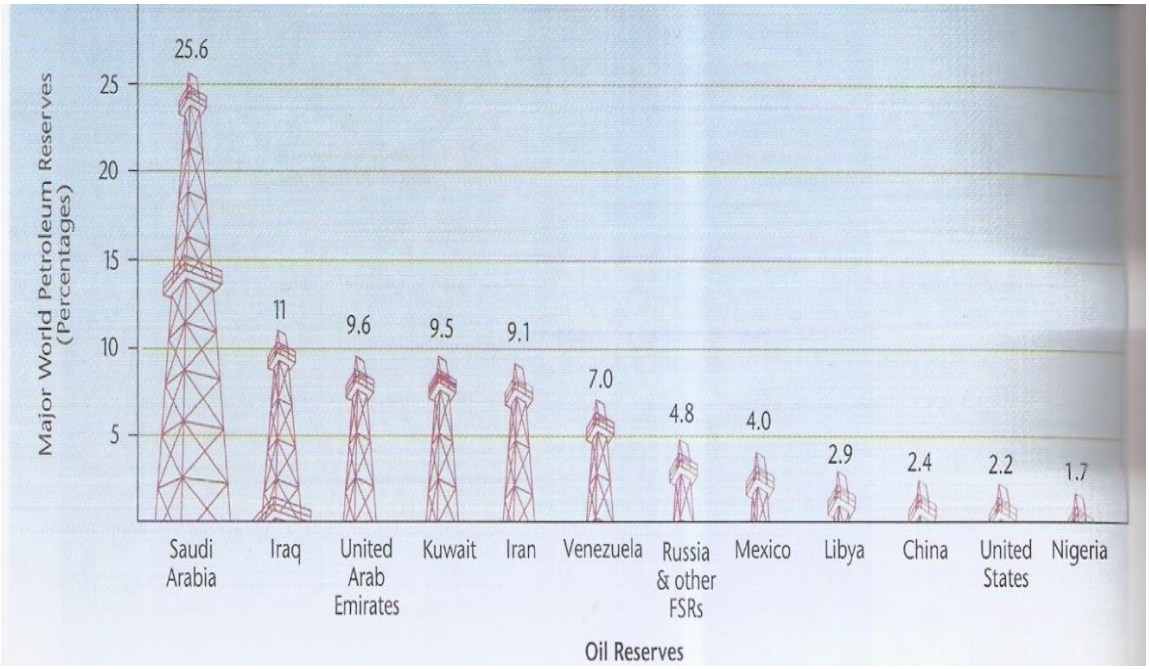
Energy, however, forms the crux that differentiates development from underdevelopment; advancement from retardation, and sophistication from vulnerability. A nation that suffers persistent energy crisis could be verifiably deemed a nation on a backward march to the Stone Age. Energy forms a pivotal parameter for the classification of nations on the developmental scale. This holds true because all other developmental strides depend, on a societyôs efficiency vis-à-vis the efficient extraction, processing, storage, transportation and consumption of energy. The preservation and survival of society to a very great extent depends on its relationship with energy. Dorf (1978:17) highlights the indispensability of energy thus:

> The ability of government to make and implement decisions to preserve a society is also a function of the energy supply available to that society. With limited amount of energy, cultural and economic development can progress only to the limits of the efficiencies of the tools and machines used by a civilization. Past civilizations progressed rapidly after learning to harness a new energy source; then they reached a plateau where they marked time until some new ways was found to harness additional amounts of energy per capita per year.

Before the nuclear age, man has in his battle against the debilitating vagaries of the elements relied and still to an appreciable extent rely on some energy sources that in terms of efficiency are no match to nuclear energy. These sources included and still include wood, oil, gas, hydro, solar, geothermal, natural thermal gradients, wind, tidal, and ocean and stream currents, among others. The contemporary tilt toward nuclear energy remains a Hobsonôs choice as we are apprehensively weaned from carbon-based fossil energy to stem terminal challenges such as global warming and climate change. The externalities of nuclear energy remains very daunting. However, in this scheme of energy issues, the Third

World or the Global South remains behind in energy sourcing, acquisition and utilization. However, in relation to nuclear energy, the Global South, with its established worrisome security status, leads in the quest for nuclear energy in the contemporary era (Rourke, 1999; Chowdhuri, n.d.). This is against the paradoxical background that in fossil energy, for example oil, the Global South holds 81% of known global reserve as shown in Figure 1.1 below.

Figure 1.1: World Petroleum Reserves



Source: Rourke, (2001) p. 418

Yet there exists an imbalance against the Global South in energy consumption or utilization. Dorf (1978:3), for example, acknowledges that,

> An imbalance of energy consumption exists within the world. Less than 50 percent of the worldôs population consumes close to 90 per cent of its commercial energy: this is a major reason for the great chasm between the industrialized and the underdeveloped nations. The United States itself consumes approximately one-third of the worldôs energy, though it has only about six per cent of the worldôs population.

Table 1.1 below shows the globeôs energy patterns of production and consumption which has not changed much over time with the global North still lading the rest:

Table 1.1 Global Energy Production and Consumption, 1981

Country or Region	Population Percentage of World	Percentage of consumption
United States	23	28
USSR	22	18
Arab OPEC	13	1
China	11	7
Western Europe	9	17
Latin America	7	4
Africa	6	4
Eastern Europe	5	9
Canada	3	3
Japan	0	5

Source: *UN Statistical Yearbook*, 1981 (New York: United Nations, 1983).

Against this lopsided energy background, however, energy crisis remains a global phenomenon plaguing both the advanced global North as well as the underdeveloped debt-ridden global South in the same vein. Table 1.2 provide statistics on debt owed by the Global South in relation to the cost of its servicing.

Table 1.2: Debt in the Global South, 2006

	FOREIGN DEBT		ANNUAL DEBT SERVICE	
Region	**Billion $**	**% of GDP**	**Billion $**	**% of Exports**
Latin America	750	27%	190	29%
Asia	900	20	110	6
Africa	250	26	40	10
Middle East	250	20	30	4
Total South	2,150	26	370	12

Source: *IMF Statistical Appendix to World Economic Outlook,* September, 2006, pp 530-531. as cited in Glodstein and Pevehouse, 2008.

However, the search for alternative energy with optimal efficiency has always pointed to nuclear energy. Thus nuclear technology has consistently featured as the *sine qua non* breakthrough in manôs search for the ultimate panacea to the contemporary energy crisis. This drive is informed by the imperative of embracing efficiency at least in the short term, given that all energy sources have their utility as well as residual limitations and daunting externalities in the same vein. Thus, since the nuclear breakthrough of 1945, the global quest for nuclear energy, civilian and military, and the spread of the same, have come of age in three stages ï vertical proliferation, horizontal proliferation, and the contemporary nuclear renaissance. This quest has attained a critical mass in nuclear renaissance which constitute the zenith of spread or proliferation of nuclear know-how. This laissezï affaire tilt according to experts, has highlighted the threat of nuclear terrorism (Budiansky, 1992).

Nuclear renaissance is powered by two pivotal factors: the insidious desire to acquire nuclear weapons, as well as nuclear energy for sundry civilian applications. Of these civilian uses, the summit is occupied by the issue of electricity generation. This unfortunately constitutes the handy smokescreen used to conceal actual nuclear weapons programmes. Furthermore, we need to evaluate the intractable issue of global warming occasioned by an apparent overdependence on energy generated via the burning of fossil fuels. This gives rise among others to the problem of carbon emission. Thus, on the appreciation of the imperative of combating global warming, many actors have re-evaluated their energy policies in favour of nuclear energy even after terminal Chernobyl nuclear accident of 1986 in the then USSR, and now in Ukraine. This entailed playing down on the use of fossil fuel with its attendant carbon emission and highlighting nuclear energy with its zero-carbon emission. Barnaby (2009: vii) evaluated this trend prognostically and asserts that:

> Because of concern about global warming and the security of energy supplies, many countries are currently re-evaluating their energy policies, many will opt for the construction of new nuclear power reactors to generate electricity, in a so-called nuclear renaissance. The world will move into a plutonium economy in which large amounts of plutonium will be separated from spent nuclear power reactor fuel elements, and that plutonium is useable for the fabrication of nuclear weapons. Terrorists will be increasingly able to steal, or otherwise illegally acquire plutonium to fabricate nuclear-weapons. The prospect of nuclear-armed terrorist groups is an awesome one.

Nuclear renaissance as a phenomenon has actually come to stay. Grunwald (2009:26) optimistically, however, consoles that ñA nuclear renaissance still might make sense if it could save the planet.ò It is no longer a secret that many actors in the charged international system have nuclear know-how, while equally worrisome others are at various and varied stages of acquiring the know-how. We are now, thanks largely to globalization, in information-driven global era where diffusion of information and knowledge moves at the speed of light. This constitutes a far cry from the early stage of the nuclear age. At this age, (1947-1949), it was a comfortable vertical proliferation with only two nuclear superpowers ï the United States of America and the then Union of Soviet Socialist Republic (USSR). In the spirit of the Cold War (1947 ï 1989) both powers tried to outpace each otherôs volume and destructive capability of nuclear weapons. They were both deterred by sundry strategic factors: MAD, second strike, and first strike concepts.

The entrance of Britain and France into the nuclear club marked the commencement of the horizontal proliferation of nuclear weapons and know-how. This simply means the spread of this strategic challenge to more actors. In the case of vertical proliferation we witnessed the competitive thrust of two actors ï the US and the USSR ï vying for numerical superiority and killing capacity of their nuclear-related weapons. In the case of horizontal proliferation, we see the same contest involving more actors wielding the same

lethal capacity. The detonation of nuclear weapons by China on October 14, 1964 marked the commencement of the contemporary snowballing nuclear renaissance. Since then many actors have acquired nuclear weapons and know-how. Nuclear black markets abound in the international system also shared with sophisticated contemporary fundamentalist terrorists bent on acquiring nuclear weapons. This informs the apprehension and reservations strategists have expressed over time vis-à-vis the challenge of nuclear terrorism. These reservations are most of the time dismissed as futuristic worries by many scholars and policy makers who think that the attendant sophistication of nuclear know-how is beyond the capability of contemporary terrorists dotting the global strategic landscape.

Against this worrisome background of contemporary nuclear renaissance exists a strategic debate over the challenge of nuclear terrorism. Many scholars still believe that the deterrence of the Cold War (1945-1989) still holds true against terrorists that may fancy going for the application of nuclear weapons in asymmetrical warfare. Others insist, however that such deterrence cannot apply in the case of terrorists who they, for example, pointed out have no verifiable and reliable identity, territory and return addresses. Furthermore, they point out that the terrorist have nothing to lose, pointing out that in the case of suicide terrorism, for instance, actors sacrifice their own lives. Also in the same vein, they pointed out that the terrorist have no stake in the international system such that he is bound by common sense and sense of belonging to work for its peace and stability in the form of nuclear terrorism. Goldstein and Peavehouse (2008:200) buttress the foregoing by asserting that ñTerrorists are more willing than states are to violate the norms of the international system because, unlike states, they do not have a stake in that system.ò Terrorism as asymmetrical warfare worrisomely has no established and binding ROE as the conventional version reckoned by the Geneva Convention on the conduct of warfare and the treatment of POWs and wounded and surrendered combatants (Phillips et al, 1991).

In the interim, this debate gathers momentum and goes on in the same vein as the contemporary nuclear renaissance and snowballing international terrorism which are bound to attain a critical mass in nuclear terrorism. Thus, discernible is the fact that the two symmetrically strategic issues ï nuclear renaissance and international terrorism- loom large on the global strategic radar as the most threatening phenomena capable of compromising global peace and stability. More worrisome, however, is the inevitable convergence of these factors due to manifest in the possible acquisition of nuclear capability by contemporary terrorists. This trend on realization constitutes nuclear terrorism ï the dreaded apex of terrorism. It is so because nuclear science and technology is now almost an all-comers game under contemporary nuclear renaissance. Kaarbo and Ray (2011:247), for example, in relation to nuclear terrorism observes that, ñin the end, perhaps, what is most worrisome about international terrorism in the contemporary era is its potential for wreaking massive havoc and suffering with nuclear weaponsé ò

It is against the foregoing daunting strategic background that the challenge of nuclear terrorism should be evaluated. This is so because nuclear renaissance has begotten a more worrisome global plutonium economy that has added to the myriad of challenges to global peace and stability. Terrorists are relentlessly and verifiably searching for nuclear capability and definitely not with a view to generating electricity as North Korea touted or Iran with a view to producing medical isotopes vis-à-vis its own hitherto clandestine nuclear programme. What is clear, however, is that when the dot created by horizontal nuclear proliferation, which has attained a critical mass in contemporary nuclear renaissance, and contemporary international terrorism is connected, discernibly visible on the global strategic radar is nuclear terrorism. In the light of foregoing, therefore, it suffices as this studies has set out, to subject the international regulatory mechanisms primed and currently relied upon to contain nuclear terrorism through atomic control to a thorough

scrutiny. This simply entails evaluating the adequacy or otherwise of the IAEA and the NPT as atomic-control mechanisms and highlighting its implication for global security. This is timely as Barnaby (2007:93) warns accurately that ñControlling climate change while minimizing the risk of nuclear terrorism is a crucial balance to strike.ò This strategic challenge of nuclear terrorism, experts insist, must be faced as the alternative remains too horrifying to contemplate (Powell, 2006; Yuter, 1974; Boot, 2004; Smiley, 2004).

1.2 Statement of the Problem

The attainment by man of the scientific and technological capability of manipulating the atom via fission and fusion to generate quantum energy for civilian and military uses remains a breakthrough of immense proportion. This breakthrough came in 1945 during the waning days of the Second World War (1939-1945). Then the US reduced two Japanese counter- value targets ï Hiroshima and Nagasaki ï to rubbles on the 6^{th} and 9^{th} day of August, 1945 respectively. That changed the face of energy, warfare and indeed life as it was hitherto known. It constituted a technological change, shift and advancement with strategic implications. However, the most worrisome of these strategic implications remains the relationship between this technological change and the conduct of warfare especially its asymmetrical version ï terrorism ï which is of utmost concern to contemporary scholars, policymakers and global citizens desirous of a peaceful and stable globe. This is more so now that terrorists have evidently made the global nuclear proliferation list of concern.

In contemporary nuclear renaissance we see nuclear proliferation taken to the hilt. This triumph of nuclear energy on the global scale of preference, especially in the volatile Global South, constitute a quantum technological leap and profound change with established as well as potential strategic implications. Ray Kurzweil, however, highlights the dangers of technological innovation by observing that:

> Technology is a double-edged sword. New technologies can be used for destructive purposes. The answer is to develop rapid-response systems for new dangers like a bio-terrorist creating virus. We donôt have to just sit back and wait (*Time*, December 6, 2010:6).

Viotti and Kauppi (2009) were apt in highlighting this strategic perspective with its far-reaching global implications and application by observing that throughout history changes in technology have affected how warfare is conducted. The hunch here is that the aforesaid concerns warfare in general. This also concerns its asymmetrical version ï terrorism ï which constitutes the thesis of my discourse. The picture created by evolving trends in contemporary international terrorism, especially its growing sophistication, points to the inevitable symbiotic convergence of the nexus of nuclear renaissance and international terrorism. The contemporary nuclear renaissance, the apex of nuclear proliferation, is bound to have effect on how even asymmetrical warfare ï terrorism ï with its flipside of ñwar on terrorò is henceforth conducted.

Thus, since throughout history changes in technology have affected how warfare is conducted, we decided to appraise this contemporary global nuclear renaissance and atomic control mechanisms as they affect a shift in technological tools available in asymmetrical warfare: terrorism. We set out to evaluate the effects, nuclear technology has on the conduct of warfare, especially the worrisome and evasive asymmetrical version ï terrorism. We are thus out to evaluate the adequacy or otherwise, of the IAEA and the NPT regulatory mechanisms in containing the challenge of nuclear terrorism which is a strategic fallout of nuclear renaissance and terrorism through atomic control. Our emphasis is on the globe to see what implications they have for global security. This is principally because the globeôs strategic landscape especially in the contemporary era is very daunting, and the volatile Global South is paradoxically and perilously leading in the frantic quest for nuclear energy under contemporary global nuclear renaissance (Rourke, 1999). Furthermore, terrorism is

thriving especially in the Global South which in terms of origin arguably accounts for more than 90% of the globeôs active lot in the contemporary era of megaterrorism. Africa, in the contemporary era remains a poor failed continent prone to schism without the requisite indispensable homeostatic stabilizer. Nigeria has a robust nuclear programme and challenge of snowballing megaterrorism which trends suggest is bound to metamorphose into nuclear terrorism especially when the apocalyptic resoluteness of Nigeriaôs contemporary terrorists is factored in and contextually evaluated (McDougall, 2012).

Many scholars and researchers have over time conducted a triage with a view to ascertaining the most pressing challenges to global peace and stability. Nuclear terrorism has always featured top on all strategic lists. Researchers, it appears, have always neglected nuclear terrorism as a real threat to global peace and stability. Many strategic experts assert that nuclear technology is beyond the grasp of terrorists who, it is erroneously figured, lack the requisite sophistication to access nuclear know-how especially against the background of the bulwark of atomic control provided by the IAEA and the NPT. The researcher on discovering this research lacuna decided to investigate with a view to unraveling the strategic challenge of nuclear terrorism. This investigation is primarily premised on evaluating the adequacy or otherwise of the two international regulatory mechanisms ï the IAEA and the NPT- put in place to contain nuclear terrorism through atomic control. Many researchers have carried out studies on both nuclear proliferation and terrorism. These studies highlighted the strategic threats discernable from a non-curtailment of activities pertaining to the aforesaid phenomena. I however, discovered a research lacuna in the fact that the works I studied failed to factor in the issue of nuclear terrorism into the equation of contemporary threats to global security and stability especially under globalization. They failed to appreciate or factor in the enormity of fillip globalization has availed terrorism and nuclear proliferation of. Most dismissed the threat of nuclear terrorism as alarmist. There

reservations were hinged on the assumption that the attendant sophistication associated with nuclear science and technology comfortably places its terminal acquisition and application beyond the globeôs contemporary terrorists. They also highlight the presumed adequacy of the aforesaid two international regulatory mechanisms to preemptively contain nuclear terrorism through an effective atomic control.

However, contemporary trends associated with terrorism points in the opposite direction to the effect that terrorists are bent on going nuclear and that the issue of atomic control by the IAEA and the NPT is questionable. Globalisationôs fillip in information technological advancement and nuclear renaissance tend to enhance rather than hinder the challenge of nuclear terrorism. Even as the Global War on Terror (GWOT) rages on and acquires various and varied dimensions, the researcher thinks it is high time we looked at the ultimate threat in the terror Pandora box ï nuclear terrorism. This indispensable evaluation, we believe, is best done by scrutinizing the regulatory mechanisms at the international communityôs disposal to contain nuclear terrorism through atomic control. By this nuclear terrorism, we mean a convergence of nuclear proliferation and terrorism; that is nuclear technological change affecting the conduct of asymmetrical warfare ï terrorism. This is so because after the 9/11 terrorist attack on the United States in 2001, for instance, it became crystal clear that contemporary terrorism is no longer just theatre of the absurd with a political goal. Contemporary terrorists are out to kill as many as possible and even themselves as in suicide terrorism or perceived martyrdom. In the same vein, it is on record that of all weapons in the WMDs category, the nuclear is the only one conventional terrorists are yet to use in the traditional spectacular fashion. In terms of the rest, the threshold has been crossed. This is so if the 1945 US nuclear attack on Japanese counter value targets rather than counterforce targets is evaluated strictly as a war-induced

desperation and not the terrorism it was on a disinterested evaluation on any terrorist scale and definition.

We chose this topic ï ñInternational Regulatory Mechanisms and the Challenge of Nuclear Terrorism, 1998-2012òï with a view to evaluating the challenge of nuclear terrorism and the adequacy or otherwise of the international regulatory mechanisms, the IAEA and the NPT, meant to check nuclear terrorism through a firm atomic control. In the vein, we are wont to evaluate the threat; if any, to global security, by the statutory limitations of both the IAEA and the NPT regulatory mechanisms. The technological shift and change occasioned by nuclear renaissance and its relationship with contemporary international terrorism, and the nuclear regulatory mechanisms, to us, constitute the most pressing challenge to global peace and stability; hence the urgent need to evaluate it especially as previous researchers have paid negligible attention to it. Nuclear terrorism is a terminal issue devoid of the comfort of a learning curve, and impervious to conventional deterrence.

The period 1998-2012 has strategic significance vis-à-vis the nexus of nuclear proliferation and international terrorism that merits attention. In the aforesaid period, the challenge of contemporary nuclear renaissance came to the fore by the emergence of three nuclear powers: India (1998), Pakistan (1998), and North Korea (2006). In the realm of international terrorism, the emergence of megaterrorism became confirmed, for instance, by the 1998 simultaneous American embassies bombings in Nairobi, Kenya and Dar es Salaam, Tanzania with daunting casualty rate. The September 11, 2001 terrorist attack on the US homeland killed two thousand, nine hundred and eighty six people and injured more; the terrorist attack in Bali, Indonesia on October 12, 2002 netted over 200 deaths and injured the same number. The Madrid terrorist attack of March 11, 2004 netted over one hundred and ninety one deaths and injured over 2,000, while the London terrorist bombing

of July 7, 2005 killed fifty-two and injured seven hundred more (Barnaby, 2007). In Nigeria, the Boko Haram Islamic fundamentalist terrorist group operates megaterrorism with high-casualty bent. Their bombing of two locations, among others, for example, buttresses the foregoing. Their bombing of St. Theresaôs Catholic Church, Madalla on Christmas eve of 2011 killed more than one hundred worshippers. The incident of Friday, 20h day of January, 2012 in Kano gave a death toll of more than two hundred and fifteen.

Global security, today, is less predictable mainly because of the nexus of nuclear proliferation and contemporary international terrorism. The battle for atomic control rages on in a global nuclear bazaar while terrorism mutates toward extreme sophistication as trends unfold. Thus, Palmer and Perkins (2004:356) warn that:

> Atomic control may well be the central problem in the international relations of our time. Even if the choice is not so inexorably between ñone world or none,ò as many scientists tell us or between ñthe quick and the dead,ò to use Bernard Baruchiôs phrase, the problem is still a crucial one. Until some answer is found to the question of the control of the power of the atom ï an answer which, we can be sure, must be sought on the international plane-insecurity and ever-present danger will be the lot of the people of the world.

The most frightening aspect of this battle for atomic control is that global terrorists have come of age as competent actors in the international system. They are relentlessly searching for nuclear weapons (Calabresi, 2005). With globalization, the hitherto dominant and restraining power of the state is highly challenged or on the wane; the concept of border is almost useless especially in the traditional and functional sense. We are today living, especially but not exclusively courtesy of globalization, in a placeless world where advances in science and technology have tamed location, distance, time, and indeed altered virtually all hitherto conception of existence. Knoke (1996) appraised this contemporary placeless world with rare accuracy and concluded that nations as we know them are becoming anachronisms, and that terrorism will emerge with the upper hand.

Furthermore, terrorism as asymmetrical warfare constitutes more than mere quarrelling, which many scholars warn against in a nuclear age. Now, under nuclear renaissance, this warning becomes more auspicious because its neglect could constitute the dreaded *nunc dimitis* for mankind. Guest (1963:191), for instance, rightly warned against this dire prospect by asserting that:

> Quarrelling, even in a good cause might lead to a situation in which one nation or another would resort to atomic warfare on a big scale with possible consequences that the march of civilization could end in a fiery furnace, leaving the earth a burnt-out lifeless cinder.

George Guest, a scholar of the realist school, understandably, sees the international system as a state-centric system; thus he narrows his vision of a possible nuclear exchange to nation states as if they constitute the sole actors in the international system. However, factoring in the complete array of actors in the contemporary international system brings in the terrorists as actors in their own right. They constitute the evasive strategic nightmare in any possible contemporary nuclear exchange. Here we are bound to share a charged international system with fundamentalist warriors, outlaws and apocalyptic resolute fighters who manifest all patterns of adaptability and sophistication. Since nature abhors vacuum, the terrorists have arguably come to fill the gap occasioned by crises of state authority, globalization, and other political contradictions afflicting the global citizens in various and varied forms.

Peters (1999:2, 32) bares this strategic nightmare thus:

> The enemies we are likely to face will not be ñsoldiersò with disciplined modernity that term conveys in Euro-America, but ñwarriorsò ï erratic primitives of shifting allegiance, habituated to violence, with no stake in civil order. Unlike soldiers, warriors have always been around, but with the rise of the professional soldiers, their importance was eclipsed. Now, thanks to a unique confluence of breaking empire, over-cultivated Western consciences, and a world-wide cultural crises, the warrior is back, as brutal and distinctly better armed.

A contemporary trend in international terrorism proves the veracity of the aforesaid. The 1998 simultaneous terrorist attacks on the US embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania, the 2002 Bali bombing in Bali, Indonesia and the 9/11, 2001 in US, as examples, constitute a pointer to the veracity of the aforesaid. However, one can fathom that researchers have not done justice to the issue of nuclear terrorism vis-à-vis prospects, preemption and verification of the efficacy of extant regulatory mechanisms meant to check it. They failed to check whether the statutory provisions of the International Atomic Energy Agency undermined its enforcement capacity against nuclear terrorism. They also failed to investigate whether there were impediments to the capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology. They also failed to examine whether the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.

Consequently, in the light of the foregoing deficiencies discernible in researches conducted by previous scholars, we have elected to enrich existing inquiries by filing research lacunas, and proffering solutions to a dire existential threat to the survival of man by addressing the following research questions:

(1) Do the statutory provisions of the International Atomic Energy Agency undermine its enforcement capacity against nuclear terrorism?

(2) Are there impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology?

(3) Do the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security?

1.3 Objectives of the Study

This thesis has as its broad objective the strategic evaluation of the challenge of the nuclear terrorism by appraising the adequacy or otherwise of the IAEA and NPT regulatory mechanisms primed to contain its threat through atomic control, and unraveling its implication to global security. With the preponderance of the contemporary global nuclear renaissance which has tremendously deregulated nuclear technology, it becomes imperative to evaluate the challenge of nuclear terrorism vis-à-vis the extant regulatory mechanisms put in place to check it through atomic control. That is to say, we are in this study bound to evaluate the adequacy or otherwise of the International Atomic Energy Agency and the Nuclear Non-Proliferation Treaty in relation to checking the challenge of nuclear terrorism through atomic control especially between 1998 and 2012. Thus, in specific terms, this study is embarked upon to:

1. Find out whether the statutory provisions of the International Atomic Energy Agency undermined its enforcement capacity against nuclear terrorism;
2. Investigate whether there were impediments to the capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology; and
3. Examine whether the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.

1.4 Significance of the Study

The significance of this study falls into two paradigms: theoretical and practical. That is to say that its significance lies in its capacity to meet scholarly theoretical as well as policymakerôs practical need. In the theoretical paradigm, the issue of nuclear terrorism has consistently kept policy makers anxious as they are conscious of the strategic implication of such a threat especially under globalization. The imperative of fighting international

terrorism on one hand and nuclear proliferation on the other, or even attaining a comprehensive global denuclearization remain top on the agenda of meetings of scholars, policy makers and concerned global citizens. Thus, this studyôs theoretical significance hinges on exposing the intricacies of and impediments to global peace and stability as could be discerned from the nexus of nuclear proliferation and contemporary international terrorism. The findings of this study, it is hoped, will contribute to the plethora of existing opus of scientifically accumulated knowledge in relation to the challenge posed by nuclear terrorism, against the background of global nuclear renaissance, to global peace and stability. Suffice it to note that, most scholars, policymakers and even global citizens exhibit ignorance of the pressing need of containing nuclear terrorism. Most, erroneously, still view nuclear terrorism as a Western or Middle East problem in general, and the United State of America in particular. This study thus stands to illuminate every gray area to aid in the enlightenment of those still in the dark vis-à-vis the global threat of nuclear terrorism.

Furthermore, an examination of current opus shows that the sophistication discernible in contemporary terrorism has somehow created a profound awareness of nuclear terrorism. This aspect was ignored by earlier works as my research revealed. But these works, with their improved merits, came short by toeing the state ï centric realist approach to investigation thus leaving a yawning gap whose bridging this study intends to achieve. As we apply social science methodologies to issues of strategic studies, theoretical issues are availed of a bearing on the challenge of terrorism. In line with the foregoing, it is logically anticipated that the findings derivative of this auspicious investigation stands to fill this yawning information lacuna. In the same vein, it stand to avail scholars of the requisite context, incentive, focus and vent to advance research in strategic issues plaguing humanity and capable of compromising existence.

In the practical paradigm, this study is set to expose and explain especially the neglected and gray areas of this discourse. This is with a view to letting especially the actors in the international system to appreciate constructively the realpolitik of their various and varied stances vis-à-vis the terminal strategic challenges to global peace and stability. Once understood, the world would be better informed and thus stimulated to act with a view to averting a looming catastrophe. This study would have succeeded if it constitutes an illuminating opus added to the field of and dealing with my foregoing discourse. Scholars, as well as policymakers, are bound to gain from the fallout of this investigation. Furthermore, in the practical paradigm, the global cost of international terrorism on one hand and nuclear renaissance with potential atomic control on the other is prohibitive on both sides of the evaluative coin. Here, we talk about the cost of the acquisition of nuclear capability on one hand and that of countering global proliferation on the other. In the same vein, international terrorism costs much in terms of finance, manpower and logistics while counterterrorism gulps up billions of otherwise developmental dollars across the globe. Both issues have consistently remained on the front burner of global concern; agenda of seminars, conferences, workshops, meetings and even enlightenment carnivals. Thus it is discernible that much resources is spent on finding lasting solutions to the externalities of nuclear technology and challenges of contemporary international terrorism (Flynn, 2004; Becky, 2006; Bennet, 2004; Tilly, 2005; Walzer, 2004 and Nye, 2005).

In the light of the foregoing, ergo, the findings of this research stand to benefit all with a stake in the international system who are desirous of its beneficial peace and stability. It stands to benefit the African continent in general and Nigeria in particular especially as both grapple with the tricky issue of security in a nuclear age under globalization. It must, however, be pointed out here that Africaôs relative security in the global security system remains precarious, to say the least. This is more so factoring in the

fact that Africa is especially in the contemporary era arguably composed mainly of failing and failed states with nuclear programmes or ambition. More so, Africa is currently the haven of global Jihadist terrorists who are leveraging its lapse-security feature. So, this study stands to constitute the indispensable clarion call to engender security consciousness in Africa: the researcherôs primary constituency in the global equation.

Zeroing down on my country, Nigeria, which has structural, economic, and political challenges, and a functional nuclear programme, the benefit of this study lies in alerting Nigerians to the effect that terrorism and the externalities of nuclear renaissance concern Nigeria, an arguably fail state, in every strategic sense (Iloabanafor, 1985 (A): Falae, 2009: Iloabanafor, 1985 (B): Iloabanafor, 1999 (A): Iloabanafor, 1999 (B)). Terrorism has become an everyday phenomenon in Nigeria with bombs wrecking havoc periodically as Nigerians are in the interim slaughtered at different parts of the country by elusive terrorists under questionable guises. Under prevalent circumstances, any strategic thinker is bound to hesitate before putting nuclear terrorism beyond contemporary fundamentalist terrorists operating in Nigeria. So this study, apart from helping to enlighten Africa vis-à-vis its security threats stands also to alert Nigeria in relation to its precarious relationship with the dual threats of nuclear proliferation and contemporary international terrorism which our policy makers evidently treat with levity and some scholars so far erroneously appraise as issues alien to and beyond our domain (Sado, 2011; Ajibola, 2012; Ikuomola, 2011; Usman, 2011; Agekameh, 2011; Okechukwu, 2012).

CHAPTER TWO

LITERATURE REVIEW

The thrust of this study is a strategic evaluation of the adequacy or otherwise of the two international regulatory mechanisms primed to contain the challenge of nuclear terrorism through an effective atomic control. Furthermore, we intend to evaluate whether the statutory limitations of both the IAEA and NPT regulatory mechanisms constitute threat to global security.. Consequently, in view of the foregoing, the literature review to this study evaluates the findings of scholars on these research questions:

1. Do the statutory provisions of the International Atomic Energy Agency undermine its enforcement capacity against nuclear terrorism?
2. Are there impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology?
3. Do the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security?

Theoretical Literature

1. Do the statutory provisions of the International Atomic Energy Agency undermine its enforcement capacity against nuclear terrorism?

The possibility or otherwise of nuclear terrorism, especially under globalization, to a very large extent depends on the ability of the global community to deny terrorists access to nuclear materials and weapons by all means possible. The traditional hinge has always been nuclear deproliferation which nominally sustains non-proliferation. The IAEA has statutory always featured in this onerous task through atomic control by supporting unclear programmes with civilian applications to the exclusion and stopping of those with military applications. This thrust is further enhanced by the provisions of the Nuclear Non-Proliferation Treaty (NPT). This treaty, abused by the Nuclear States and Non-Nuclear

States alike ï constitutes the popular source of hope for containing the daunting contradictions and externalities inherent in harnessing the quantum energy of nuclear technology. Thus, a clear line is drawn between the civilian and military uses of nuclear technological capability. However, the tricky and complicated nature of the nuclear technological processes of harnessing and utilizing of atomic energy blurs the line between its civilian and military applications. Thus, it becomes extremely complex to draw a distinguishing line between the civilian and military uses of nuclear technology. Scholars, leaders, policymakers and informed global citizens are today worried over contemporary nuclear renaissance and the challenge of nuclear terrorism. This renaissance constitutes an ascension of concern since the emergence of the nuclear age which started paradoxically on a military note in 1945. Kissinger (2009:28), ostensibly factoring in the foregoing, asserts that:

> The danger posed by nuclear weapons is unprecedented. They should not be integrated into strategy as simply another, more efficient, explosive. We thus, return to our original challenge. Our age has stolen fire from the gods; can we confine it to peaceful purposes before it consumes us?

The threat posed by nuclear proliferation informed the establishment of the International Atomic Energy Agency (IAEA) in 1957 as an agency of the UN solely charged with the cumbersome mandate of enforcing or influencing the restriction of nuclear technology to peaceful civilian non-military uses only. By extension and implication, it falls within its domain as a unanimous global nuclear guardian, watchdog or sentinel to blow the whistle on any established or potential nuclear cheat and threat (Palmer and Perkins, 2004). But its emphasis, however, appears from antecedents to concentrate on the nuclear activities of the mostly poor n signatories to the Nuclear Non-Proliferation Treaty (NPT). Its activities, my investigation suggests, overlooks the activities of the five members of the ñnuclear clubò ï US, Britain, France, China and Russia ï whose level of adherence to their pivotal obligation

under the NPT regime ï phased nuclear disarmament-is neglected. This neglect suggestively is enlarged in three strategically vital areas, videlicet, the sharing their nuclear know-how, failing to scale down and eliminate their nuclear weapons stockpil, and as veto-wielding members of the UN Security Council using their nuclear capability for blackmail against global nuclear have-nots, especially as can be deduced from their recent massive nuclear deployments, in contravention of the IAEA and NPT charters, shown below in Table 2.1:

Table 2.1: Nuclear Weapons Deployment by the globe's Superpowers, 2006

Country	**Status in the United Nations**	**Status under the IAEA and NPT**	**Number of operational Nuclear Warheeds deployed**
U.S	Member of the UNôs Security Council	Signatory	4, 896
Russia	Member of the UNôs Security Council	Signatory	7,360
China	Member of the UNôs Security Council	Signatory	400
France	Member of the UNôs Security Council	Signatory	348
Great Britain	Member of the UNôs Security Council	Signatory	185

Source: SIPRI, 2009: 578-579

In the same vein the IAEAôs impotence is also made manifest in the strategic nuclear status of India, Pakistan, Israel and North Korea. The first foregoing three still refuse to sign the NPT and are today nuke-wielding powers. The last, North Korea, conducted nuclear tests in 2006 and 2009, and thus is a *de facto* nuclear power by reneging on and circumventing its obligations under the NPT it signed in 1968. Jacob, et al (1973:241) observes that, ñmeanwhile, the International Atomic Energy Agency is already

operating a system of control to ensure that consignments of nuclear fuel facilities and products are not diverted from peaceful purposesò.

The effectiveness of the foregoing especially in relation to the IAEAôs set objectives is questionable at best. This definitely is not informed by the absence of will but by the tricky and sticky nature of the nuclear processes of harnessing energy from split atoms. The IAEA, in contemporary terms exhibits the futile determination of a one-handed basketball player who is severely limited. The IAEA is given the duty of enforcing and coordinating activities in a realm where laws are made for some to obey while the Superpowers are mainly and practically above the same rules. The contractual obligations of the Nuclear Weapon States (NWS) and Non-nuclear Weapon States (NNWS) as contained in the nuclear Non-Proliferation Treaty (NPT) are interchangeably flouted, especially by members in the NWS paradigm. This trend highlights the IAEAôs impotence and the hopelessness in relying on it as a veritable tool to, for instance, deter nuclear terrorism through atomic control.

A more insidious impediment constitutes the factor that has consistently compromised the IAEA. The statutory provision of the IAEA charter appears to target curbing the nuclear activities of the NNWS. Scheinman (1969) agrees that the IAEA system applies only to countries that do not at the moment produce nuclear weapons. He believes, however, in the likelihood of the change of this pattern to adjust by incorporating the actors in the NWS paradigm. His erudite contribution also evaluated the significance of IAEA experience vis-à-vis establishing safeguards against the illicit diversion of nuclear resources from peaceful purposes to weapon purposes. In the final analysis, the IAEAôs fairness, thoroughness and resilience was put to question and scrutiny.

The IAEA, the global nuclear watchdog, to a very large extent exists to oversee the application of the NPT regime. It is an autonomous intergovernmental agency of the UN or

under its aegis that works for the safe and peaceful uses of atomic energy (www.iaea.org). Whose charter permits supervised nuclear programmes. The charter of its founding crosses path with powerful as well as weak global states, institutions, individuals and NGOs. By implication, the contradictions, ambiguities and discernible double-stand in the NPT automatically rubbed off on it. This worrisome relationship to a very large extent hampers the performance of the nuclear watchdog. However, an appraisal of the NPT suffices in evaluating and validating my foregoing perspective or opinion.

In an in-depth study of the NPT, Viotti and Kauppi (2009:06) outlined five fundamental features or thrust that constitute the obligations of signatories to the treaty:

> Under the treaty, NWS are defined as the five states that exploded a nuclear device before January 1967 (United States, Soviet Union (now Russia), United Kingdom, France and China).
> Forbids member states without nuclear weapons from developing them
> Forbids the five member states with nuclear weapons from transferring them to any other state.
> - Provides assurance through the application of international safeguards that peaceful nuclear programmes in NNWS will not be diverted to nuclear weapons or other nuclear explosive devices.
> - Facilitates access to peaceful uses of nuclear energy for all NNWS under international safeguards.
> - Commits member states to pursue good faith negotiations toward ending the nuclear arms race and achieving nuclear disarmament.

The NPT is replete with debilitating problems of structure, interpretation and enforcement. This limitation naturally was inherited by IAEA and the strategic dysfunctional impact of that inheritance remains not only pronounced but also effective. Thus, the incapacitation of the IAEA compromises sustainable global security in our nuclear age whose cornerstone is the NPT (Viotti and Kauppi, 2009). The IAEA, it appears is doing the right assignment with the wrong tools, assumptions and objectives. It is meant to enforce the elusive abstract

made more complex and elusive by the intricate and connected nature of the nuclear processes of harnessing and utilizing nuclear energy.

Thus, under the watch of the IAEA, an analyst observes that:

> In the early 1960s John Kennedy predicted up to 25 nuclear countries within a decade. Today there are nine. To that extent the NPT and other arms control measures have been successful, yet the treaty is being eroded rapidly. Now that the physics of nuclear weapons is well understood, and precision technology is more readily available, countries can more easily set up a nuclear programme. Around 40 have the ability, in theory to develop weapons (*The Economist*, October 14, 2006:27).

Today there exists a global nuclear renaissance of myriad potential nuclear powers which represents a quantum leap from that of 1960ôs as shown below in Table 2.2:

Table 2.2: Potential Atomic Powers, 1960

Group 1	**Group II**	**Group III**
Belgium	Australia	Argentina
Canada	Austria	Brazil
Czechoslovakia	Denmark	Mexico
West Germany	Finland	Norway
East Germany	Hungry	Spain
India	The Netherlands	South Africa
Italy	Poland	
Japan	Yugoslavia	
Sweden		
Switzerland		

Source: W Davidson, N. Kalkstein, and C. Henemser, ñTechnical Reportò in *The Nth Country Problem and Arms Control,* Washington: National Planning Association, 1960

There appears not much the IAEA can do to rein in nuclear deviants especially those in the NWS paradigm who appear to be above the law. Thus the contemporary nuclear renaissance constitutes the requisite smokescreen beneficial to nuclear cheats in the NWS as well as the hounded NNWS. Both group have failed in their respective obligations vis-à-vis the indispensable containment of proliferation. This trend is today a very terminal concern factoring in the possibility of a terrorist acquisition of nuclear weapons and inevitable application of the same. It is not lost on strategists that terrorism, after all calculations, is warfare though in the asymmetrical paradigm. In its contemporary version, the world is bound to contain apocalyptic fundamentalists whose premium on life, including their own, does not exist or is deemed inconsequential. Thus, we see the al Qaeda generalissimo, Osama bin Laden, in Stroessinger (2005:321) asserting in derision that ñthe Americans worship life while we worship death.ò

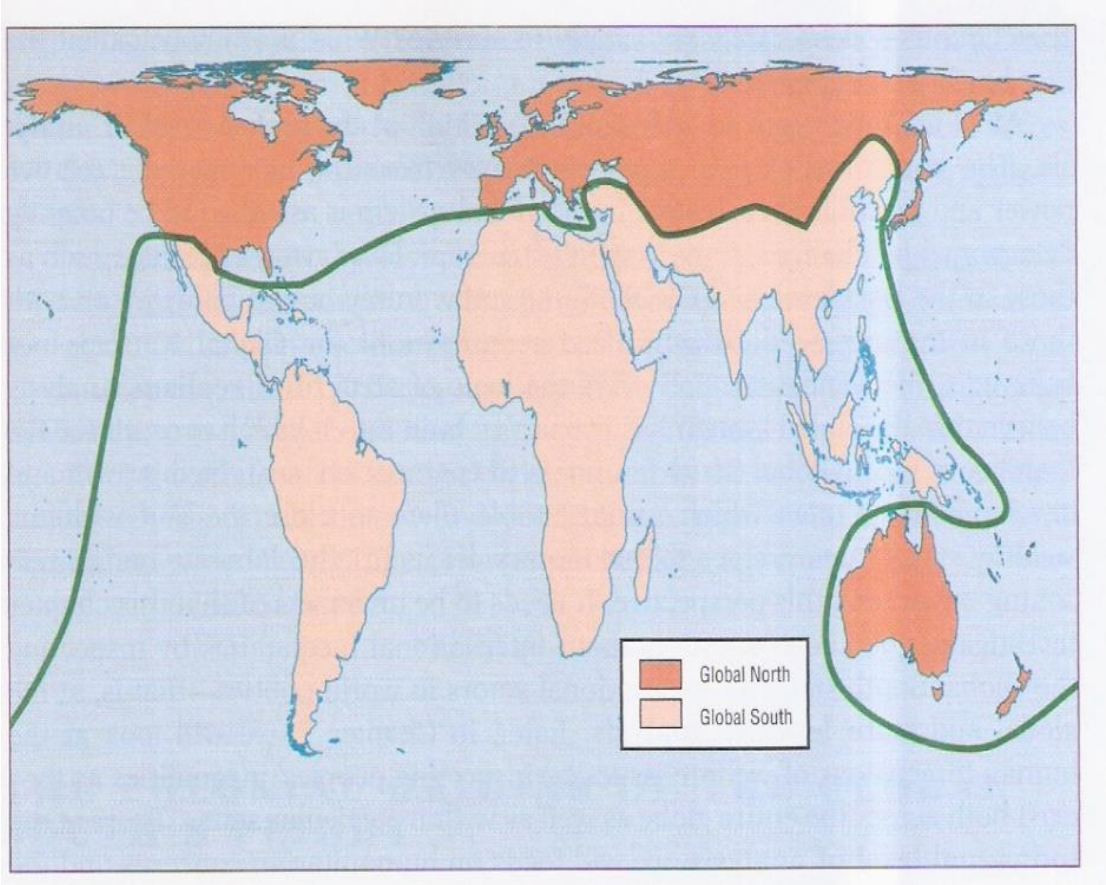
Furthermore, it should be noted that:

> Under the NPT, the declared nuclear weapon state ï the United States, the Soviet Union (now Russia), China, Britain and France ï promised to reduce and eventually eliminate their nuclear stockpiles. In return, the rest of the world pledged to use nuclear technology only for peaceful purposes. But the treaty left gaps. Countries such as Israel, India and Pakistan did not sign it, and have been free to develop nuclear weapons. The inspection system to stop cheating by signatories has also proved faulty. The International Atomic Energy Agency did not detect Sadam Husseinôs illicit nuclear programme in the 1980s. A system of more intensive inspections has been created, but countries are under no obligation to subscribe to it (*The Economist*, October 14, 2006:27).

It is under the foregoing circumstance that the IAEA is supposed to function as a global nuclear supervisor enforcing the restraining tenets of the NPT. Thus, it suffices so far to look at the IAEA scorecard and evaluate the same on merit vis-a-vis global atomic control. It must be pointed out here that the NPT regime as the requisite tool for the IAEAôs control

of atomic proliferation and abuse has by nature created a dichotomous world of the nuclear haves and have-nots, superior and inferior and highlighted the North-South divide in the global political, economic and social equation. See map 2.1 below Thus the IAEA evidently focuses on the NNWS of the global South in their inspectorate oversight duty of curtailing or eliminating the diversion of nuclear technological know-how to military or weapons use. In furtherance of this thrust, one notices that once proliferation features in global strategic discourse, actors of the global Southern extraction take the centre stage for unfettered evaluation and reprimand. The IAEA, for obvious reasons of concern, makes no case of the activities of the NWS whose activities evidently constitute the apex of peril of nuclear science and technology.

Map 2.1: The Global North and Global South



Source: Kegley and Wittkopf (2004) p.189.

The NWS have verifiably reneged on their NPT obligations under the IAEA watch. The IAEA is yet to ascertain, confirm, and make known to an apprehensive world the exact nuclear status of the NWS vis-à-vis the volume of stockpiles they all keep. This, of course, is impossible since, been above the law, their claims can not be verified by the IAEA. The world is bound to grapple with the figures submitted by them. There is yet no indication to the effect that in consonance with the NPT, the NWS are going ñto reduce and eventually eliminate their nuclear stockpilesò. The IAEA is thus rendered comatose in relation to nuclear safeguards concerning the NWS. This definitely is not a reflection of will but incapacitation.

Thus an analyst observes that:

> Many countries have resisted pressure from America and others to accept further restrictions on their nuclear facilities accusing the nuclear powers of failing to make progress on disarmament (*The Economist*, October 14, 2006:27).

The resistance is primarily informed by the lopsided pattern of the IAEA which weighs against the NNWS. Thus on-site inspection, for example, as a control and containment technique does not and has never applied to the NWS who like the NNWS have established obligations under the NPT regime. Thus we see the IAEA inspectors haranguing the NNWS in pursuit of other strategic objectives using the imperative of containing proliferation and making the world safer as smokescreen. When in 1998, after conducting nuclear weapon test, India came under attack for its nuclear technological search hitherto for peaceful purpose as it claimed. The then Prime Minister, Atal Behari Vajpayee, scorned the criticism as hypocritical and asserts that:

> Some of the countries which haveé criticized our action have themselves not only conducted far more nuclear tests than we have done, but they have also built huge stockpiles of nuclear weapons and delivery systemsé The world knows the truth about the progress ï or lack of it ï made by the nuclear powers in the direction of nuclear disarmament. The world community should appreciate the fact that India, the second most-populous country on Earth, waited for five decades before taking this step (*New York Times*, May 16, 1998:A15).

The IAEA has also failed in detecting the thrusts of nuclear cheats because of the limitations of the NPT which renders its inspectorate duty preemptively cumbersome at best. Thus, Israelôs, Indiaôs, Pakistanôs, and North Koreaôs nuclear weapons pursuit should have been detected in time and probably nipped in the bud. The case of Iran, which occupies the centre stage in contemporary global strategic discourse, also shows that the IAEA was taken by surprise. This was made more manifest by the choice of nuclear penitents such as Libya, Argentina, Brazil and South Africa which on record have

renounced the pursuit of nuclear weapons capability. South Africa expressed good faith further by signing the NPT regime after giving up its nuclear weapons programme. But in the strategic circle, it is still believed that the action was taken to preempt the 1994 nascent black leadership from having a handle on nukes, and not altruism.

Further on the IAEA, opinions persist that:

> Inspections are vital since the NPT allows countries to come close to having an actual bomb. Japan already has a large stock of plutonium from its civil nuclear programme, and could probably develop a bomb within months. In Iranôs case, full mastery of the technology to enrich uranium to make nuclear fuel in power stations would give it the ability to produce fissile material for atomic bombs (*The Economist*, October 14, 2006:27).

Thus it appears that the IAEA is made to do the impossible using the wrong tools with limited power. Its problem is fundamentally that of distinguishing the civilian from military thrust of nuclear technology and the cumbersome task of knowing where to draw the line and deter cheats bent on capitalizing on these definitional and distinguishing limitations. Thus experts believe that only a legal reevaluation of the IAEA statute suffices to make it more capable of functioning effectively in its supervision and enforcement of nuclear technology for peaceful or civilian use. Experts further believe that Iran, for example, is capitalizing on the inseparable nature of civilian and military nuclear technological pursuit to access nuclear weapons under the smokescreen of generating electricity among other civilian uses. North Korea did exactly that before it tested a nuclear weapon in 2006 and 2009.

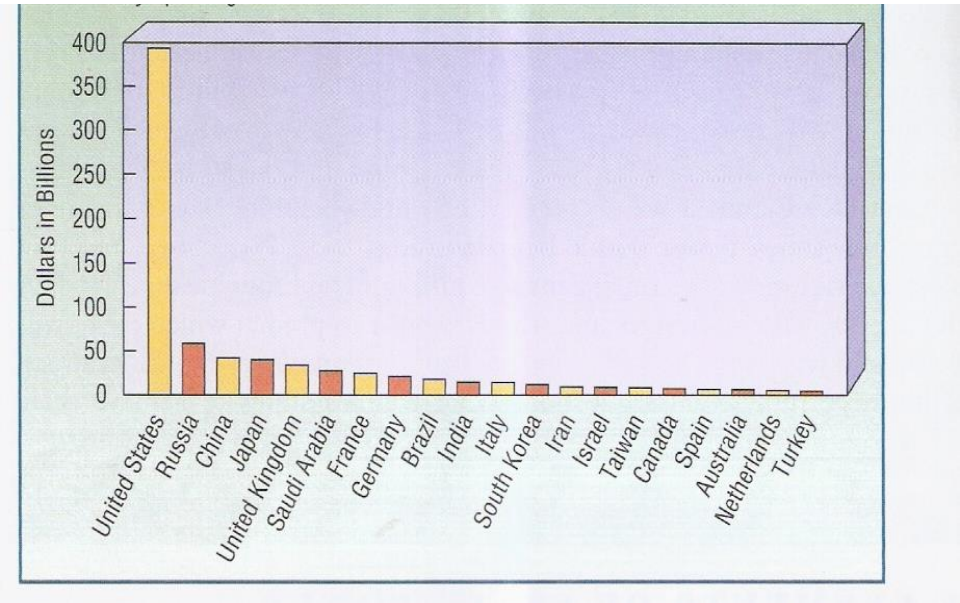
The foregoing constitutes a scientific nightmare of immense proportion which makes the IAEA unfairly look indolent. It must, however, also be pointed out here that most advocates of nuclear technology for peaceful purpose are aware that strategically that remains mere wishful thinking. Most nuclear deviants came on first as purveyors of nuclear

technology for peaceful purpose. They had ample time apparently to develop their skill and capability well under the IAEA radar. North Korea suffices as an example in the foregoing focus of analysis. However, the researchers do not yet in any way see throwing the compass into the raging sea of despair as an option.

The IAEA is further compromised by the NPT regime gaps. The most worrisome of these gaps is the proviso to the effect that signatories to the treaty could quit at will. The specification of Article X of the NPT, for example, is that a signatory to the NPT regime wishing to quit needs only ninety daysô notice to that effect. Suffice it to assert that NPT is a time-buying regime to be manipulated by both the NWS and the NNWS. Actors on both side of the divide, evidence have shown, have consistently made mockery of this NPT and the global nuclear watchdog, IAEA. This lethal merry-go-round is bound to hold sway until the NPT regime is overhauled against the background of a stronger and evenhanded IAEA empowered to check the nuclear excesses of both the NWS and the NNW without let or hindrance.

The IAEA, however, even with its statutory limitations, remains best suited for its job, given the requisite free hand to work. But the possibility of this free hand remains foreseeable remote especially given the hegemonic disposition of the UNôs Security Council Members. This boils down to the very issue of the structure of the United Nations especially in relation to the composition and status of the UNôs veto-wielding Security Council members which events have proved are above international law. These members of the Security Council in general and the US in particular have consistently assumed the global cop and enforcer of statutes they individually and collectively have flouted. Still, the US remains the globeôs highest military spender as shown in figure 2.1 below:

Figure 2.1: US Military Spending vs the World



Source: Kegeley and Wittkopf (2004) p. 452.

Furthermore, scholars are divided over the effectiveness of the IAEA as the UNôs nuclear guardian on whose shoulder rest the containment of nuclear proliferation, and ultimately nuclear terrorism. Many critics, for instance, use the case of Libya as a pointer to the fact that the IAEA is a lame duck and not a watchdog. The United Statesô President George W. Bush and Britainôs Prime Minister, Tony Blair announced on December 19, 2003 that the then Libyaôs leader, Colonel Muammar al Qaddafi, had agreed to give up his pursuit of the acquisition of WMDs - biological, chemical and nuclear. He, they said, has unconditionally agreed to open Libya up for unhindered inspection by the IAEA. President Bush believed that the action was informed by a dire appreciation of the mayhem then going on in Iraq against Saddam Hussein (*New York Times*, December 20,2003).

Purvis and Waller (2004:12) observe that:

> Libyan leader Muammar Gaddafiôs apparent decision two weeks ago to come clean on his fledgling nuclear weapons programme could be a major achievement in the worldôs bid to rein in rogue nuclear nations. But it has also shown how far there still is to go. Since 1980, inspectors from the International Atomic Energy Agency (IAEA) have visited Libya, a signatory of the 1970 Non-Proliferation Treaty

> (NPT) and routinely reported back that they found no evidence of a nuclear-weapons program...

But after Libyaôs Colonel Muammar Gaddafi came clean on his weapons programme, the inspectors went back to Libya in January 2003. They visited nine nuclear sites, most for the first time, according to Purvis and Waller (2003:12), and were surprised to find ongoing efforts to design and build the centrifuge technology required to produce nuclear-weapons fuel. The foregoing, critics believe, shows deficiency on the side of the IAEA. Thus, Paul Leventhal of the Nuclear Control Institute in Purvis and Waller (2003:12), for example, cited the Libyan nuclear revelation as proof that the UN body (IAEA) ñdoes a terrible job of inspecting nations that are determined to cheatò in the nuclear technological equation.

However, the researcher holds the informed opinion that the IAEA remains a necessary evil even with all its shortcomings. It has for example, consistently given nuclear proliferation a good fight such that many nuclear programmes are either scraped or put on hold as informed by its whistle blowing over time. Thus from the foregoing, one can conclude that only the reevaluation of the NPT and empowering of the IAEA suffice. There are many verifiable holes in the NPT regime that has formed the basis of cheats in the NWS and NNWS paradigm making a mockery of the IAEA. In the same vein, the researcher discovered that the charter of the IAEA availed it of *de jure* autonomy while circumstances have denied it the requisite and indispensable *de facto* authority and autonomy. This state of affair, of course, transcends the IAEA in effect because nuclear energy, both civilian and military, posses far-reaching and terminal global implication on application. What humanity does with or fail to do about nuclear energy could determine the survival of man or the eradication of life on earth, as we know it. The IAEA renews the best hope against nuclear proliferation, which in present time has attained critical mass in nuclear renaissance. The

occurrence of anything cataclysmic against man from the nuclear sphere depends to an appreciable extent on the success or failure of the IAEA.

The foregoing apprehension is not new. The emergence of the nuclear age in 1945 to many scholars, leaders, policymakers and even global citizens signified the commencement of the most unpredictable era in the march of civilization. Thus, on appraising the emergence of the nuclear age, Gil.Sulzberger penned in 1955 that ñIn 1945, it was a question of peace. Now it is a matter of humanityôs survival (*New York Times* June 20, 1955). Baldwin (1948:317), also in relation to the nuclear age asserted that ñthe face of tomorrow is a bleak visage; we are embarked upon a ótime of troublesô é We have opened for all time the lid of Pandoraôs Box of evils. We cannot push the genii back into the box. We many not like it, but we must face itò.

The nuclear age on evaluation against the background of contemporary international terrorism comes on as very scary. The sophistication attained or demonstrated by contemporary terrorists comes on even more daunting against the background of contemporary global nuclear renaissance. Contemporary discourse centres on the worrisome concern to the effect that contemporary terrorists could acquire nuclear weapons and apply them in their attacks. Thus in the strategic circle, the assumption remains that as far as these nihilistic terrorists are concerned, possession of nuclear weapons equals to application. This highlights the imperative of combating nuclear proliferation, failing which the acquisition of nuclear know-how or weapons looms large in the global strategic horizon. Thus, the indispensability of the IAEA becomes established and their failings one of global and terminal concern. Suffice it to conclude that the global community has a job to do by empowering the IAEA more effectively and restructuring the UN to stem the crass impunity of the powerful NWS whose unwholesome activities arguably have consistently been eroding the effectiveness through the change of its weak statutory provisions

beneficial to nuclear cheats, of many international regulatory mechanisms primed to check one global problem or the other.

2. Are there impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology?

The NPT regime of 1968 as an atomic control regulatory mechanism is replete with debilitating contradictions and impediments militating against its effective performance over time. Fundamentally, it polarized the international community into the NWS and NNWS categories. It failed to take into cognizance the regional peculiarities of its signatories, and talks only of nuclear weapons to the debilitating exclusion of other equally dangerous weapons in the conventional category. Since it is discriminatory, many actors circumvent its charters in pursuit of regional strategic objectives. Of utmost constraint, the NPT regime lacks interpretational and enforcement capabilities of its charters. These internal and structural limitations, practically places the issue of atomic control almost outside the purview of the NPT regime. With the contemporary global nuclear renaissance holding sway the relevance and enforcement capacity of the NPT regime are arguably highly compromised and due for redrafting

Thus, even with the NPT in place, the issue of nuclear terrorism has remained a source of concern to strategists, scholars, policymakers, as well as informed global citizens. This could arguably be premised on the loose atomic control of the NPT which lacks enforcement power on the activities of both the NWS and NNWS signatories whose activities could benefit unapproved beneficiaries of nuclear technology. This concern is informed by two worrisome global threats and challenges. The pivotal slot is occupied by the preponderant snowballing issue of nuclear proliferation which has since ascended into the realm of a nuclear renaissance. This renaissance has now attained its own critical mass as fuelled by the imperatives of combating global warming, acquiring a more efficient

source of optimal energy, joining the powerful nuclear-weapons club, and ultimately hectoring the weaker actors in the international system, most of who are also not relenting in their efforts to go nuclear. On the heels of the foregoing, is the issue of contemporary international terrorism which experts think is bound to climax into nuclear terrorism especially in the absence of an efficient atomic- control mechanism.

Contemporary international terrorism is of greater concern to strategists primarily because of its patterns which constitute a worrisome departure from what we used to know. Interchangeably termed modern terrorism, new terrorism, megaterrorism and contemporary terrorism, its discernible patterns appear more comprehensible when placed and evaluated in contradistinction with what strategists termed the ñold terrorismò. The distinguishing characteristic of the modern terrorism is in its higher ratio of casualty and volume of destruction wreaked on infrastructure. Expressed in the ploughmanôs terms, the old terrorist goes out to kill fewer, thus scaring and cowing many with a view to attaining his attendant political goal by wringing out concessions. Conversely, the modern terrorist goes out to kill as many as possible with a view to scaring and cowing the larger society and even the globe. This explains the concern expressed via-a-vis nuclear terrorism and the global efforts to contain the threat it poses to global security.

Strategists express concern over the NPTôs loose atomic control as related to nuclear terrorism against the background of the threat of contemporary international terrorism. The 1998 simultaneous bombing of the United States embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania, for example, constitute a pointer to the veracity of the foregoing. Mass destruction has come to stay as a raison dôetre and modus operandi of contemporary terrorists. The death toll in respect of the aforesaid American embassies bombings exceeded two hundred. Following on the heels of this was the September 11th 2001 tactically coordinated attack on the hitherto well-protected American homeland. In that instance,

terrorists hijacked four planes which they hitherto boarded as *bona fide* passengers and used the planes as missiles against targets. Human casualty figure exceeded three thousand while cost in infrastructure upped into billions of US dollars. The foregoing instances point to the logical conclusion that contemporary terrorists are bound to opt for the commensurate weapon of trade ï weapon of mass destruction. These two events informed the ongoing US ñwar on terrorò which arguably started in 1993, after terrorist attack on the US twin towers. The snowballing cost of international terrorism and counter terrorism remains gargantuan and keeps multiplying geometrically. The international system remains unstable at best.

The snowballing sophisticated nature of modern terrorism and its fall out arguably constitute the pivotal impediment to the enforcement capacity of the NPT in its onerous task for containing the unapproved spread of nuclear technology and nuclear terrorism. This is so because even terrorists have made the global list of nuclear proliferants threatening global security. The issues of nuclear terrorism and global problem of atomic control have consistently remained a subject of intense debate especially among strategic scholars and policymakers. This hunch is primarily informed by the observable sophistication that modern terrorism purveys and demonstrates with increasing thrust and the preponderance of contemporary global nuclear renaissance which is a fallout of the abuse of the NPT regulatory mechanisms permit of civilian nuclear technology. It is on record that nuclear weapon remains the only one within the weapon- of-mass-destruction category that terrorists are yet to use conventionally. However, Viotti and Kauppi (2009: 269) observed that ñconcern over terroristôs use of weapons of mass destruction skyrocketed after 9/11 but the threshold had already been crossed in 1995.ò Thus, many strategic experts largely opine that terrorists are bound to leverage the loose global atomic control of the NPT.

By the aforesaid crossed threshold, reference is made to the March 1995 chemical-weapon attack by terrorists on the Tokyo subway lines which killed twelve people and

injured hundreds more. This attack was carried out by a Japanese religious cult, Aum Shinrikyo (Supreme Truth). Viotti and Kauppi (2009:269) capture the attack and its larger implication and assert that:

> First, it was the first large-scale terrorist use of chemical weapons against an urban target. As such, it broke an operational and psychological barrier that terrorist groups had never crossed before. The fear has always been that Aum Shinrikyo may eventually encourage other groups to follow suit. Second, Aum Shinkyo was a religious organization, not a clandestine terrorist group seeking secular political objectives. The problem for governments is that such ñmillennialistò groups do not present political demands - their actions are carried out to bring about Armageddon, not to wring concessions from a government. Finally, the group was amazingly well financed, had formed a number of front companies, and had built chemical factories employing highly trained scientists.

Discernible in the foregoing are some unsettling strategic points: contemporary fundamentalist terrorists are very adaptable, resilient, innovative sophisticated, relatively rich and terminally disposed. In contemporary terrorism, strategists are condemned to grapple with an amorphous and equally sophisticated enemy with all the trappings of modernity. We are thus trapped in the ditch dealing with a fast-mutating phenomenon that is verifiably aided by contemporary globalization. Another facet of the worry remains that in this exhibited adaptability of contemporary international terrorism many scholars are yet to figure the direction of this thrust. This is more pronounced against the background of contemporary global nuclear renaissance. This nuclear renaissance exposes the impediments to the enforcement capacity of the NPT regulatory mechanisms. NPT cannot for example enforce a civilian version of nuclear technology alone which its chatter permits.

Since the emergence of the nuclear age in 1945, and the NPT regulatory mechanisms in 1968, strategists have always expressed concern and reservations over

nuclear technology and its quantum energy potentials especially vis-à-vis its military application. Actually nuclear technology premiered on the theatre in the military paradigm. That was on the two Japanese cities of Hiroshima and Nagasaki on the 6th and 9th days of August, 1945, respectively. The two nuclear bombs laid waste both cities of Imperial Japan and arguably brought about the subsequent capitulation of Japan and the end of World War II (1939-1945). Since then the perceived gains of nuclear technology has always been critically evaluated and appraised through the military prism. Strategists have always come to the conclusion that this spectacular technological advancement is replete with opportunities that are prone to abuses with a view to attaining strategically challenging prospects and objectives. This is more so as the NPT permits nuclear programmes with civilian applications

The world entered the nuclear age on a worrisome military note in August 1945.Thus among all the externalities of nuclear technology, the military dimension remains the most unpredictable. This fact challenges the enforcement capacity of the NPT as there is practically no difference between the civilian and military versions of nuclear technology. Zeroing it down on the military dimension still, contemporary international terrorism represents the asymmetrical type of warfare, as opposed to the popular type widely known as the conventional. Strategists, scholars and policy makers are worried vis-à-vis the prospects of a convergence of nuclear technology and international terrorism especially in this era of global nuclear renaissance under globalization. However, most still think that humanity is still home and dry. Yet many believe that as far as contemporary international terrorists are concerned, the essential possession of nuclear weapons equals to their inevitable application. Thus the impediments to the enforcement capacity of the NPT vis-à-vis atomic control and by extension check nuclear terrorism could be evaluated by looking at issues related to terrorism and nuclear terrorism simultaneously.

The categorization of terrorism into traditional and modern constitutes the pedestal of appraisal of the challenge of nuclear terrorism. What this categorization does falls into two distinguishing facts that lay bare the patterns that should inform expectations and empirical forecasts. The pivotal issue of primacy is that fundamentally, the modern terrorist is distinct from the traditional in terms of raison dôêtre and modus operandi. In the second paradigm, the circumstances surrounding the two groups are different. The modern terrorist is operating under globalization which represents laissez affaire taken to the hilt of a strategic cliff. He operates in a placeless world where the traditional restrictive and restraining capacity of the state has been watered down by spectacular technological advances especially in the realms of information technology. This is a world where nuclear technology is highly deregulated under the contemporary global nuclear renaissance and under the NPT watch.

Strategically more worrisome today is the issue of fathoming the raison dôêtre of the two respective terrorist groups. The traditional terroristsô aims and objectives come clear on evaluation. Most were nationalists, irredentists, liberation fighters, mercenaries, ideological adventurers and entities espousing all or some of the tenets of the aforementioned groups. But in the modern fundamentalists apocalyptic terrorists the strategic analysts have to grapple with chameleons whose aims and objectives are fluid, inconsistent and apocalyptic. Contemporary terrorists appear to tilt toward the religious. But religion constitutes a tool and not just a creed to them. They come as determined fundamentalists bent on ñfighting to the last manò and with ñthe last drop of bloodò in pursuit of objectives deemed sacrosanct.

In this battle without defined line, every target cum method is legitimate without the need to distinguish the counterforce target from the countervalue. They kill *en masse* even with higher collateral damage. The ultimate objective is Armageddon and the ultimate realization of their perceived reunion with God, who they use as a smokescreen to

perpetuate mayhem in pursuit of clear political objectives. These fundamentalists abound in all religions. The Christian faith availed the world of Timothy Macveigh while the Islamic world boasts of an unfair and disproportionate representation in contemporary terrorism with al Qaeda as the bulwark. The Shinto faith came in 1995 in Aum Shirinko. The strategic world thus is bound to grapple with a phenomenon that shares only a nominal convergence with its root in terrorism. Thus, Viotti and Kauppi (2009:264) observes that:

> Raising the specter of terrorist use of nuclear weapons dates from the 1970s. Looking back, such studies are oddly reassuring. Utilizing the model associated with realist thinkers, it rational-actor was assumed by analysts that terrorists recognized that the employment of such weapons was counterproductive in achieving political objectives and gaining public support for oneôs cause.

The assumption of the foregoing betrays the state-centric tilt of the realist school of thought. They see the state with all of its attributes as the dominant actor in the international system with a large stake in the same system. That stake naturally induces rationality in the relationship between it and the system in respect of whom it has something to lose. This explains logically why it is expected to exhibit optimal rationality and caution in all pursuits. The rational actor thus is not expected to bring down its own house even in pursuit of a cause deemed indispensable and noble.

Furthermore, Jenkins (1977:8) asserts that ñterrorists want a lot of people watching, not at lot of people deadò. He asserts that since terrorism is value ï and objective-based, terrorists are not wont to employ any weapons of mass destruction since such would in the final analysis make worse a bad situation primed and projected for amelioration and improvement. This line of reasoning boils down to killing few and scaring and intimidating many with a view to wringing out concessions. He is of the view that the theatrical facet of terrorism constitutes the nucleus of the act of terrorism. This explains his conclusion that

theatrical enactment of mass destruction is bound to alienate rather than woo the public to sympathise with the terrorist and by extension evaluate his cause favourably.

In the same vein, Clarke (2004:8) observed that a huge impediment stands between terrorists and the acquisition cum application of Weapons of Mass Destruction (WMDs). He asserts that:

> With 9/11 ï style strikes harder to organize, the style of attempted attacks will move in the direction of coordinated smaller incidents for maximum impact always with an accent on novelty of technique. We can expect more experimentation with chemical, biological, and radiological devices. There are great technical difficulties for a terrorist in using such deadly elements in a spectacularly lethal way, but they promise a powerful psychological effect.

Discernible in the foregoing is the acknowledgement that terrorists are bent on going nuclear but lack the requisite sophistication to attain the nuclear height. It is the informed opinion of many scholars, such as Michael Clarke cited above, that contemporary terrorists can not surmount the ñgreat technical difficultiesò inherent in making use of weapons in the WMD category. This conclusively gives the erroneous impression that contemporary terrorists are dullards with limited but sadistic intelligence.

However, Viotti and Kauppi, (2009:258) warn that ñTo dismiss terrorism as something engaged in by crazies misses the point that it can be used to achieve rational, political ends.ò It is of note that most terrorist outings have consistently manifested a high level of ingenuity, commitment and altruism especially when factored against the background of suicide terrorism which I think constitutes the apex of self denial as opposed to selfishness. Logically, no terrorist outing could succeed without beating the intelligence community to it. Stretched further, noteworthy is the fact that this said community is normally staffed by trained foxes conversant with strategies and tactics of violence.

The challenge of nuclear terrorism is an urgent and potentially catastrophic challenge to global security. The April 2010-U.S. *Nuclear Posture Review,* for instance, lists ñpreventing nuclear proliferation and nuclear terrorismò as the top key objective of US nuclear weapons policies and posture (*Nuclear Posture Review*, April 2010, iii.www.defense.gov.). The aforementioned document went further to state that: ñthe vulnerability to theft or seizure of vast stocks of sensitive equipment and technologies in the nuclear black market, create a serious risk that terrorists may acquire what they need to build a nuclear weaponò (iv).Nuclear terrorism remains a threat of immense dimension which many scholars believe should be approached factoring in the urgency it deserves. With the snowballing sophistication discernible in contemporary international terrorism it appears that scholars, leaders and policymakers share a point of convergence. This is on the issue of not putting nuclear terrorism beyond contemporary terrorists. This comfortably dovetails into the informed assumption among strategists that as far as these warriors are concerned that ñpossession of nuclear weapons equals to their application.ò

The foregoing apprehension actually informed the agenda of the April 2010, Nuclear Security Summit in Washington, D.C. That summit focused on the threat of nuclear terrorism. Participants made concrete agreements such as increasing security of nuclear materials and reducing the availability of plutonium and highly enriched uranium (Sheridan, 2010). Ferguson (2006) noted that in the final years of the 20th century and in the early of the 21st transnational terrorist organisations have repeatedly demonstrated their willingness to kill large number of people, including civilians, to achieve their objective. They have also made efforts to gain access to WMDs, including nuclear weapons, by contacting nuclear weapon scientists and casing nuclear facilities. These trends compromise the enforcement capacity of the NPT against the unapproved spread of nuclear technology. This is so because all variables involved in both atomic control and nuclear terrorism are

not only related to but international with all issues of international politics especially those in the sphere of strategic studies.

There yet exists a point of divergence in opinion of scholars and researchers in relation to NPT atomic control and nuclear terrorism. This is on the contestable note of whether it remains a prospect or an ongoing trend that has not been noted by many. Many still view nuclear terrorism as a futuristic worry naively hoping in the mould of the realists that deterrence remains the desired security lid on violent excesses peculiar to warfare, especially the clandestine asymmetrical version. This state-centric perspective hopes against evidence that the primacy of the state as an actor in the international system remains intact and dominant. Deterrence, to them, works and is bound to work because the state factors its characteristics into all actions. Summarily put, it has something to lose in territory, population, government and other properties. Others, however, point out that globalization has to a very appreciable extent neutralised the dominant status of the state, thus it would be naïve to use the state-centric model of analysis to evaluate a threat where the role of the state under globalization appears to be on the wane.

Unfolding trends, however, tend to suggest verifiably that contemporary international terrorism manifest the prospects of climaxing into nuclear terrorism if the nexus of nuclear proliferation and international terrorism go unchecked. Under contemporary nuclear renaissance the available NPT nuclear-control mechanism is so comatose that it is manipulated with relative ease. This is so because logically the inevitable convergence of the two strategic challenges to global security, and stability constitutes a nightmare of immense proportion with high prospects of materializing. Evidence abound of this convergence and the inevitable application of its dire results by contemporary international terrorists. The Belfer Centre for Science and International Affairs (September 26, 2007) in a well-researched and documented study observed that the idea of terrorist

organisations using nuclear weapons is real in the light of available evidence related to unfolding trends in global politics. In the light of its research, it is deemed plausible and possible that terrorists could acquire a nuclear weapon (http://befercenter.ksg.havard.edu.publication/17520/nuclearterrorism_faq.html). Thus, in the contemporary era for the NPT, the crucial impediment to its enforcement capacity against the unapproved spread of nuclear technology lies in the fact that unfolding trends under globalization wee not factored into the drafting of its charter in 1968. Thus vis-à-vis nuclear terrorism the NPT charter could arguably be deemed anachronistic

The apprehension expressed over nuclear technology and its military abuse especially via application in terrorism is not a new phenomenon. Strategists, scholars and policy makers have always agreed that an abuse of the nuclear technology remains an associative peril attendant to the quantum energy men derive from it. Before this era of nuclear renaissance and apocalyptic terrorism based on optimal maximization of casualties concerns has always been expressed vis-à-vis the abuses of the nuclear technology by sundry actors especially those strutting the global turf which today includes sophisticated terrorists with global reach. Current debates are today centred on the prospective forms nuclear terrorism might occur. Many scholars, however, still trust the myriad strategic deterrence known as restraining factors that precludes the occurrence of nuclear terrorism through atomic control. Here, the NPT is supposed to make the military application of nuclear technology off-limit to unapproved actors. But unfolding trends highlight the contrary view as valid. This is so because contemporary developments show that the strategic hunch is over non-state-actor nuclear terrorism as opposed to the state-actor nuclear terrorism of the Cold War era (1947-1991). During the aforesaid period, strategists were evaluating nuclear terrorism on the state-centric model of analysis. The view was informed by the configuring that the USA and USSR hold the verifiable prospect of getting

embroiled in a conflict using nuclear weapons as they amply stocked and still stock in their ordinance depots and deployment spots dotting the globe. The October 1962 Cuban Missile Crisis came very close to confirming the veracity of the foregoing thesis.

The collapse and balkaninsation of the USSR in 1989 changed the global strategic landscape tremendously especially in relation to nuclear proliferation and its attendant lethal fallouts.. The dysfunctional impact of that fall or collapse haunts the globe up to this day. The world is today worried by the threat of nuclear terrorism by non-state actors especially terrorists whose anonymity makes nonsense of the time tested strategically restraining concepts of deterrence. Thus, during the aforesaid Cold War, the world only desired a situation without conflict involving the two major nuclear-power states as well as adversaries on either side of the ideologically opposed actors. The burgeoning sophistication of international terrorism arguably from 1968 changed the focus of expectations and appraisals of nuclear weapon as a tool in the conduct of asymmetrical warfare. Strategists from thence began to articulate terrorism, keeping all options on the table of evaluation, in view of its growing sophistication, reach and modus operandi. In the same vein globalization consolidated whatever leverage the terrorist has gained over time.

The issue of nuclear terrorism by non-state actors is not new on the agenda of fora where global security features. At least it could arguably be situated in the1970s. Thus, for instance, in 1975 *The Economist* (January 25, 1975:38) warned that:

> You can make a bomb with a few pounds of plutonium. By the mid-1980s, the power stations may easily be turning out 200,000 lb of the stuff each year. And each year, unless present methods are drastically changed, many thousands of pounds of it will be transferred from one plant to another as it proceeds through the fuel cycle. The dangers of robbery in transit are evident é vigorous co-operation between governments and the International Atomic Energy Agency could, even at this late stage, make the looming perils loom a good deal.

The Munich Olympic massacre in mid-1972 created much awareness of sophistication acquired by modern terrorism. In that incident, terrorists killed many Israeli athletes in cold blood. Until then, strategists were not much abreast with the threat of organized crime, international terrorism or even the upped version of nuclear terrorism. The erroneous global perception then was that the prohibitive value of ñspecial nuclear materialsò - plutonium or highly enriched uranium ï was enough deterrence against such material of high value falling into wrong hands, terrorists included. Evidence points out ñthat the physical safeguarding of bomb-grade material against theft was almost scandalously neglectedò (Collins, 1980:37).

Furthermore, in the 1980s, the debate over nuclear terrorism gained currency as subject in the public domain. This arguably came as a fallout of the NBC airing of a Special Bulletin which dramatized a nuclear terrorist attack on the United States (Bedell (A), 1983; Bedell (B), 1983: C15; Harmetz, 1983: C19). Costello, (1986) articulates the warning of experts to the effect that the probability of nuclear terrorism is increasing and the consequences for urban and industrial societies could be catastrophic. The world is apprehensive of the danger posed by nuclear proliferation especially in relation to its affecting the conduct of asymmetrical warfare in the manner of all technological change, shift or advancement. Thus, in this era of nuclear renaissance, as terrorism is also advancing on all cylinders nuclear weapons materials especially those on the black market are a global concern (Davis, 2008; Jenkins, 2008). Concern also exists in relation to the possible detonation of a small crude nuclear weapon by a terrorist group in a major city with significant loss of life and property (Kristof, 2004).

In furtherance of explaining issues that question the NPT atomic control mechanism via-a-vis nuclear terrorism, strategic issues and data are extremely less assuring. In November 2006 the British Secret Service M15, warned that the al-Qaeda were planning to

use nuclear weapons against cities in the United Kingdom by obtaining the bombs via clandestine means

(http://belfercenter.ksg.havard.edu/publication/17529/nuclearterrorismfaq.html). In June 2007, the FBI released to the press the name of one Adrian Gulshair el Shukrirumah. The man was alleged to be operations leader ostensibly affiliated somehow to al-Qaeda responsible for developing tactical plans for detonating nuclear bombs in several American cities simultaneously (*Fox News,* June 4, 2007). Still on the exploration of nuclear terrorism, Patterson (2007) noted that the era of nuclear terrorism has begun but ostensibly not articulated by a latent world. He buttressed his conviction on the celebrated case of the ex-KGB spy, Alexander Litvincinenko, who was poisoned with radioactive polonium-a lethal derivative of nuclear technology. He argues further that the method of Alexander Litvinenkoôs murder by yet unknown folks constitutes or ñrepresents an ominous landmark: the beginning of an era of nuclear terrorism.ò

The persistent quest for nuclear capability by terrorists is not new. However, this could be explained vis-à-vis the highly deregulated global nuclear technology under our contemporary global nuclear renaissance which makes for an enlargement of the globeôs nuclear proliferation list of concern. This renaissance has incapacitated virtually the NPTôs atomic-control capability. What is new and extremely worrisome about the forgoing equation are the apparent commitment on the side of contemporary terrorists, global nuclear renaissance, and the latent disposition of the world to the threat of nuclear terrorism. Fundamentalist terrorists, for example, attacked the Pakistani nuclear facilities three times: twice in 2007 and once in 2008 (Blakely, 2009). On evaluation of several incidents in Pakistan in which terrorists attacked three of its military nuclear facilities it became clear that there emerged a serious danger that they could gain access to the countryôs nuclear arsenal, according to a journal published by the US Military Academy at West Point

(Blakely, 2009). On a more worrisome note, a study by the Belfer Centre for Science and International Affairs at Harvard University entitled ósecuring the Bomb 2010ô, found that Pakistanôs nuclear stockpile ñfaces a greater threat from Islamic extremists seeking nuclear weapons than any other nuclear stockpile on earthò (*The Guardian*, April 12, 2010).

The threat of nuclear terrorism remains real under contemporary nuclear renaissance which represents the zenith of nuclear proliferation. Globalization constitutes a fillip to all terrorists needs but definitely do not deserve. This complex challenge is well known. It probably informs the action taken by the United States in August 2002. Then the US launched an ambitious programme to track and secure enriched uranium from twenty four Soviet style reactors in sixteen countries with a view to reducing the risk of such fissile radioactive materials falling into the hands of terrorists or ñrogue states.ò The first of such operation was *Project Vinca*, a multinational, public private effort to remove nuclear national from a poorly-secured Yugoslav research institute.ò This could have been informed by two factors: the sophistication discernible in the terrorist attack in the US on September 11, 2001, and the fact that by 2002 the genocidal fractious war that Balkanized Yugoslavia was a decade old and well in full swing. The project has been hailed as ña success storyò with the ñpotential to inform broader óglobal cleanoutô effort to address arguably one of the weakest links in the nonproliferation chain: insufficiently secured civilian nuclear research facilities. The foregoing trends arguably demonstrate incapacitation of the NPT regime vis-à-vis its function-atomic control.

Conclusively, it must be pointed out here that scholars and researchers are almost unanimous vis-à-vis the concern that nuclear terrorism against the background of the constraints of the NPT regime is founded and real. The global nuclear renaissance has compromised the status of the NPT regime as an international regulatory mechanism primed for atomic control. Strategic experts only diverge in relation to the extent and

urgency of the threat posed by the NPTôs regulatory limitations which explains the researcherôs drive to investigate with a view to exposing the knotty issues therein. The works of Allison, (2004); Levi, (2009); Schell, (2007); Jones, (2008); and Ferguson, (2004), for example, offer a comprehensive debate with informed conclusions on this issue of lapse atomic control and its relationship with nuclear terrorism. Unfolding trends, however, tend to support their views to the effect that contrary to earlier held views contemporary international terrorism is bound to benefit, if it has not benefited, by the contemporary nuclear renaissance sweeping the globeôs strategic landscape even with the NPT regime in place to deter proliferation. The foregoing trends could arguably be placed at the doorstep of the incapacitation of the NPT to enforce a hermetic global atomic control.

3. Do the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security?

Apart from the problems of the anarchic nature of the international system, the discrepancies and contradictions in the interpretation and enforcement of regulatory mechanisms instituted against global challenges constitute a daunting policy threat. Attempts are normally mired by the divergent interests attendant to such amorphous amalgam of different people with myriad cultures, focus and capability. Furthermore, the structural imbalance in the international system between the affluent and industrialized North and the poor-agrarian south bound to retardation perpetuates antagonism and tension. Thus, in contemporary global politics one witnesses chronological repetition of history of persistent domination of the South by the North which sets the rules and breaks the same that is enforced to the letter when it deems them worthwhile. Thus we see advocates from the South calling since 1974 for a New World Order to address the problems of the dysfunctional fallout of the lopsided structure of the international system. In the same vein, though on the flip side of the coin, we see the global North pressing to maintain the *status*

quo against the interest 2and choice of the majority. This is what theorists termed dependency which means subjugation by another term.

The pioneer theorists of the dependency school of thought are Andre Gunder Frank, Fernando Henrique Cardoso, and Enzo Faletto. McLean (1996); Igwe (2002), Dos Santos (1970); and Frank (1969) offer an in-depth explanation of this perspective especially in relation to the North-South divide as it affects global politics. This perspective arguably stretches to all the facets of global politics and accounts for the impediments to the realization of most noble goals of global concern. It constitutes a fillip to the preponderance of lawlessness in the international system whereby actors act in relation to their perceived power in crass unilaterality in especially issues of global collective commons. It is in this anarchic international system that one must grapple with an appraisal of the threat to global security posed by the statutory limitations of the regulatory mechanisms put in place to check threats. In this context, it is vis-à-vis the strategic issues of nuclear terrorism. The concern is premised on the lethal form of nuclear terrorism.

Thus, for an effective atomic control a review of the statutes of the International Atomic Energy Agency and the Nuclear Non-Proliferation Treaty appears germane and constitutes the irreducible minimum of a condition to contain the challenge of nuclear terrorism. Unfolding trends in the international system especially in the contemporary era of global nuclear renaissance and modern terrorism suggest strongly a reappraisal of extant tools put in place to combat related global challenges. The aforesaid regulatory mechanisms as both an organ and a convention of the United Nations respectively have statutory limitations that in the final analysis pose a threat to global security and calls for their simultaneous reviews. The IAEA appear meant to check the so-called nuclear have-nots while the NPT appear meant to stop the signatories in the NNWS category while those in the NWS category continue to manufacture, stockpile and deploy more sophisticated

nuclear weapons capable of destroying the earth five times over. This, of course, entails fundamentally a democratic restructuring of the United Nations where by like in a domino, for example, the effectiveness of the aforesaid international regulatory mechanisms under the auspices of the United Nations would dovetail into position. Until this happens, global security would remain elusive, daunting and threatening with the weaker actors embracing nuclear proliferation and resorting to asymmetrical warfare-terrorism.

Gulick (1999:7) evaluates the global security concern especially in the light of changes accomplished and evolving and concludes that:

> Our generation, therefore, so far as political realism is concerned, is wandering in a zone of historical ambiguity, a political no-manôs land between, on the one hand, the state system with it balance-of-power politics now rendered globally lethal by nuclear weapons and, on the other, an evolving world order; between a fatally flawed nation-state traditionalism and a newer globalism that is powerless in its infancy. Under this circumstance political realism must detach itself from time-honoured links to the balance-of-power state system and find a new mooring.

A political analyst can discern with relative ease the obsolescence in the hitherto contemporary tools of analysis especially those of the state-centric realists. The attached urgency to the prescriptive thrust gains currency especially when evaluated against the background constituted by strategic concern posed by nuclear terrorism which is devoid of a learning curve. Moreso, in the field of strategic studies, the traditional emphasis, has remained on preemption and not amelioration of dire trends and prospects such as nuclear terrorism. From the foregoing, therefore, an empirical evaluation of security concerns toward the end of the 20th Century and that of the early 21st Century definitely differs in virtually all attributes and characteristics from that of the preceding centuries. That means that the evaluation of issues must be contextually primed to meet the scientific requirement of empiricism.

The legality or illegality of actions in the international system is extremely ambiguous, provocatively relative, and subject to all manner of selfish interpretations and selective enforcement. Thus, we witness a past, present and probably future characterised and to be characterised respectively by subjective wishes of myriad great powers. Every evidence points to the fact that the future to a very large extent remains in the hands of great powers, for the mere reason that ñpowerful states make the rulesò (Keohane and Nye, 2001). Thus we see great powers embracing unilateralism since they possess the clout and resources to initiate, enforce and justify even the illegal. The US, for example, under President George W. Bush (2000 ï 2009)took this unilaterality to the hilt via his Bush Doctrine which entails a unilateral grand strategy primed to preserve a unipolar world under U.S hegemony by placing the US military strength beyond challenge by any other great power (Kegley, 2007). Thus under President George W. Bush, the U.S. administration enunciated the view cum policy to the effect that:

> America is no mere international citizen. It is the dominant power in the world, more dominant than any since Rome. Accordingly, America is in a position to reshape norms, alter expectations, and create new realities. How? By unapologetic and implacable demonstrations of will (Krauthammer, 2001:42).

This issue of thrust at dominance by the great powers account for majority of the contemporary problems plaguing global citizens in one form or the other by fundamentally questioning global peace and stability. The fallout of this unstable state of affairs compromises global security especially as it relates to two strategic issues. These issues are nuclear proliferation on one hand and international terrorism on the other. It is on record that both issues have in place many treaties, conventions and statutes put in place with a view to stemming the strategic challenges they pose in isolation and collectively to global peace and stability. Even the issue of their convergence or attainment of critical mass in the

form of nuclear terrorism has received global statutory attention. Thus as a nexus both are recognized as strategic challenges to even the survival of humanity. But many scholars believe that the regulatory mechanisms, the IAEA and the NPT, put in place to contain both phenomena are adequate. Others, against the background of the current strategic tension in the international system, believe otherwise, especially in relation to the aforesaid statutory limitations, and the policy challenges facing the interpretation and enforcement of international regulatory mechanisms.

The bulwark against nuclear proliferation and nuclear terrorism is provided or supposed to be provided by the Nuclear Non-Proliferation Treaty (NPT) of July 1, 1968. This treaty, which is reviewed every five years and was last reviewed in May 2010, constitutes ñthe worldôs main bulwark against proliferation and nuclear terrorismò (*The Economist*, April 10, 2010:41). Nuclear Non-Proliferation Treaty as an arms-control treaty is not new but peculiar. Its peculiarity and worrisome uniqueness are anchored on the lethal zenith it occupies. There is yet no known weapon that can kill *enmass*, with speed and efficiency as the weapons in the nuclear category. Even the enhanced Hydrogen bomb is still classified as based on nuclear technology; hence a nuclear weapon.

Thus, nuclear arms control, as the NPT was ratified to achieve, constitutes just one spot on the strategic road toward saving humanity from inevitable extinction. Before the NPT of 1968, attempts at arms control has always been recorded in the march of civilization which paradoxically has continued to turn man into a better and more efficient killer. Way back in 431 B.C the Greeks, for example, in their preponderant conflicts prohibited the use of incendiary weapons. The Rush-Bagot Treaty (1817) between the United States and Canada made the two statesô frontiers secured to date; the Hague Conferences (1899, 1907) put some restrictions on the use of poison gas and other terrible weapons (Croft, 1997). The Washington Naval Conference (1921 - 1922) deterred for a

time naval arms by establishing a battleship tonnage ratio among the then worldôs leading maritime powers. In the 1920s and 1930s many bilateral and multilateral arms negotiations and agreements came into existence (Rourke, 1999). Rourke (1999:370) observes that:

> Arms control efforts were spurred by the unparalleled destruction by both conventional arms during World War II and by the atomic flashes that leveled Hiroshima and Nagasaki in 1945. In January 1946, for example, the UN created a commission, now called the International Atomic Energy Agency (IAEA), to limit the use of nuclear technology to peaceful purposes**.**

Rourke (1999:370) went further and asserts that:

> Progress during the ensuring 40 years was slow, but it occurredé . The first major step occurred in 1963, when most countries agreed to cease testing nuclear weapons in the atmosphere. Between 1945 and 1963, 449 nuclear devices were detonated in the open air, an average of 24.9 per year. After the treaty was signed, these tests by non signatories declined to about three a year, then ended in the 1980s. Thus the alarming threat of radioactive fallout that has increasingly contaminated the atmosphere was largely eliminated.

Arms control, especially in the nuclear sphere, moved on unhindered though with the requisite constraints peculiar to such strategic programme that is understandably wont to suffer the dearth of trust. Myriad treaties and agreements are in place to check excesses and abuses replete in the nuclear technological domain. The Nuclear Non-Proliferation Treaty (NPTï 1968), Strategic Arms Limited Talks III (SALT III ï 1997),the US ï Soviet INF Treaty of 1987, and (Strategic Arms Limitation Talk ï SALT - 1972), Strategic Arms Limitation Talk II (SALT II ï 1973) Comprehensive Nuclear Test Treaty (CTBT ï 1996), and other related treaties and agreements have not achieved much of their prime objectives. However, a strategic evaluation of contemporary global security tends to suggest that there is both threat and hope in the event of concerted efforts from all stakeholders in global security.

Larsen & Rattrary (1996) agreed that the most significant arms control operational in the 1990s is constituted by efforts to control nuclear arms. This is ostensibly informed by the conclusion of Chafetz (1995) to the effect that nuclear weapons proliferation rank high among the nuclear arms control challenges facing the international community. Presently, two schools of thought exist as a divide in the safety or peril of nuclear weapon stockpiling. Many scholars and policymakers believe that the laissez-affaire attitude toward contemporary global nuclear renaissance is bound to create a strategic equilibrium and deterrence in the same vein. They figure that it is bound to create a stable, nuclear checkmate regime based on the Mutual Assured Destruction (MAD) deterring strategic principle (Waltz, 1981; Glenn, 2004). Most observers of global strategic trends conversely figure that the globe is primed for a *nunc dimitis* via nuclear possession to a lesser extent and proliferation to a larger extent. Thus, contemporary opus tends to project terrorist acquisition of nuclear capability and the conduct of asymmetrical warfare as the terminal zenith of the proliferation threat especially for the informed reason that terrorists unlike states with mailing addresses and a stake in the international system cannot be deterred. Many strategic experts are of the informed opinion that the control of nuclear technological military fallout remains awfully inadequate. The former director of the US Central Intelligence Agency (CIA), William E. Colby, for example, observes in relation to control of nukes that:

> I think itôs a bloody miracle that one of these eggs has not gotten loose. The subject of control over nuclear weapons is so awful a problem that there arenôt any real solutions to them and you cant relax about it at all (*New York Times,* August 14, 1991:A9).

The Nuclear Non-Proliferation Treaty (NPT) as a regulatory mechanism against nuclear proliferation is sound and noble on enactment. Statutorily it appears primed to stem the tide of nuclear proliferation. But evidence today tends to suggest that this regulatory mechanism

has statutory limitations leveraged by nuclear cheats and mired down in the contradictory pool of global politics of double-standard and intrigues. Since its ratification in 1970, nuclear proliferation has not only been on the rise, but most beneficiaries, existing and potential, are strategically very challenging actors in the international system. What started as vertical nuclear proliferation between the US and the then USSR in the 1940s and early 1950s quickly transformed into horizontal nuclear proliferation in the 1950s and 1960s. We are today bound to grapple with the apex of nuclear proliferation ï global nuclear renaissance. The global concern now especially among informed strategists is that terrorists might benefit by this contemporary nuclear bazaar if they have not already done so, especially under globalization and the profound weakening of the Nuclear Non-Proliferation Treaty (NPT) whose statutory prescriptions are flouted by both the NWS and NNWS, signatories

The Nuclear Nonproliferation Treaty (NPT) was renewed and made permanent in 1995. It has now 85 percent of the globeôs nations as signatories. This treaty makes provision for obligations due both the Nuclear Weapons States (NWS) on one hand and the Non Nuclear Weapons States (NNWS) on the other. Thus, we discern a symbiotic array of obligations primed to contain nuclear proliferation statutorily specified. The nuclear signatories to this treaty agreed not to transfer nuclear weapons or in any way ñassist, encourage, or induce any nonnuclear state to manufacture or otherwise acquire nuclear weaponsò. The Nuclear signatories to the NPT regime also agreed to negotiate toward eventual nuclear disarmament to usher in a world free of nuclear weapons over time. Nonnuclear signatories of the aforesaid treaty in the same vein signed and agreed not to build or accept nuclear weapons. They also subscribed to allowing the IAEA to establish and enforce safeguards to ensure that nuclear facilities are used exclusively for peaceful

purposes in such fields as energy and medicine to the verifiable exclusion of weapons for military and related strategic purposes.

However, Rourke (1999:373) observes that:

> Efforts such as Nuclear Nonproliferation Treaty have slowed but not stopped, the proliferation of nuclear weapons. There are now nine declared and undeclared nuclear weapons countries, and numerous other countries have the ability, and in some cases the desire, to acquire nuclear weapons.

SIPRI (2009), however, observes with concern that members of the nuclear club of five, the US, China, the UK, France and Russia, are all ñeither deploying new nuclear weapons systems or have announced their intentions to do so. òThe interpretation and enforcement of the pivotal substance of the NPT regime as a regulatory mechanism against nuclear proliferation is highly compromised by deceptive semantic manipulations. This complication thus, has over time provided the requisite smokescreen for sundry unwholesome activities detrimental to the realization of the primary goals of the NPTï stemming nuclear weapons proliferation. Thus many countries, nuclear and nonnuclear alike have compromised the statutory specifications of the NPT over time. Countries such as India, Pakistan and Israel from the beginning refused to sign the treaty and have maintained their positions. The trio are today established nuclear powers even with Israeli ambiguity vis-à-vis its nuclear status. North Korea opted out of the NPI regime it hitherto signed in 1993, and in 2006 tested its first nuclear weapons and another in 2009.

Furthermore, ambiguity plagues the statutory provisions of the NPT. This treaty, for instance, allows the accessing of nuclear technology to all with the dubious provision that such acquisition be restricted to peaceful purpose only. Such design must be accessible to and verifiable by the UN nuclear watchdog, the Geneva-based International Atomic Energy Agency (IAEA). The problem crops up at this juncture in relation to ascertaining and distinguishing what constitutes peaceful/civilian as opposed to weapon/military nuclear

technology. This strategically tricky exercise is made more complex by the nature of the nuclear process of generating energy for sundry uses and applications. Dahlberg, *et al* (1985:33), for example, notes with apprehension and assert that:

> Also, it has become increasingly clear that one cannot really separate ñmilitaryò and peacefulò nuclear power. The expansion and diffusion of so-called peaceful uses not only carries with it health and environmental risk, but also the risk that the by-products and waste materials from these peaceful reactors will be diverted to produce nuclear weapons which might be used in local conflicts or for blackmail.

The nuclear processes of generating energy makes a mockery of the NPT regime and the capacity of the IAEA as a global anti-proliferation guard. Uranium constitutes the vital raw material which is enriched in a reactor to generate quantum nuclear energy. This complex process of enrichment produces many by-products such as the highly radioactive plutonium favoured in the fabrication of atomic bombs. It thus becomes highly problematic to monitor and obstruct the diversion of materials in so-called peaceful reactors for the purpose of bomb fabrication. Atomic or nuclear weapons are fabricated using enriched uranium or plutonium whose energy could as well be used, for instance, to generate electricity. One could interchangeably, and with relative clandestine ease, use the derivative energy or fuel to make nukes or generate electricity as many entities profess without independent verification. Thus, the latitude of fuel diversion defeats the pivotal raison dõêtre of the NPT-nonproliferation of nuclear weapons. It is hard to pin one colour on this chameleon represented by nuclear technology which possesses a dual-use characteristic attained by virtually the same processes.

Dorf (1978:234-235) appreciates this puzzle and asserts that:

> Atomic bombs are fabricated from enriched uranium or plutonium. Thus, the danger of the diversion of these substances from their peaceful use to use in nuclear weapons must be considered. Even small amounts of plutonium in the hands of terrorists would expose a nation to danger.

> Plutonium might be stolen in the fuel processing plant or in the transportation system between the processing plant and the reactor.

The strategic world is thus witnessing a plethora of deceptions and double-talk from signatories to the NPT ï the nonnuclear as well as the nuclear. Contemporary trends further exacerbate the interpretation and the enforcement of the regulatory provisions of the NPT. This water is muddied more by the status of countries such as India, Pakistan and Israel that defy the world or the so-called international community by remaining outside the NPT regime. The aforesaid countries, established nuclear powers, are yet to sign the NPT. On the flip side of the trend, one notices the brinkmanship diplomacy or faceoff currently threatening global stability as it relates to the NPT regime. Iran and North Korea figure in the current strategic puzzle. Both nations were original signatories to the NPT. North Korea is today a nuclear power after conducting its first nuclear test in 2006. Iran insists its own hitherto clandestine nuclear programme is strictly for peaceful purposes ï generation of electricity and manufacture of medical isotopes for treating cancer and other diseases. Experts, however, doubt the Iranian line especially as informed by Iranôs antecedents of myriad manipulation of treaties and established disrespect for proper standards and civilized code of behaviour (Takeyh, 2006; Pollack, 2004; Inar, 2006; Talmadge, 2007; Sokolski and Clawson, 2005).

Zakaria (2009:24) talking about Iran, asserts that:

> The country has a right to civilian nuclear energy as do all nations. But Teheran has signed the Nuclear Non-Proliferation Treaty submitting itself to the jurisdiction of the International Atomic Energy Agency. The IAEA says Iran has exhibited a pattern of deception and noncoperation involving its nuclear programme for 20 years ï including lying about its activities and concealing sites. In that context, it makes sense to be suspicious of Iranôs intentions and to ask that the IAEA routinely verify and inspect its facilities.

Even the nuclear nations are deceptive to the tenets of their obligations to the NPT. France, for instance, conducted nuclear test on the Murora atoll in 1995 in contravention of its obligation under the NPT as a nuclear state. The then President Jacques Chirac defended the action by insisting that France needed to test its nuclear weapons as it shares dangerous world with other actors and rhetorically asserts that, ñwho could say that tomorrow this or that extremist é won't take power in Russia, with considerable nuclear capacityò (Rourke 1999:376). The nuclear states still believe in nuclear weapons as the cornerstone of their defence policies. To them, nuclear weapons triumph in two strategic tasks: deterring the use of such weapons against other nuclear powers or their allies and deterring states from directly challenging the vital interests of a nuclear power (Hemmer, 2007).

It is even doubtful whether the US and Russia are actually scaling down the volume of their unconventional weapons. There is yet no record of independent verification to that effect known to the researcher. The IAEA is yet to nose through the nuclear facilities of the ñBig Fiveò veto-wielding nuclear members of the UN Security Council on whose shoulders global security is yet placed. Thus, Rourke (1999-353) calls the United States and Russia ñnuclear Goliathsò. Even with the NPT in place, China arguably remains culpable to the most worrisome aspect of nuclear proliferation ï terrorist acquisition of nuclear technology. Huntington (2002) highlights that non-Western nations acquire sophisticated weapons through arms transfers from Western societies, Russia, Israel and China. This shows a daunting aspect of the challenges facing the NPT. It goes further to point out that China availed North Korea, Iran, Iraq, Pakistan and probably others of nuclear facilities, know-how and rendered such requisite assistance in all spheres of the sophisticated nuclear pursuit. Thus, the NPT is highly compromised by all signatories to it ï nuclear and nonnuclear. Furthermore, the incalculable illicit proliferation damage done global security by Pakistan's nuclear father, Agha Khan, remains a lingering terrible concern (Powell and

McGirk, 2005). It also constitutes a proof to the effect that the NPT is hollow and the IAEA incapacitated to the detriment of global security.

The foregoing literature thus shows the there are statutory limitations of both the IAEA and the NPT regulatory mechanisms and that those limitations constitute a threat to global security. The mechanism against nuclear proliferation, which has attained a critical mass in nuclear renaissance, is replete with contradictions. It is for example, scientifically impossible to differentiate peaceful/civilian from weapon/military nuclear technology as the process via which either could be attained are entwined and the same. This mortgages the NPT which permits peaceful and not military uses of nuclear technology and enforcement duty of the IAEA.

The issue of the statutory limitations of both the IAEA and the NPT, literature abound. These challenges make nuclear proliferation snowball as they shatter the deterrent mechanisms. The foregoing could be inferred from such works as Carpenter and Pena (2005), and Wolfsthal (2005). This complication is made worse by the rate at which the restraining regulatory mechanisms are circumvented with relative ease. Thus, McLean (1996:345), for example, observes that ñbecause of the close links between civil and military nuclear technology, many states are able to reduce the time necessary to acquire a nuclear weapon by acquiring a range of nuclear technologies for civil purposesò. Kegley (2007) laments that the safeguards built into the nonproliferation regime are simply inadequate to detect and prevent secret nuclear weapons development programs. The threat of nuclear terrorism evidently is bound to snowball unless the aforesaid international regulatory mechanisms are reviewed in the light of unfolding threats in the contemporary anarchic international system where laws are flagrantly disobeyed and treaties trampled upon especially by the powerful actors.

Empirical Literature

The global debate over the issue of nuclear terrorism has come as age as staple of research among scholars. In the same vein nuclear proliferation has also featured since strategic experts are of the informed opinion that there exists a binary relationship between the availability or otherwise of nuclear weapons and terrorist application of the same in the conduct of asymmetrical warfare. The issue of nuclear proliferation thus brings to the fore that of atomic control. The indispensable position occupied by the regulatory mechanisms to check nuclear proliferation and terrorism thus assumes a right of place in all strategic equations to the balanced for global security and stability.

However, most investigations into the aforesaid complex strategic sphere have, even against evidence, been more assuring by pointing out that since global hermetic atomic control remains the solution to nuclear terrorism, the world should rest assured that there are extant international regulatory mechanisms primed for global atomic control. That, in the context of this study, means that the IAEA and NPT atomic-control international regulatory mechanisms suffice for containing the challenge of nuclear terrorism through atomic control. In 1981, the Stockholm International Peace Research Institute conducted a research entitled ñNuclear Radiation in Warfareò (SIPRI, 1981). They raised alarm over the fact that the rapid spread of nuclear weapons and technology posed a grave danger to even the survival of man. They, however, concluded on the optimistic note that through atomic control all remains under lid. They emphasized the relief accruable from the existence of the IAEA and the NPT regulatory mechanisms.

Helfand (2006), Taipale (2001), Barnaby (2005), Allison (2006), Kyman (2004) and Oxford (2005), for example, all conducted research into the aforesaid area of strategic global strategic concern. They, without exception, pointed toward atomic control as the irreducible minimum of a solution. The Weapons of Mass Destruction Commission (2006),

Albright (2005), Bunn (2006), also feature in researches of the past. The foregoing researches on evaluation exhibit, to a large extent, a convergent trajectory especially in highlighting the challenge of nuclear terrorism and hinging global hope on the extant international regulatory mechanism put in place to effect global atomic control, and by indispensable extension contain the challenge of nuclear terrorism. There were, of course, myriad researches encountered and appraised on merit by the researcher. Suffice it to humbly admit that the above list is by no means exhaustive. The chosen and mentioned researches wee informed by an appreciation of the imperative of availing this study clarity and uncommon insight.

Gap in Literature

In both the struggle for global atomic control and against nuclear terrorism, many available literature demonstrate a reliance on the extant international regulatory mechanisms, *videlicet,* the IAEA and the NPT. However, the snowballing spate of worrisome nuclear proliferation in the contemporary global nuclear renaissance under globalization logically puts a question mark on the adequacy of the aforesaid two regulatory mechanismsô adequacy vis-à-vis atomic control. Previous researches, to us, appear to have relied on or trusted the two mechanismsô adequacy, though with modifications.

Evidently, no researchers within the bracket of those encountered by the researchers, saw the need of subjecting the two mechanismsô adequacy or otherwise to scrutiny or empirical verification. The imperative of avoiding the pitfalls of an unverified reliance on or trust in previous researches, partly informed the riason dôetre of this study. Thus, we decided to fill this gap in literature by going further to subject the adequacy or otherwise of the IAEA and NPT regulatory mechanisms to scrutiny especially vis-à-vis, but

not limited to, global atomic control and nuclear terrorism. We, thus also stretched it to evaluate the threat posed to global security by the statutory limitations of both the IAEA and the NPT regulatory mechanism.

CHAPTER THREE

METHODOLOGY

3.1 Theoretical Framework

International Relations as a field of study have traditionally always focused on the activities of state actors in the international system. However contemporary opus tends to suggest a shift from the state actors to also reckon with other actors who are these days given prominence in functions, reckoning and discourses. The shift does not, however relegate the state actors to the inconsequential background in the scheme of things. All actors in the system are primarily citizens of one state or the other. There, in fact, remains the traditional status of the state actors even in the face of a forceful drive by other actors to displace and replace it vis-à-vis relevance. These other actors are state-based, thus pointing out the indispensability of the state in the international system. The foregoing state-centric bent or thrust explains why most theories of International Relations are state-centric even in the face of the sweeping or eroding effects of globalization on the dominant features of the state. Thus, we see other actors competing effectively with the nation-state for relevance in the charged international system.

A clear appraisal of the issues discernible in nuclear proliferation, which has attained a critical mass in nuclear renaissance points to the quest for power, leverage and dominance. It points to the issues of deterrence, national interest and coercive diplomacy since the quest for power especially in the nuclear remains derivative in nature. Under the contemporary international system overtaken tremendously by globalization, anarchy as the scholars of the realist school of thought asserted as the dominant feature of the international system prevails rather more profoundly. This anarchic situation is only taken to the hilt by the advance and gains of contemporary international terrorism which as asymmetrical warfare is informed principally by deprivation and frustration. Strategists are currently

concerned by the threat of nuclear terrorism. This worry or concern is founded especially if the aforementioned issues of nuclear proliferation and international terrorism are not checked or contained by preemption for the time-tested reason that every contemporary technology has always affected or determined how warfare is conducted.

Thus, the theories adopted for this investigation are the theory of power politics and the theory of discontent and frustration. This decision is based on the informed assumption that they are best equipped to aid in the explanation and understanding of the totality of factors and issues involved in this discourse. Thus, the aforementioned theories have the deconstruction of the present as its raison dêtre. It is believed that this pedestal constitutes the requisite mechanism that could explain the reality bestowed on the international system as security concerns or challenges. It is only after disentangling the tricky loops of the cord of global politics by these theories that one could in any sustainable sense of the word point the way to the indispensable future.

The theory of power politics with the Group-Conflict model constitutes the staple of the tools of analysis of global politics .Proponents of this theory are classified as realists. They fall into two groups of the traditional realists and the neo-realists who inspite of their myriad points of divergence still share convergence which on analysis outstrips the divergence. Backed by scholars such as Nicolo Machieveli, E. H Carr, Henry Kissinger, Hans Morgenthau, Martin Wright, Thomas Hobbes and Karl Deutsch, all of the early or traditional realist school, the theory of power politics has the distinction of affinity to all political theories mainly because politics tend to be appraised mainly through the prism of power. The neo-realists also view politics theoretically through the power prism as the traditional realists. The modifications discernible in their portrayal of the theory of power represents the input of the very circumstances that moderate their appraisal. The neo-realist worldview is made manifest in the input of such scholars as Fareed Zakaria, Richard Little,

Charles Jones, Kenneth Waltz, StephenKrasner, Barry Buzan, Robert Gilpin, among others. The realist tenets could be discerned, for example, in the works of Carr (1939), Morgenthau (2006), and Waltz (1979).

The theory of power politics has remained a very important tool for the conceptualization and understanding of the plethora of intricacies in international relations and politics. Power remains the indispensable tool of choice at the disposal of actors in the international system. It remains the determinant and purveyor of rights, privileges, and dominance. This explains the attendant resilience manifested in its pursuit, acquisition and ultimate application. The quest for nuclear power represents a quest for political power as leveraged by technological quantum leap and the attendant grandeur and deterrence capability it is bound to bestow on the beneficiary. The global energy crisis and the attractive zerocarbon feature of nuclear energy aside, it holds true in the strategic circle, for example, that nuclear energy is always viewed with apprehension mainly because of its military application. Thus, actors pursuing nuclear technological breakthrough, history has shown, have the acquisition of nuclear weapons as the primary objective well above, say electricity generation, on their respectively drawn scale of preference. Nuclear proliferation, thus, constitutes a manifestation and informed appreciation of the indispensability and interplay of power in global politics and evaluation using the realist theory of power politics.

Nuclear proliferation constitutes an attempt by actors to acquire power and thus be in a position to dictate and influence policies to suit the realization of their goals and objectives. The capability of nuclear weapons arguably ended World War II (1939-1945). It must be recalled that by August 1945, most oppositions to the victory of the Allied Forces were already extinguished or irretrievably waning with the exception of Japan which still had the capacity and arduous capability to fight on. The introduction of the advanced

technology of the nuclear weapons crushed imperial Japan, which hitherto remained invincible over centuries. It is on record that Allied Generals and strategists alike dreaded the resilience of Japanese combatants especially those in their suicidal Kamikaze cadre. But technology triumphs in warfare, and this lesson is not lost on contemporary actors including terrorists in the international system most of who are clandestinely and openly gunning for nuclear technological capability. Thus, Johnson (1984:399) concludes that:

> The skill with which Britain and America used advanced technology to illuminate global war was one of the principal reasons why the Germans and the Japanese, with their courage and energy, were fighting an unsynchronized struggle from 1942 on: like Bronze Age warriors facing an Iron Age Power, they appeared increasingly to be survivors from a slightly earlier epoch.

The five veto-wielding members of the United Nationsô Security Council are so principally because of their nuclear capability. Thus it is on record that the five actors use nuclear capability as a bullying tool to cow members of the United Nations in the NNWS category. Members of the NNWS have also come to appreciate the leverage bestowed on the NWS in global politics; hence many of them are on the march to acquire nuclear capability under myriad guises to the discomfiture and resentment of the NWS who are alert to the strategic implication of the realization of such a prospective balance of terror. This balance of terror, if attained, stands to alter tremendously the contemporary global strategic equation. The nations in the NNWS are bound to exercise their sovereignty to the hilt given that nuclear powers do not fight each other except by proxy. On the flipside, the NWS would respect the sovereignty of the NNWS as dictated by realpolitik. The United States, for example, would not have invaded Grenada (1983), Panama (1989), Haiti (1994), Afghanistan (2001), and Iraq (2003), were those nation-states nuclear powers. Ditto for the NATO-organized genocide in Libya under the guise of protecting ñciviliansò lavishly furnished with

sophisticated weapons and air cover since March 2011 that ousted Col Muammar Ghadafiôs regime.

Furthermore, actors are much aware of the import of power especially the debilitating nuclear version. Scholars have also articulated this notion as valid in many opus, past and contemporary. Oyebola (1976:117-118), for instance, sees nuclear capability as the ultimate bestower of power, clout and influence and warns vis-à-vis Nigeria that:

> Another important step Nigeria must take if she is not to betray the black race is to become an atomic power as soon as possible. If France and India had been so desperate in becoming atomic powers, Nigeria should be more desperate in becoming one. For one thing, our need is greater than that of France and India. For another, with our explosion of nuclear bombs, especially if we explode ours before South Africa does it, Nigeria would put the black race everywhere on the threshold of a new era. We would also frighten South Africa more than our military strength today frightens her and her allies. And Nigeria is in a strong position to become a nuclear power. We have the money and we have many Nigerians with a touch of genius. With the acquisition of atomic power, Nigeria will also record other spectacular achievement in science and technology and destroy the sad fact that it is only the black race that has not joined the atomic power club. The Mongolian race joined through the Chinese and lately the Indian atomic explosions. It may be argued that Nigerians are so poorly fed, poorly clothed and poorly housed that it would be unwise to divert our resources to nuclear experiments, I believe it is a serious mistake to under-estimate the importance of nuclear capabilities to Nigeria. It would give Africa and the black race a new identity. It would also give us a leap forward.

Nuclear proliferation is basically informed by the imperative of that leap forward expressed in the acquisition of nuclear status with the attendant power. Thus, it suffices to recall here the elation inherent in nuclear capability. The Chinese tested their first nuclear bomb on October 14, 1964. Marshall Nie Jung ï Chan, the overall head of Chinese atomic weapon development, told 353 scientists from 43 countries of the world in Peking (Beijing) in 1964: ñModern science, is no longer the monopoly of Western countriesò (Oyebola, 1976:118). Thus, the Libyan leader, Colonel Muammar Gaddafi concurs that, as Libyans, years before

giving up his programme ñwe should be like the Chinese ï poor and riding donkeys, but respected and possessing an atomic bombò (Manning, 1998:75).

It is on record also that no one pushes a nuclear-weapons state around. North Korea, a member of the so-called ñaxis of evilò with Iran and Iraq according to the Bush Doctrine, is today a nuclear power by virtue of its nuclear tests of 2006 and 2009. The US diplomatic tone of coercive diplomacy has since toned down, bereft of the usual threat and promise of fire and brimstone. The US is no longer touting ñregime change,ò ñfreeing North Koreans from a despot,ò and other euphonious democratic slogans. Persuasion and accommodation now colours contemporary exchanges. The case of India, a recalcitrant objector to the NPT regime now exchanges nuclear technological know-how and enjoys favourable diplomatic relationship with the US which has arrogated to itself the status of deproliferator-in-chief and global cop. This is simply because India has crossed the nuclear threshold. Pakistan has also done the same but without the benefits of nuclear exchange as extended to India.

Furthermore, on a more worrisome note, terrorists are bent on going nuclear with a view to acquiring the power and grandeur thereof. The prospect of terrorist acquisition of WMDs has been a worrisome subject of concern especially among strategists, scholars and policymakers. The leader of Al Qaeda, Osama bin Laden, in an apparent *faux pas* admitted what many have always feared but wished away. Asked by an expert, in an exclusive interview purportedly conducted in one of his caves in Afghanistan in 1998 about reports that he was trying to acquire nuclear and chemical weapons he replied: ñIf I seek to acquire these weapons, I am carrying out a duty. It would be a sin for Muslims not to try to possess the weapons that would prevent the infidels from inflicting harm on Muslims (*Time,* October 15, 2001:49)ò.

Discernible in the foregoing is the fact that power determines everything. International terrorism is perpetrated by actors desirous of acquiring power for the purpose

it is bound to bestow on them. The enviable purpose of being in control of affairs, many experts in the struggle for power opine, and I think rightly so, is that power determines trends among actors in the international system and the opposite. These experts are mainly the realists who view power as a dominant tool for the analysis of relations between two or among multiple actors. Since power remains preponderant in all spheres of political evaluation, suffice it to add that the canvass is now enlarged to factor in more actors ï MNCs, terrorists, NGOs, eminent personalities ï other than the hitherto dominant nation-state. The crux of the power theory by realists is that so long as states exist in an international system that is anarchy ï ridden, these states as actors in the volatile system ought to use their power exhibited in terms of force to assert themselves and sort out their problems. Hence, according to Deutsch (1978), power is that ability to prevail in conflict and to overcome obstacles. Schuman (1969) views power through the same prism as the ability to win friends and influence, to evoke sympathy to command obedience, to employ effectively all the devices of coercion, propaganda, and material indulgence and deprivation likely to induce respect and co-operation.

Morgenthau (2006) defines it as manôs control over the minds and actions of others. The foregoing views buttress the realistôs conviction to the effect that the determinant of the modus operandi and by extension the modus vivendi vis-à-vis an actorôs relation with another or others in the international system is force. This is more so especially when push comes to shove as it is wont to in any system as chaotic and anarchic as the international system. The conviction that might is right informs this; hence a more powerful actor with the requisite good measure of dominant capability or force could with relative ease exert co-operation, respect and compliance from one or others with the antidotes of deterrence.

Furthermore, Hans Morgenthau cited in Echezona (1993) sees power through his own prism, though ending up propagating the same point of view as others. Freedom,

prosperity, security and power itself may constitute the sought issues of statesmen and peoples. Their objective could be appraised via the philosophical, economic, religious or social parameter or scale of evaluation. Whatever these objectives are, they could only be realized by the acquisition and possession of power; hence the frantic pursuit of power. Among actors in the international system the most indispensible factor is military power and domination of others by the wielder. This, for example, explains why the US has troops deployed on all the continents, and fleets on all the oceans of the world as shown in Table 3.1 below:

Table 3.1: Location of U.S. military forces, September 2006

Region	**Personnel**	**Distribution of Forces Abroad**
United States	1,100,000	-
Western Europe	94,500	24%
Japan/Pacific	75,000	19%
Russia/Eastern Europe	2,200	1%
Middle East	212,500	55%
Latin America	2,000	1%
Africa	1, 700	0%
Total Abroad	388,000	100%

Source: US Department of Defence as cited in Goldstein, Joshua S. and Pevehouse, Jon C. (2008) *International Relations,* New York: Pearson Longman

Finally, we conclude the power theory perspective by pointing out that the power theory as a framework of analysis suffices for the binary issues of my discourse ï international regulatory mechanisms and nuclear terrorism. In the case of nuclear terrorism, one can empirically proffer or volunteer that international terrorism is partly informed by a turf war characterized by a bitter struggle for power among actors with grudges seeking clout, turf, and dominance in the international system. Power can explain but not excuse terrorism though it is a type of warfare-asymmetrical. This blacklisting is shown when

alleged and actual practitioners of terrorism are apprehended and treated as common criminals. Otherwise, the Geneva Convention on conduct of warfare would have designated captured terrorists as Prisoners of War (POWs). The terrorists have the Machiavellian philosophy at the back of their minds since they believe in not only that might is right but more importantly that the end justifies the means. In terrorism, all actions possess one form of political objective or the other. Since politics is power-centric in definition and application, it thus suffices to evaluate terrorism using the power theory as a tool of evaluation.

Coming to the theory of discontent and frustration with the relative deprivation model, there exists a relationship between this theory and the binary strategic concern represented by nuclear proliferation and contemporary international terrorism. Major proponents of this theory and its Relative Deprivation Model are Grofman and Muller (1967); Bowen and Massots (1968); Berkowitz (1962); Davis (1972); Follards (1939); Rotberg & Mazrui (1970); and Gurr (1970). These scholars concluded in their varied but related studies that violent attitude such as is discernible in arm race and terrorism is more often than not the fallout of discontent and frustration. Proponents of this theory and model point out that human penchance for aggressive dispositions is informed by the frustration ï aggression mechanism. Summarily put then, they infer that anger informed by frustration makes man amenable to violence as is evident in arms race and terrorism.

Behavioural experts posit that frustration constitutes an interference with goal-directed behavior. Ted Robert Gurr in his classic, *Why Men Rebel*, posits that relative deprivation is a *sine qua non* for violence. He posits further that deprivation is:

> A perceived discrepancy between menôs value expectation and their value capabilities. Value expectations are the good and conditions of life to which people believe they are rightly entitled. Value capabilities are the goods and conditions they think they are capable of attaining and maintaining given such means available to them. The extent of violence it is suggested depends on the intensity of the deprivation (Gurr, 1970:3).

Discernible from the foregoing is the fact that a sense of deprivation vis-à-vis the socio-cultural, economic, political, and other vista of existence inform directly or indirectly menôs drive toward violence. The foregoing line of reasoning holds true in relation to nuclear proliferation and terrorism. In the former the violence is inert and latent as the proliferators, rightly or wrongly, envisage looming violence which they believe they would overcome since to be forewarned is to be forearmed. In the latter, the violence is immediate. Terrorists pay more attention to goals and objectives and not rules which are viewed as inconsequential impediments that must be overcome.

Ted Gurr and others propounded and highlighted this theory to explain political behavior of varied actors. This theory borrowed heavily from psychology and thus constitute a veritable tool to analyse and to a very appreciable extent predict political behavior of an actor under evaluation. Nuclear proliferation is basically informed by the strategic concern of not being on the same strategic page with others or the imperative of moving up with the Jonses. It is informed by the psychological feeling of inadequacy without the perceived ultimate weapon of deterrence ï nuclear weapons. Thus, actors not contented with the contemporary status quo are wont to allay their fears by the perceived capability, status and grandeur of nuclear weapons. This discontent affects both the NWS as well as the NNWS. This is reflected in vertical nuclear proliferation and horizontal nuclear proliferation which applies to the NWS and NNWS respectively. The frustration is evidently reflected in the political behavior of actors in the international system as buttressed by the following illustrations.

The five designated members of the nuclear club ï USA, UK, France, Russia and China ï possess enough nuclear weapons to incinerate the earth. This is inspite of the NPT which makes their gradual disarmament a *quid pro quo* of the NPT regime undertaken with the NNWS. This line is definitely informed principally by a lack of confidence. India

detonated its first nuclear weapon in 1974. Its rival, Pakistan, panicked. The then Pakistani leader, Zulfikar Ali Bhutto, swore that: ñif India builds the bomb, we will eat grass or leaves, even go hungry, but we will get one of our ownò (*The Economist*, January 5, 2008:67).

India and Pakistan represent today a sad note on the issue of horizontal nuclear proliferation. Both countries are outside the restraining framework of the NPT; have tested nuclear weapons in 1998, and constitute the fissile nations of strategic concern over nuclear exchange. Both nations have gone to war many times, and the contested and protracted thorny issue of Kashmir region remains a flashpoint of conflict yet unresolved. Meanwhile both nations are, according to intelligence, increasing and improving their nuclear stockpile and the requisite delivery systems.

Furthermore, the nuclear programmes of North Korea and Iran show the relevance of the discontent and frustration theory to nuclear proliferation. The case of North Korea, which has already tested nuclear weapons in 2006 and 2009, represents an actor under siege. Thus, its bellicose foreign policy thrust constitutes an appreciation of its dire strategic threats. Since the Korean War ended in 1953, the US, an avowed ally and protector of South Korea, has been maintaining a daunting military presence on the Korean Peninsula. The US has always hinted on its resolve for regime change in North Korea which it designates a member of the ñaxis of evilò and sponsor of international terrorism that must be verifiably defanged on its own terms. Thus, it could empirically be inferred that North Koreaôs nuclear pursuit is informed by discontent and frustration which is made manifest in its aggressive foreign policy thrust with a view to staving off perceived aggression. This stave is enhanced by its possession of nuclear weapon apart from its one ï million men under arms.

Iran shares almost the same strategic bracket with North Korea apart from being a member of the ñaxis of evil.ò As a nation-state of the global South, it has been under all manner of sanctions; hence isolated for allegedly sponsoring international terrorism. Strategically, Iran feels it is under siege. The US and other allies have Iran boxed in a strategic cul-de-sac with foreign troops and sophisticated ordnances surrounding Iran. Foreign troops are, for example, in Afghanistan, Iraq, Qatar, and Djibouti with a robust naval presence in the Arabian Gulf. Thus, Iranôs nuclear pursuit, the incredible feeble argument postulating only civilian purpose aside, is informed by a psychological apprehension of its discontent and frustration. Iran wants assurance based on the deterrent capability of the ultimate Weapon of Mass Destruction ï nuclear weapon.

Mohammed Elbaradei, the then IAEA chief, in relation to Iran appreciated the foregoing when he asserted to the effect that inspections work but diplomacy is also indispensable. One needs to understand why a particular country is going nuclear. For Iran, he implies that one needs to address Iranôs sense of isolation, as well as its technological and economic needs granting and factoring in the fact that Iran has been under sanctions. Furthermore, El Baradei in Weymouth (2009:56) explains Iranôs nuclear impasse with the West thus:

> Well, itôs a competition between Iran and the West é Iran wants to have its role as a regional security power recognized é They see that if you have the technology that can allow you to develop a nuclear weapon in a short period of time, it gives you power, prestige and securityé . They heard from the previous administration talk about allocating funds for regime change, about an Axis of Evil, and if you were in their place, you would do everything you could to protect yourself.

Then coming to the theory of discontent and frustration as it concerns international terrorism, it suffices for us to point out here that violence and terror is no stranger to the anarchic international system. Crime is part and parcel of existence, and it unfortunately

appears to have the same life span. Many used to attribute terrorism to poverty and other forms and manners of deprivations humanly known. Reflective of social disharmony and debilitating disequilibrium, terrorism especially at the international level represents a determinant that could make or mar mankindôs march of civilization

Coser (1966) asserts that man is wont to resort to violence in the face of frustration, anxiety and demeaning placement. Empirically speaking then, one can authoritatively with the backing of a superior argument conclude that the present increasing menacing spate of violence profoundly reflected in international terrorism is a pointer to a perceived and adjudged unmitigated maladjustment. The al Qaeda supremo, Osama bin Laden, admits discontent and frustration with the West in general and the U.S in particular. He complained that ñNow infidels walk everywhere on the land where Mohammad was born and where the Koran was revealed to himò (*Time,* October 15, 2001:48). Osama bin Laden in his 1998 Fatwa (Edict) against Americans in Viotti and Kauppi (2009:507) observes that:

> The Arabian Peninsula has never-since God made it flat, created its desert, and encircled it with sea-been stormed by any forces like the crusader armies now spreading in it like locusts, consuming its riches and destroying its plantations. All this is happening at a time when nations are attacking Muslims like people fighting over a plate of food.

There is, however, a paradox to this theory of discontent and frustration vis-à-vis the issues or factors that inform terrorism especially at the global level. Why, for example, does frustrated and marginalized X indulge in terrorism while Y suffering the same fate refrains from it by embracing more civilized and acceptable channels of addressing his grievances? In this context McNeil (1966) postulates that unless we increasingly understand the forces or factors that make the individual the unique entity he is, our probable understanding of accurate prediction of the likely dimension of international violence is already foredoomed. The motivating contexts that create deviants rather than the so-called normal individuals

constitute the nucleus of the theory of discontent and frustration. However, it must be pointed out here that many variables among which are individual upbringings and level of consciousness account for the line of action an individual or a group takes vis-à-vis situations.

The kernel of terrorism remains violence. Violence could be viewed through the prism of physical force, utilized by a person or a group directly or via a weapon to hurt, destroys or control another. Discernible from this is the implication that violence exists to alter the attitude of targets or the system via the application of brutal or physical force. It mostly tilts the attitude of persons or the policies of states as the case may be to pander to the whims and caprices of the terrorist applying the illegal force. Blumenthal and Kalm (1972) portrayed the points of divergence discernible in instrumental violence and expressive violence, and this categorisation stands the chance of shedding light on those grey areas of the raison dœtre of international terrorism. They maintained that expressive violence is informed fundamentally by the perceived need to respond to feeling of hate or rage, founded or unfounded.

Furthermore, in instrumental violence such feelings are secondary, although they may arise, or manifest in the course of committing violent crimes or acts. This violence is that used primarily to achieve a specific objective or objectives. At the apex of violence rests terrorism since there is no act of terror that does not smack of violence of one sort or dimension. It thus suffices to point out that a clear and an in-depth understanding of violence could avail one by extension and implication, of a useful grip on the subject of terrorism. Disenchantment with the status quo engenders in the terrorist the unenviable drive of resorting to asymmetrical violence with the warped view to creating his utopia by wringing out concessions. With limited warfare capability, the terrorist cannot engage a standard army in conventional warfare. The postulation here is that when disenchantment

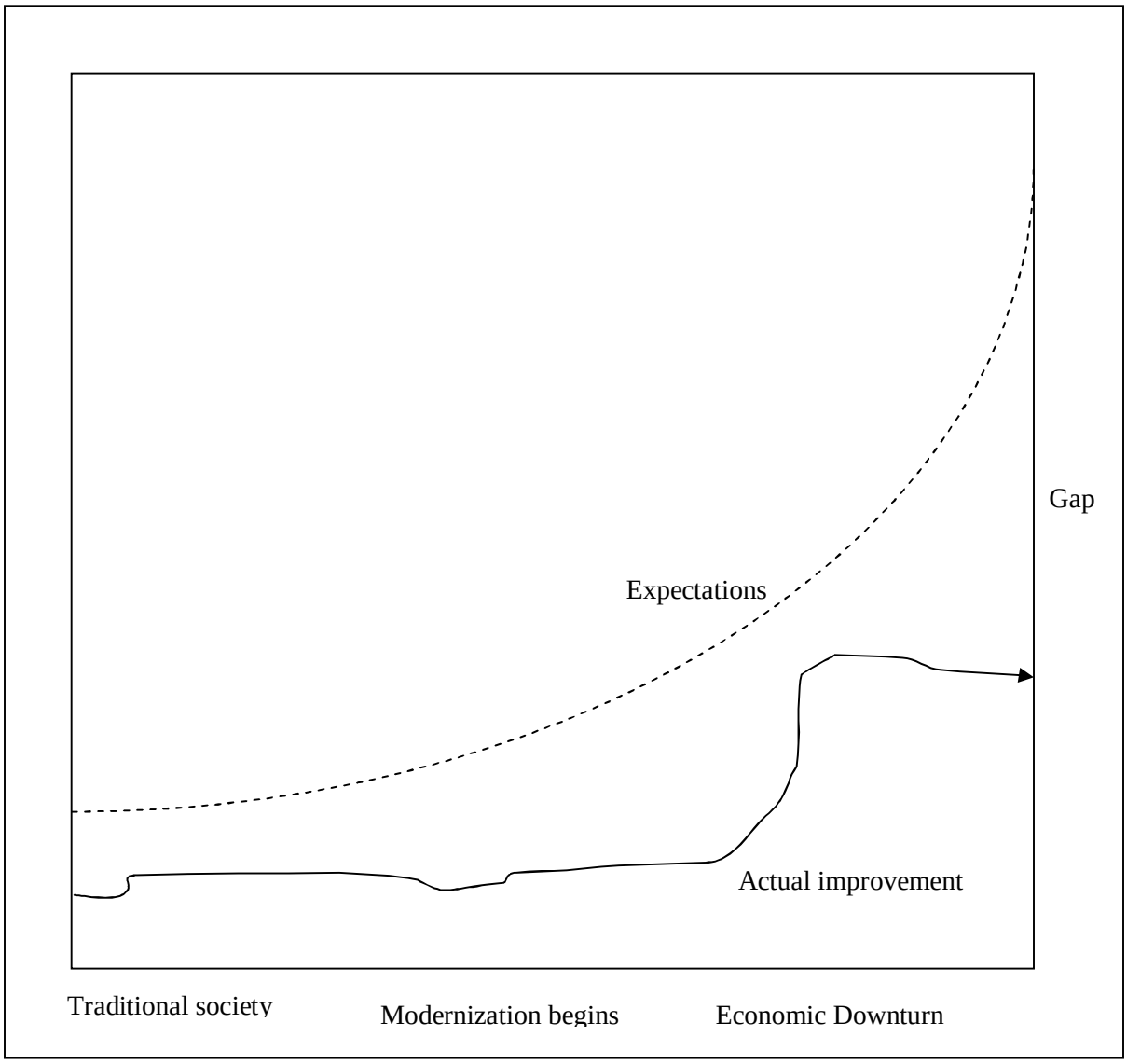
prevalent around individuals or groups is at the apogee, the inclination toward violence as is discernibly replete in terrorism tilts invariably toward its own summit. However, it must be appreciated that the disposition of a person, to a very appreciable extent, determines his attitude both at the individual and group level in the international system. This determines perception, appreciation and reaction in relation to issues and trends at different levels and fora. But the prime determinant of the occurrence and level of frustration is the composition of an individual or group.

Fromm (1973) asserts that a personôs character informs primarily what frustrates him and secondly how intense the reaction to the frustration could be. The threshold of frustration remains an indispensable feature of a personality structure. It is at this point that an individual confronting an increasing aspiration ï attainment gap becomes frustrated and stops embracing legality and socially condoned ways of closing the yawning canyon of a gap. One is wont here to embrace passivity, suppression of his actual feelings and these have the propensity of being translated into discontent with the attendant and escapist penchance for socially unacceptable behavior ranging from violence of suicidal to homicidal bent.

In the present era of globalization, especially with the triumph of capitalism with all its alienating trappings, the plethora of unmet aspirations need not surprise anyone especially the informed. The rapidity in the rising level of aspirations which most of the times occur in the absence of a matching rise in the drives to increase the status of realization appear to exacerbate the aspirationï realization gap and to enhance the likelihood of personal discontent as shown below in Figure 3.1. Thus, Durkhein (1951), for instance, points out that unfettered aspirations call for a higher rate of suicide. Reduced to the ploughmanôs understanding, a plethora of unfettered aspirations has the attracting capability for instability which naturally creates a strong potential for frustration. The world, for

instance, is today witnessing the intractile security nightmare occasioned for example, by activities of suicide terrorism.

Figure 3.1 RISING EXPECTATIONS



Source: Adapted from Roskin Michael *et al* (2008) *Political Science*, New Jersey: Pearson Education Inc, p. 366.

Furthermore, anomie forms another dimension to this theory. This rears its head up in the loss of faith in authority and in societal normative standards. Summarily put, its thesis postulates that when the level of aspirations move rapidly up while the expected levels of attainments fall behind; when contradiction between legitimized cultural aspirations and socially restricted opportunities become grossly evident, healthy discontent

might be replaced by frustration (Merton, 1957). The loss of faith in authority and social value system hampers the disposition of actors or actors toward respecting that thin line separating sanity from insanity; legitimacy from illegitimacy, and acceptability from unacceptability. This reinforces the penchance for and inclination toward violence vis-à-vis its existence, probability and frequency of occurrence.

The philosophy of pseudo-humanitarianism buttresses the concepts of rising expectations and anomie as determinants of peopleôs behavioural patterns. This philosophy points out that determinism and faith play prime roles in the perfectibility of human nature. The growth of the belief that human actions are informed by social circumstance shakes the foundation of the belief in human responsibility. This places the reprobation for individual deviant behaviour on society or the context harbouring the deviant. This notion avails crime of an undeserved explanation and by extension, incentive and excuse. Violent crime, terrorism, falls under this purview. Society today is bugged down in the arduous Sisyphean struggle of meeting the needs of its citizens, within the ambit of its capacity, but amidst this the deviant excesses of individuals rests on society. The plummeting threshold of frustration with a rapidly growing discontent contributes to a rise in preference and, so the tilt toward violence. The concept of increasing expectations anomie and pseudo-humanitarianism with their watering down of personal responsibility and increasing acceptance by society of same have added an incentive to the preference for violence and terrorism in the international system.

Finally, discernible in the foregoing is the fact that the power theory as well as the discontent and frustration theory suffice to analyse issues related to international nuclear regulatory mechanisms and nuclear terrorism. As in the issue of global nuclear renaissance, the power theory bares the quest for power as the motivating factor. In the same vein, the discontent and frustration theory shows that fear, frustration, anxiety and a feeling of

insecurity inform the myriad nuclear pursuits. Relating to international terrorism, both theories explain it as well. International terrorism apart from been a type of warfare, asymmetrical, represents a turf battle for power, influence and relevance. The theory places the penchance for terrorism in the psychological contextual sphere, which influences and moderates the disposition of actors at both the individual and collective level of evaluation.

3.2 Hypotheses

Using empirical data and qualitative analysis, this study will test the following hypotheses:

1. The statutory provisions of the International Atomic Energy Agency (IAEA) undermined its enforcement capacity against nuclear terrorism.
2. There were impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty (NPT) to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology.
3. The statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.

3.3 Research Design

A research design can be viewed as a plan that assists the researcher in his collection, analysis and interpretation of observations. Research design constitutes a logical method of proof that permits the researcher to draw inferences concerning causal relations among variables under investigation. It conceptualizes the domain of generalisability. This denotes whether the obtained interpretation can be scientifically supplied to a larger population in a different circumstance (McNabb, 2005). It is not, however, lost on us that ñé the research design must be flexible enough to permit the consideration of many different aspects of a phenomenon.ò Hence, we have accordingly broadened the scope and thrust of this research to accommodate all views and opinions related to the subject of discourse.

Since this research in typology falls into the qualitative and non-experimental, the method adopted for this study is the explanatory research method with emphasis on document analysis based on the single case ex-post facto design. (Cassel and Symon, 1997; Strauss and Corbin, 1998; Denzin and Lincoln, 1994; Lee, 1999; Marshall and Rossman, 1999). In this chosen explanatory method ñé data are coded, placed in some intelligent order, interpreted, and used for explaining and/or predicting future interrelationships in similar circumstancesò (McNabb, 2005:105). McNabb (2005:105) highlights that:

> Explanatory research is the approach taken in most mainstream qualitative research. In this way, its goal is to go beyond the traditional descriptive designs of the positivist approach to provide meaning as well as description. The purpose of explanatory research is also broader than that of descriptive research; it is conducted to build theories and predict events.

White (1994:44) asserts that:

> Explanatory research strives to build theories that explain and predict natural and social events. Theory building requires the development of a collection of related and testable law-like statements that express casual relationship among relevant variables. The ultimate goal of explanatory research is the control of natural and social events.

McNabb (2005:106) further asserts thatò typical objectives for explanatory research include explaining why some phenomenon occurred, interpreting a cause-and-effect relationship between two ore more variables, and explaining differences in two or more groupsô responses. Finally, from the foregoing, explanatory research method appears best suited to explain the discernible variables in this thesis. The strategic issues of nuclear terrorism and international regulatory mechanisms are best explained and put in proper perspectives by the use of explanatory research method. This explains our choice of the explanatory method at the expense of the interpretive and critical, all of which, however, share the qualitative research paradigm. The explanatory analytical method based on the single case

ex-post facto design adopted in the testing of the hypothetical inductions in this study is premised on the relative variation of independent variable (X) and the dependent variable (Y). This logically shows that (X) is a factor that determines (Y).

3.4 Methods of Data Collection

This research in typology falls into the qualitative and non-experimental (Schwandt, 1997; Patton, 1980; Miles and Huberman, 1984; Devine, 2002; Berg, 1998). The method of data collection adopted and applied here is the qualitative method of data collection. This explains our use of the observation method. This is simply the study of documented evidence with a view to discovering the various data and information relevant to our discourse. It is a content analysis of available literature relevant and applicable to the study (Peil, 1982; Obasi, 1999). Thus the researcher relies on material from books, newspapers, journals, special publications, documents and electronic media files such as the internet which avails one of the information first hand. This thrust logically makes this work scientific as required by our field of study. This is so because by the application of reliable published documents to research, generalization based on

them most often are reliable and empirical and accepted as a given because more than one person authorize them.

3.5 Methods of Data Analysis

This study adopted the explanatory qualitative method of data analysis. This method of data analysis is summarized in the logical data table below:

LOGICAL DATA FRAMEWORK

Research Question	Hypothesis	Variables	Main Indicators	Data Sources	Method of Data Collection	Method of Analysis
(1) Do the statutory provisions of the International Atomic Energy Agency undermine its enforcement capacity against nuclear terrorism?	The statutory provisions of the International Atomic Energy Agency undermined its enforcement capacity against nuclear terrorism.	**(X) INDEPENDENT VARIABLE** The statutory provisions of the International Atomic Energy Agency.	• The Proliferation of nuclear weapons states since 1957; • Recurrent breaches of nuclear facilities by criminals and terrorists across the globe; • The globeôs thriving plutonium economy; • Sophistication of contemporary terrorists; • Preponderant global nuclear cheats; • The IAEAôs inability to enforce only civilian nuclear applications; • The hegemony of the UNôs Security Council; • The IAEA charter is discriminatory; • The IAEA is anachronistic • The IAEA lack of autonomy • The IAEAôs budgetary constraint • The IAEA acts only on the invitation of the state signatories. • Lack of transparency and equity. • Lack of transparent and effective IAEA safeguards	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.
		(Y) DEPENDENT VARIABLE enforcement capacity against nuclear terrorism.	• Incapacity of the UN to enforce international laws; • Nuclear programmes of the globeôs failing and failed states; • Nuclear programmes of state sponsors of terrorism; • Established global nuclear materials and weapons black market; • The global struggle for power and leverage between the NWS and NNWS; • Contemporary global nuclear renaissance; • Civilian and military nuclear processes are virtually the same; • Staggering and accumulating global nuclear wastes; • Global energy crises. • Nuclear cheatsô statutory latitude to hoodwink the IAEA. • Stalled nuclear disarmament • Technolgoical transfers • Nuclear ambiguity • Deterrence weapons	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.

Research Question	Hypothesis	Variables	Main Indicators	Data Sources	Method of Data Collection	Method of Analysis
(2) Are there impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology?	There were impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology.	**(X) INDEPENDENT VARIABLE** Impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty.	• The NPT regime is discriminatory; • Acqusition of weapons for hegemonic power • Lack of political will by the Superpowers • Problem of minimum weapons reserve for defence. • The enforcement deficiencies of UN tools against nuclear terrorism; • The impeding role of the UNôs Security Council members; • The convergence of the civilian and the military nuclear processes; • Signatories can opt out statutorily ; • Factors in only nuclear weapons neglecting the conventional equivalent; • Sabotage of the NPT by both signatories in the NWS and NNWS categories; • Nuclear cheats; • It is universal, and ignores regional peculiarities of signatories. • Under the control of Superpowers. • The NPT regime is anachronistic	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.
		(Y) DEPENDENT VARIABLE Unapproved spread of nuclear technology.	• The emergence of global nuclear renaissance; • Extant definitional problems of proliferation; • Nation-state perpetration and sponsorship of terrorism; • Global Nuclear black market; • Exposed hitherto clandestine nuclear programmes; • Thriving global plutonium economy; • Failure of the NWS to phase out nuclear weapons; • The strive of the NNWS to acquire nuclear weapons; • Non-signatory NWS outside the NPT regime; • Spread of nuclear technology by the NWS signatories. • NWS arms transfers to NNWS.	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.

Research Question	Hypothesis	Variables	Main Indicators	Data Sources	Method of Data Collection	Method of Analysis
(3) Do the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security?	The statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.	**(X) INDEPENDENT VARIABLE** The statutory limitations of both the IAEA and the NPT regulatory mechanisms	• The IAEA and NPT are Anachronistic • Restriction to nuclear technology. • Open right of signatories to acquire nuclear technology • Lack of independence • Control by the Superpower • Discriminatory • Statutory ambiguities • Lack of enforcement capability • The dual nature of nuclear technology • Acquisition of nuclear weapons by NWS • Lapse IAEA safeguards • Problems of consensual statutory interpretation of charter.	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.
		(Y) DEPENDENT VARIABLE Threats to global security.	• Global nuclear renaissance • Nuclear terrorism • Emergent nuclear powers • Stalled nuclear disarmament • Nuclear black market • Loose atomic control • Environments concerns • Secret nuclear programmes • Ambiguous nuclear programmes • Pursuit of nuclear deterrence by the NNWS • Nuclear war	• Books and journal publications; • Official documents; • Conference Proceedings; • Internet sources	Qualitative method and field research	Single case ex-post-facto design; Power politics and discontent and frustration theories; Qualitative explanatory analysis; Logical inductive inference.

CHAPTER FOUR

THE ENFORCEMENT CHALLENGES OF THE INTERNATIONAL ATOMIC ENERGY AGENCY AGAINST NUCLEAR TERRORISM

The enforcement challenges of the anachronistic IAEA, to a very large extent, compromises its ability to perform its primary function-global atomic control. This limitation highlights the challenge of nuclear terrorism against the background of the snowballing of our contemporary global nuclear renaissance. Fundamentally, because of the foregoing the issue of nuclear terrorism remains topical especially in the strategic opus. Under the watch of the IAEA, the contemporary global nuclear renaissance has made access to nuclear technology relatively easier to access. The worry now is that the laissez-affaire trend in the nuclear technological sphere could benefit terrorists thereby raising the challenge of nuclear terrorism one notch too many. Summarily put, the IAEA in the light of unfolding evidence has arguably failed especially vis-à-vis atomic control. The foregoing could empirically be elucidated against the background of verifiable strategic antecedents especially as it relates to the challenge of nuclear terrorism.

Viotti and Kauppi (2009:264) assert that:

> One reason terrorism is proclaimed a top international security concern is that in recent years it has been coupled with another international security challenge ï the proliferation of nuclear, biological, chemical, and radiological (or ñdirty bombò) weapons of mass destruction (WMD).

Ralph, (1997) observes that: ñundoubtedly, it was the area of nuclear science that the target and most troubling questions arose as to the capabilities, limitations, and implications of science and technologyò. The contemporary global nuclear renaissance has, however, won curious converts to nuclear power from an equally curious source ï the environmentalist camp. James Lovelock, a founder of the environmentalist group, Greenpeace, for example, asserts that ñOnly nuclear power can halt global warmingò (*The Economist*, July 9,

2005:48). Gerald Doucet, the secretary-general of the World Energy Council, however, opened the darkest side of nuclear power and in relation to the global nuclear renaissance asserts with reservations as cited in Harrell (2008:49), that:

> I am a bit tired of leaders in the nuclear field who say there is no link between nuclear power and nuclear weapons. To me, this is the biggest issue for the industry, bigger even than nuclear waste, we have to address it openly and stop pretending itôs not there.

The contemporary global nuclear renaissance has made the challenge of nuclear terrorism brighter via the existence of two related factors: preponderant nuclear know-how and materials, and the robust emergence of megaterrorism. An expert cited in *Awake* (March 8, 2004:6-7) thus observes that:

> The terrorist attacks in the United States on September 11, 2001, awakened the world to yet another nuclear threat. Many now believe that terrorist organizations are attempting to develop ï or perhaps already have in their hands ï nuclear arms.

An expert in strategic studies appraised the globeôs nuclear renaissance *vis-à-vis* global loose atomic control and nuclear terrorism and opines that ñas weapons ambitions have spread from states to terrorist groups, it gets increasingly likely that nuclear materials may some day be used in some sort of bombò (*The Economist*, June 5, 2004:41).

The urgency attendant to the fight against the issue of nuclear terrorism emerges as germaine especially in the contemporary era. The contemporary era foreshadows apocalyptic trends vis-à-vis the foregoing mentioned global threats of international terrorism for two obvious reasons with far-reaching terminal strategic implications. The first is the nature and thrust of contemporary international terrorism which tilts toward mass-casualty projection and aim, cadred mainly by religious fundamentalists with apocalyptic and cultic bent. These practitioners, robustly exemplified by Osama bin Laden and his Al Qaeda, believe even against evidence that they are fighting for God, and with

His blessings. Thus they are predisposed toward taking many lives including theirs in a crass feigning of martyrdom. On the other hand, nuclear proliferation has attained a critical mass in contemporary global nuclear renaissance marked by a very dangerous and thriving global plutonium economy. Literarily, the contemporary world is immersed in a pool of ample and highly-diffused fissile materials indispensable to the acquisition of nuclear weapons. This, to a very large extent, puts to question the adequacy of the IAEA as a regulatory mechanism for atomic control and by extension and implication nuclear terrorism.

The apparent global concern for nuclear terrorism was highlighted as the theme of the April 2010 Nuclear Security Summit in Washington DC, USA and the subsequent one in the 2012 Seoul Nuclear Security Summit held in Seoul, South Korea between 26th and 27th March, 2012. At both summits deliberations centred mainly on how to deny terrorists access to nuclear materials, weapons and facilities to contain the threat of nuclear terrorism. The global South was amply represented on a strategically encouraging note, given that most of the nuclear programmes of concern are located in the Global South with overwhelming unmet security challenges. At the Seoul Summit Nigeria, with its nuclear programme and robust terrorist challenge, for instance, pledged to secure its own nuclear facilities against unauthorized reach and access. That summit in summary raised the apprehension *vis-à-vis* nuclear terrorism higher on the alert scale of strategic evaluation. It also brought the issues of atomic control to the level of an issue of concern in whose amelioration more concerted efforts should be made.

The international communityôs informed apprehension vis-à-vis the threat of nuclear terrorism could be placed at the crux of what the distinguishing characteristics of what strategic experts term modern and postmodern terrorism. Summarily put, contemporary international terrorism is no longer just a theatrical display of fear-inducing violence to

achieve political goals and objectives. Table 4.1 below shows the trajectory and features of postmodern terrorism as a departure from modern terrorism. This appreciation explains the global concern for nuclear terrorism and the sense in the resolution of both aforesaid summits that only a firm global atomic control suffices as a solution. It is in this context that the IAEAôs atomic-control capacity should be evaluated as a nuclear regulatory mechanism.

Table 4.1: A Comparative Presentation of Modern and Postmodern Terrorism

Modern Terrorism		**Postmodern Terrorism**	
Features	**Example of Group**	**Features**	**Example of Group**
Regional	FARC	Global	al Qaeda
Theatrical	FARC	Lethal	al Qaeda
Conservative	FARC	Novel	al Qaeda
Mostly state-sanctioned cadres	FARC	Mostly civilians with or without state sanctions	al Qaeda
Limited application of sophisticated technology	FARC	Reliant on most advanced technology	al Qaeda
nationalists, irredentists	FARC	Orchestrated by transnational nonstate organisations with cells across the globe	al Qaeda
Persuasive violence	FARC	Apocalyptic violence	al Qaeda
Wringing out concessions from target	FARC	Outright destruction of components of civilization deemed a threat to it	al Qaeda

Source: Adapted from Kegley and Wittkopt, (2004), p, 442 and adjusted with input from the researcher.

The atomic-control function of the IAEA against nuclear terrorism is now more urgent pivotally because of the worrisome strategic characteristics and features of

contemporary international terrorism which boil down to sophistication, innovation and resoluteness. Strategic experts have pointed out that terrorism practitioners in the contemporary era, apart from gunning for the acquisition of weapons in the WMD category, also manifest discernible features of actors that would not care a hoot about an apocalyptic end to conflicts. Only weapons in the WMD category in general, and the nuclear version in particular evidently could end life on earth in a prospect experts have analysed and termed a nuclear winter. Table 4.1 above shows a contrasting evaluation of modern and postmodern terrorism which highlights the imperative of a more reliable atomic-control mechanism capable of denying terrorist nuclear capability.

From the foregoing arises the thinking among strategic experts that in keeping with history and verifiable contemporary behavioural thrusts, terrorists, if unchecked, are bound keep apace with technological developments in the conduct of their asymmetrical warfare (Johnson, 2005). The question of whether or not terrorists will go nuclear has remained current in many strategic opus especially since 1968 which to many experts constitute the *anus horibilis* that marked the emergence of modern terrorism (Magstadt, 2009; Kidder, 1986). The crux of the issue here is whether or not contemporary terrorists would include nuclear weapons in their weapons systems and apply the same in their conduct of asymmetrical warfareï terrorism. It also means whether the international regulatory mechanism, IAEA, can through atomic control contain the threat of nuclear terrorism by denying terrorists nuclear capability.

When we talk about the challenge of nuclear terrorism, we are by implication also talking about weapons systems ï nuclear weapons ï and their application in the conduct of asymmetrical warfare ï terrorism. Igwe (2002:484-5) defined Weapons Systems as ñall classes of the instruments of warfare available to a country or any other political unit under consideration within a particular time frame.ò He outlined in the same vein several factors

as influencing a weapon system in the conduct of warfare. Among these several factors, as cited above, ñthe level of development of science and technology, making it possible to have the W. (weapon) needed and wage the wars intendedé ò fits into the premise of our thesis-the relationship between science and technology and the conduct of warfare and the ability of extant regulatory mechanisms to check nuclear terrorism through atomic control.

Strategic experts agree that prevalent technological state of any system, entity, group or bloc determines or influences the tools of trade brought to bear by application in its conduct of warfare. Applied tools in the conduct of warfare over time arguably constitute a measure of the level of scientific and technological development available to a people in a given era in question (van Creveld, 1989; Howard, 1976; Keegan, 1993; OõHanlon, 2004; Lambeth, 2003, Johnson, et al,, 2002). Thus, since the emergence of the nuclear age in 1945 on a worrisome military note, experts have always expressed reservations to the effect that nuclear weapons could once more be applied in the conduct of warfare by state actors in the anarchic international system. The fear centred on a repetition of the USô 1945 virtual incineration of the Japanese cities of Hiroshima and Nagasaki by a state actor with nuclear capability. The 1962 Cuban Missile Crisis came close to bringing that reservation to fruition. There is however, today a shift in the flashpoint of concern from the deterrable state actor to the undeterrable non-state actors ably represented by contemporary international terrorists bent on bringing about Armageddon. History buttresses the veracity of the foregoing thrust of analysis vis-à-vis the fact that throughout history technology has consistently influenced and determined the weapons available to an entity and consequently applied in the conduct of warfare ï conventional as well as asymmetrical.

The Revolution in Military Affairs (RMA) currently dominated and led by the US is best illustrated in the application of nuclear weapons by the US in the conduct of warfare

during the waning days of World War II (1939-1945). In the aforementioned conflict, technological superiority verifiably prevailed. Technology profoundly determined the conduct of warfare in the foregoing example. Thus in relation to terrorism, which though a criminal undertaking but constitutes a type of warfare, technology has also determined its conduct over time. This partly explains why the IAEA *raison d'etre* remains atomic control and its insistence that all nuclear pursuits remain transparently and verifiably within the purview of civilian non-military version. The foregoing disposition is fundamentally primed to deny unauthorized actors access to nuclear technology especially one that can be converted illicitly to military applications, which in the context of this study are terrorists. Unfolding trends, however, show the weakness especially in the IAEA inspection system to deter nuclear weaponisation. Thus, it holds true as Benett (1962:18-32) concludes that ñNo inspection system is capable of deterring a nation with a high incentive to cheatò

Over time, the tool of choice of terrorists has always been a measure and reflection of prevailing technological thrust of a relevant era in question. Thus we witness that the Zealots of A.D. 6 used stones, daggers, staves, and bludgeons, all of which, to a current military strategist, appear laughable. Yet they posed an equally debilitating strategic threat to the Roman occupiers of the then Jewish Palestine just as the contemporary international terrorists pose to our contemporary World Order and global stability. The Islamic assassins of A.D. 1090 ï 1275 came in with horses, arrows, incendiaries, poisons, and other tools primed to kill. The Christian crusaders responded in kind to the Islamic terror with a view to retrieving the holy lands from the Muslim marauders. All weapons used reflected the level of the technological state of that period under consideration. Even suicide terrorism, popularized in contemporary era by the Islamic terrorists and elements of the Sri Lankan LTTE, is not new. The Zealots risked suicide by attacking Roman soldiers in broad daylight with knives and even committed mass suicide to avoid capture by Roman soldiers in 73 AD

at Masada. Religious terrorists it must be pointed out here, exhibit a very high level of commitment and sacrifice.

The terrorists of the French Revolution (1789) improved on the arsenal available for terror with the introduction of the guillotine. This spectacular killing contraption made homicide faster, ñcleanerò and more effective in instilling fear-the actual objective and tool of terrorism. The French terrorists took inventiveness and innovation to the hilt by also using drowning to dispatch their hapless dissenting or framed victims. Prior to that, however, terrorists have always kept apace with technological innovations by remaining, like able conventional soldiers, adaptive, innovative and prognostic both at the strategic as well as the tactical levels of the military sphere. Thus we witness the use of guns, grenades, bombs and virtually all other forms of ballistics and explosives over time.

Contemporary terrorists use all sorts of vehicles and aeroplane; and are very much apace with trends in the information technology ï internet, computers, GSM and indeed all available facility. The Aum Shinrikyo doomsday terrorist group of Japan on 20 March, 1995 released sarin on five trains in the Tokyo underground system, killing twelve people and injuring one thousand and thirty four. Alexander Valterovich Litvinenko, a former KGB agent, died in London on 23 November, 2006 as a result of poisoning with radioactive isotope polonium ï 210. This led many experts to conclude that nuclear terrorism threshold has thus been crossed. The Aum Shirinko case buttresses the emergence of chemical terrorism. The biological version has already being around in the conduct of warfare. In the contemporary era, however, the focus of concern has been nuclear terrorism, especially vis-à-vis the dire spectre of its robust occurrence. In April 2004, the Jordanian authority disrupted a terrorist attack mounted by Islamist terrorists. The terrorists had wanted to use three cars packed with explosives, a chemical bomb, and poisonous gas with a view to attacking the Jordanian Intelligence headquarters, the US embassy in Amman, and the

Jordanian prime ministerôs office. The foregoing shows that contemporary terrorists noted for masses laughter are well into the realm of WMDs. This fact logically should constitute a clarion call for a more effective global atomic control especially by strengthening the IAEA. This is auspicious because the contemporary global nuclear renaissance has arguably deregulated nuclear technology on one hand and compromised the IAEA capacity for atomic control on the other.

Partly because of the contemporary loose global atomic control of the incapacitated IAEA, strategic experts have consistently been highlighting the challenge of nuclear terrorism. On the fillip side, nuclear terrorism has been defined by strategic experts who also have even volunteered its patterns. Nuclear terrorism simply refers to a number of different ways that nuclear materials or weapons might be exploited as a terrorist tactic (http://terrorism.about.com.od/n.a.NuclearTerror.htm: United Nations International Convention for the Suppression of Acts of Nuclear Terrorism, 2005). This means the threatened application or actual application of nuclear-related weapons or materials in the conduct of terrorism. Strategic experts have over time also figured out the likely forms nuclear terrorism could conceivably take. Barnaby (2007:164) outlined these likely forms to include

- stealing or otherwise acquiring fissile material and fabricating and detonating a primitive nuclear explosive;
- attacking a nuclear-power reactor to spread radioactivity far and wide;
- attacking the high-level radioactive waste tanks at a reprocessing plant, like Sellafield, to spread the radioactivity in them;
- attacking a plutonium store at a reprocessing plant like Sellafield, to spread the plutonium in it;
- stealing or otherwise acquiring a nuclear weapon from the arsenal of a nuclear-weapon power and detonating it;
- attacking, sabotaging or hijacking a transporter of nuclear weapons or nuclear materials;
- making and detonating a radiological weapon, commonly called a dirty bomb, to spread radioactive material.

Strategic experts, however, differ profoundly on the challenge of nuclear terrorism since the emergence of the nuclear age in 1945. Even before terrorism made its prominence felt on the list of global issues of concern, reservations have always been expressed in relation to the prospects of the abuse of nuclear technology by both undeterrable and deterable entities. The reservations have always forecasted in a manner that appear in retrospect to have factored in the emergence of modern terrorism whose hallmark is the wanton destruction of lives and property on a large scale by leveraging on contemporary technological capabilities. Contemporary assumptions tilt mostly toward the prospects of terrorists leveraging technology by bringing to bear by application weapons of mass destruction to achieve optimal and mass-casualty havoc for good measure. Thus, for example, we see in the November 1944 University of Chicagoôs Jeffries Report, as cited in Norton, (1979:1) what constitutes a reality today:

> A nation, or even a political group, given the opportunity to start aggression by a sudden use of nuclear destruction device, will be able to unleash a blitzkrieg infinitely more terrifying than that of 1939-40é The weight of the weapons of destruction required to deliver this blowé could easily be smuggled in by commercial aircraft or even deposited in advance.

Furthermore, the American nuclear physicist, Dr. Theodore B. Taylor gave an insight in 1978 vis-à-vis the challenge of nuclear terrorism in a testimony before the US Senate Governmental Affairs Committee. He asserted as cited in Norton (1979:6) that:

> It is highly credible that a small group of people could design and build fission explosives, using information and é materials that are accessible to the public worldwide. Under some circumstances it is quite conceivable that this could be done by one person working alone. Such explosives could be transported by automobile. Their probable explosive yields would depend considerably on the knowledge and skills of the group. Relatively crude explosives that would be likely to yield the equivalent of up to about 1000 tons of high explosive would be much easier to build than explosives that

> could be reliably expected to yield the equivalent of more than 10 kilotons of high explosive.

Strategic experts, however, took the evaluation of the challenge of nuclear terrorism more seriously in the 1970s arguably after the emergence of hyper-destructive modern terrorism in 1968. Thus, earlier appraisers focused, understandably, on the type of terrorism prevalent then. The weird scene then was dominated by nationalists whose political agenda constituted a restraining mechanism on their *modus operandi*. They had established and verifiable political objectives to achieve. This naturally placed a lid on the level of acceptable damage that would not in the final analysis constitute a dire public relations disaster to them and their causes. Thus terrorists then were interested in all the attributes of a state whose realisation was bound to be defeated or hampered by the application of weapons in the WMD category. Most international terrorists of that era to some extent had a stake in the international system whose stability and even existence could be questioned by their senseless application of WMDs in the conduct of asymmetrical warfare. In the parlance of the strategic sphere, they were somewhat deterred unlike contemporary religious terrorists without a stake in the international system. Of note also is the fact that nuclear proliferation had not then attained its critical mass as in contemporary global nuclear renaissance which accounts for the worrisome diffusion of nuclear know-how the world is currently witnessing. The world is thus worried that without a firm atomic control by an international regulatory mechanism like the IAEA terrorists could benefit by the aforesaid trend.

However, in the foregoing era under review, politics and not religion dominated most facets of terrorism. In Asia, for instance, the Liberation Tigers of Tamil Elaam fought the Sinhalese-dominated government in Colombo, Sri Lanka for an independent homeland for the minority Tamils before they were crushed in May 2009 in an ogre of a pogrom of genocidal proportion. In the volatile Middle East the PLO, Hezbollah and HAMAS, for

example, are yet to apply weapons in the WMD category. They are interested in a Middle East without Medinat Israel; hence see no reason to destroy what they think is theirs to reclaim. The Irish Republican Army (IRA) envisages the reunification of Ireland and the termination of perceived British hegemony and usurpation. The FARC in Colombia is fighting for a better homeland just as Sendero Luminioso in Peru. The ETA in Spain fights for an independent homeland from Spain and France. The PKK wants a Kurdish state out of Iraq, Turkey, Syria and Iran where Kurds are scattered and almost stateless.

It was against the foregoing background that early appraisers of the challenge of nuclear terrorism operated. Thus, Jenkins (1977:8), for example, asserts that ñterrorists want a lot of people watching, not a lot of people dead.ò Jenkinsô school of thought view terrorism as theater whereby the instilling of fear in the citizens thereby baring the impotence of the extant authoritiesô vis-à-vis the primary objectives of governance ï security. To this school, the terrorist hopes to attract attention to his cause and possibly wring out concessions therefrom. The terrorist had a stake in the system; hence was interested in its stability which it logically threatens with commensurate violence relative to objectives targeted. Such secular terrorists are wont to benefit from such system if and when he markets his goods-fear-successfully.

Robert M. Sayre, a former director in the USô State Departmentôs counter-terrorism bureau, for example, agrees that nuclear terrorism is not feasible given that ñTerrorists have not yet gone to the limit of existing non-nuclear capabilitiesé ò He thus concluded that a ñquantum leapò to nuclear terrorism was way off the beaten track (Wardlaw, 1983:6).

Other strategic experts shared the same foregoing perspective for different reasons. Some believe that the nuclear access safeguards constitute a deterrent against nuclear terrorism as terrorist cannot overcome the complicated technological procedures of applying nuclear weapons in the conduct of warfare. Stretched further, the foregoing

argument proffers that accessing fissile materials is the easy part; while using the materials in the fabrication of nuclear weapons is the hardest part. This line of reasoning is premised on the assumption that terrorists are not technologically sound enough to tackle and handle the intricacies of nuclear weapons. This fundamentally suggests that contemporary global atomic control as, for example, provided by the IAEA mechanism suffices in making nuclear capacity relatively hard to access and apply in the conduct of terrorism (CNN:12-04-2010).

Furthermore, it is assumed that a nuclear weapon as could conceivably be stolen by a terrorist outfit cannot be activated without the intricate involvement of a nuclear scientist. Also deemed an obstacle is the assumption that terrorist groups lack the requisite delivery system. In the same vein, experts question the capability of terrorists vis-à-vis the fabrication of nuclear weapons. This view puts to question the stand of the eminent nuclear physicists, Theodore Taylor and Mason Witrich, who believe that such groups as terrorists working with commitment could assemble a nuclear weapon. Thus many governmental and scientific authorities embraced solace in the imaginary safety and assurance provided against evidence by this assumption that also places the fabrication of nukes beyond established ñexpertsò. The Pakistani nuclear scientist, Abdul Qadeer Khan, for instance, believes that terrorists can not carry out nuclear terrorism because of his sophisticated perception of nuclear weapons. In Ahmed (2010:60) in an answer to the question ñCan nuclear weapons fall into the wrong hands?ò, he volunteers that:

> This is a Western myth, and one of one of their phobias. A nuclear weapon-good or dirtyï is a highly complicated and sophisticated device. Even scientists and engineers without the relevant experience are not able to do this, let alone illiterate, untrained terrorists.

In furtherance of arguments to the foregoing, some strategists doubt the possibility of nuclear terrorism by assuming that terrorists know that there are safer ways of threatening

mass destruction than the terminal nuclear option. The rational ï actor model of analysis features here. This assumption, however, sounds credible by half. It is fair to assume that terrorists are rational especially when appraised on the parameter of the excellent destructive ingenuity and creativity demonstrated over time by some of them. On the other hand, this argument falters given and taken that contemporary terrorists are increasingly demonstrating a binding symmetry with higher risks. Suicide bombing, for instance, buttresses the foregoing line of thought. Strategists have also argued that nuclear terrorism is off the radar of the realizable because it is implicitly counter-productive and damaging to the cause espoused and pursued by its practitioners. The foregoing line of thought is premised on the certainty of nuclear terrorism alienating public opinion, potential supporters and sympathizers to the terroristôs cause. Needless to add the sure extreme retaliation in kind from survivors of nuclear terrorism. A nuclear extreme is thus dismissed as more academic than pragmatic. Furthermore, experts play down the prospects of nuclear terrorism because of the assumption that terrorists know that infinite violence does not augur well for the attainment or realization of long-term objectives (King, 1979).

The strategic world remains polarized in relation to the foregoing issue of the challenge of nuclear terrorism with many still relying on the oft-touted hermetic atomic control of the IAEA and other international regulatory mechanisms primed, to deny terrorists and allied unauthorized entities access to nuclear technology and capability. Those who assert the remoteness of nuclear terrorism still point out that since the emergence of the nuclear age in 1945, terrorism has never bequeathed its nuclear version just as World War II (1939-1945) did. This line of argument leaves the world with a naive hope to the effect that ñsince it has never happened, it would thus not happen.ò That, is, of course, preposterous, histrionic, absurd, and contrary to reason and logic. The yawning gaps in the foregoing perspectives make a review of the counterpoint position indispensable, especially

as sophisticated trends evident in contemporary international terrorism tend to make the foregoing arguments less assuring. It was, for instance, discovered that the Aum Shinrikyo Japanese terrorist sect responsible for the March 1995 Tokyo subway sarin attack ñhad built chemical factories employing highly trained scientistsò (Viotti and Kauppi, 2009:269).

The eminent American physicist, Alvin Weinberg, quoted in Dorf (1978:232) in reference to nuclear energy asserted in 1972 that:

> We nuclear people have made a Faustian bargain with society. On one hand, we offer é an inexhaustible source of energy. But the price that we demand for this magical energy is both a vigilance and a longevity of our social institutions that we are quite unaccustomed toé

Discernible in the aforesaid reservation is the worrisome fault lines in the harnessing and utilization of nuclear energy. Summed up, it suffices to conclude that the externalities of the nuclear technology is a daunting feature and challenge of the energy sector. Of more concern is the fact that man is yet to appreciate the import of these challenges especially vis-à-vis the imperative of vigilance and the erection and sustenance of the indispensable institutional framework and mechanism to contain them. The IAEA regulatory mechanismôs limitations vis-à-vis lapse atomic control readily comes to mind for scrutiny. However, among the externalities and challenges of nuclear technology, which has attained a critical mass in the contemporary global nuclear renaissance, contemporary international terrorism comes topmost. This is informed by the challenge of nuclear terrorism which has made it into all strategic opus dealing with current issues of global security. Thus, many experts have even taken the debate further by proffering the challenge and forms of nuclear terrorism especicilly and global nuclear renaissance has made nuclear technology open to many entities of strategic concern (Dorf, 1978; Viotti and Kauppi, 2009; Magstadt, 2009; Holden, 1982; Beres, 1980; Barnet, 1979; Collins, 1980).

These forms, though not in exclusivity, include nuclear hoax to wring out concessions, nuclear reactor sabotage or seizure, use of radiological dispersal tools, theft and application of nukes in the conduct of terrorism, and using high explosives on nuclear facilities to trigger nuclear explosions. These also include poisoning of vast area and water supply with radiological substances and possible landing of a jet-fuel-laden aircraft on nuclear plant reminiscent of the 9/11 hitting of the US New York World Trade Center on September 11, 2001 by terrorists. Given and accepted that terrorists are innovative and tend to exhibit lethal ingenuity especially in the contemporary era, the foregoing list of possible forms of nuclear terrorism is by no measure exhaustive.

Furthermore, a look at the flip side of the coin is frightening. Patterning to atomic control and the nuclear-terrorism debate the situation is less than reassuring especially in the contemporary era of hyper-destructive new terrorism. This is so because this debate has now gathered more momentum against the worrisome background of religious new terrorism marked out for mass slaughter and willing subscription to high risk. This debate is thus snowballing with apprehension among scholars, strategists, policymakers and even the sacerdotal circles of the worldôs religious persuasions. Literature on the challenge of nuclear terrorism abound with popular articles such as ñThe Perfect Trojan Horse,ò ñUltimate Catastrophe,ò and ñRadioactive Malevolence.ò Books such as Louis Irene Beresô *Apocalypse* and *The Fifth Horseman* by Larry Collins and Dominique Lapierre raised awareness of the foregoing subject of nuclear terrorism (Beres, 1980; Bethe, 1976; Comey, 1976; DeNike, 1974; Collins and LaPierre, 1981).

Globally, owing partially to the global nuclear renaissance and preponderant global terrorism, the reliance on only the IAEA atomic-control capability has arguably waned. Many entities are frantically evaluating nuclear terrorism and atomic control. Thus, nuclear terrorism has also featured and still feature as the subject of various classified and

unclassified think-tank studies, seminars, workshops and conferences. The RAND Corporation, for example, has over time conducted many studies related to terrorism with nuclear terrorism taking up more than forty percent of the entire studies. Norton (1972) identified more than a hundred mostly post-1973 writings dealing with nuclear terrorism. Concerned intellectuals, especially nuclear physicists, have always voiced apprehension vis-à-vis the snowballing challenge of unauthorized acquisition and application of nuclear weapons by an unauthorized entity. Actions by the US Senate led to the passage in October 1984 of the Anti-Nuclear Terrorism Act of 1984 (S2470). This was followed by subcommittee hearings in October 1984 on nuclear, biological and chemical terrorism (S.2470:7). Conferences sponsored by academic, corporate and private outfits triggered, sustains and advances the nuclear-terrorism debate. Between 24th and 25th June, 1985, for instance, the US Nuclear Control Institute and the State University of New York organized a conference aptly entitled ñConference on International Terrorism: The Nuclear Dimensionò. This auspicious conference brought in attendance over one hundred interested parties from a wide cross-section of international organization to address the nuclear-terrorism threat (Nuclear Control Institute and State University of New York, 1985).

The electronic media in radio and television also featured and still feature in the evaluation of the challenge of nuclear terrorism. The NBC Emmy Award-Winning TV movie ñSpecial Bulletinò represents a cogent attempt at the foregoing evaluation (Margulies, 1974). Included in the television paradigm is ñSmall Case of Blackmailò and ñThe Plutonium Connectionò by Grande Television and Public Broadcasting Service, respectively (Norton, 1979). Nuclear terrorism remains the staple of debates and myriad policy measures. This trend is on the ascent especially owing to the mass-casualty character of the globeôs contemporary terrorism. In April 2010, for example, the US President, Barrack Obama, convened the Nuclear Security Summit in Washington, DC. with a focus

on the threat of nuclear terrorism. He secured the consent of forty-seven nations represented at the summit to increase security of nuclear materials and reduce the availability of plutonium and highly enriched uranium (Sheridan, 2010). At that summit the US President Barrack Obama asserted that ñThe Central focus of this nuclear summit is the fact that the single biggest threaté - both short-term, medium-term and long-term would be the possibility of a terrorist organization obtaining a nuclear weapon.ò At that summit, it was concluded after intense and informed debates that the only way of forestalling nuclear terrorism is via a verifiable putting of nuclear materials and weapons well beyond unauthorized access followed by an eventual elimination of nuclear weapons. Programmes factoring in the above suggestions, however, are well under way in many countries but are unfortunately yet far from achieving their set objectives and goals (Bunn, 2010).

Many strategic experts, citing the efficiency of extant global atomic-control mechanisms, however, still believe that the challenge of nuclear terrorism is a futuristic worry; arguing further that statesmen and policy makers highlight it to achieve parochial objectives. The oft-cited instance remains the 2003 Anglo-American invasion of Iraq justified on the faulted imperative of defanging the then Iraqi leader, Saddam Hussein, vis-à-vis his purported WMD arsenal and pre-empting his sharing of the purported weapons with terrorists. The invasionôs raison dôetre, however, failed on all counts of authenticity on evaluation (Egbo, 2005; Foyte, 2004; Kull, *et al*, 2003-04). However, the opinions of those expressing apprehension vis-à-vis global atomic control and nuclear terrorism tend to advance from sound articulation and informed evidence; hence the imperative of also articulating their views by subjecting them to evaluation.

Barnaby (2007) for example, premised his evaluation of the challenge of nuclear terrorism on the established relationship between the availability of nuclear technology and its practical bearing on the conduct of warfare-that is atomic control and nuclear terrorism.

The role of the IAEAôs atomic control capability under the prevailing global nuclear renaissance resonates here against the background of the mass-casualty tilt of contemporary international terrorism. Thus, Barnaby (2007:93) asserts that:

> The risk of nuclear terrorism will be greatly increased if there is a big increase in the use of nuclear power for electricity generation. In a world containing many nuclear power reactors, nuclear terrorism will become virtually inevitable over time. Statements by political leaders, such as G.W. Bush (US) and Tony Blair (UK), about the need for new nuclear-power reactors should give pause for thought, particularly because these same leaders stress the increasing risk that terrorists will acquire and use weapons of mass destruction. By promoting a large increase in the use of nuclear-power reactors Bush and Blair will also increase the risk of nuclear terrorism.

The researcherôs further evaluation of the challenges of nuclear terrorism and the IAEAôs limitations vis-à-vis atomic control is, however, premised, though not exclusively, on the adoption of the template of ten trends which arguably has a practical bearing on the challenge of nuclear terrorism (Taylor, 1985; Newson, 1986). These trends, according Taylor (1985:1) are:

- Adequacy of the safeguards for nuclear facilities, materials
- Increase in the worldôs stockpile of separated plutonium, nuclear materials, and weapons
- Increased availability of information on nuclear technologies
- Increase in the willingness of groups to resort to terrorism
- Inclination of terrorists to become more violent and technically sophisticated.
- In effectiveness of traditional deterrence in the nuclear extortion scenario
- Growth of state sponsorship of terrorism and the international ñterrorist industryò
- Global tolerance and support of terrorism in various forums, eg. UN, media
- Proliferation of nuclear weapons
- Potential for the escalation of nuclear incident to a limited, theater or global nuclear war.

An informed appraisal of nuclear terrorism and the enforcement challenges of the IAEA vis-à-vis the foregoing ten trends shows that the challenge of nuclear terrorism in the

contemporary era is getting more threatening by the day. This is simply because of the fact that the prospects of terroristsô accessing of nukes and materials related to nuclear weapons is also becoming brighter under our contemporary global nuclear renaissance which has created a burgeoning global plutonium economy. The most worrisome aspect of this unfolding trend is that it is happening under globalization. Globalisation has transformed the world into a global village of binding interconnectedness hitherto unprecedented. The concept of time, distance and place is almost wiped off the lexicon. We are now, courtesy of globalization, living in a placeless global society. Under globalization experts have come to agree that terrorists have so far failed to apply nuclear weapons in their conduct of asymmetrical warfare because they are yet to access them. Thus we can empirically conclude that as far as contemporary terrorists are concerned vis-à-vis nuclear weapons, acquisition automatically translates into application. This is more worrisome partly because evidently, the IAEAôs atomic-control mechanisms are yet to tame the excesses of the contemporary global nuclear renaissance.

Thus, the Chairman of the US Senate Armed Services Committee, Sam Nunn, in Ratnessar (2009:26) highlights the foregoing reservations over global atomic control with apprehension and asserts that:

> We are in what I call a ñperfect stormò in terms of nuclear danger. Youôve got nuclear materials spread around the world. Youôve got the beginning of proliferation of enrichment by a number of countries ï and not simply Iran and North Korea. Youôve got the spread of technology and know-how, and youôve got terrorists who are willing to use these weapons if they get them.

Allison (2004:55) in the same vein of apprehension indirectly calls the IAEA to order by asserting that:

> As a simple matter of physics, without fissile material, there can be no nuclear explosion. There is a vast, but not unlimited amount of this in the world, and it is within our power to keep

> it secureé Thus allé has to do to prevent nuclear terrorism is to prevent terrorists from acquiring a weapon or nuclear material.

In relation to the adequacy of the safeguards for nuclear facilities and materials, the world is arguably on its head (Salisbury, 1975; Shea, 1976; Walsh, 1975; Zenko, 2007). This facts indicts the IAEA only by half, especially when accepted as a given that by virtue and provisions of its charter the IAEA monitors principally declared nuclear sites of signatories to its charters. That largely puts the nuclear activities of the globeôs myriad nuclear cheats off its radar, purview, and scrutiny. The inadequacy of the safeguards for nuclear facilities and materials became more visible on the globeôs strategic radar of security concerns as from the late 1980s. The collapse of the communist USSR, its subsequent balkanization into fragmented Commonwealth of Independent States, (C.I.S.) and subsequent autonomous republics in 1991 created especially lingering global security challenges that are yet to abate. Curiously termed ñthe end of historyò (Fukuyama, 2002), the balkanization and collapse of the then USSR to a very large extent explains the ascent of the dual security issues of global nuclear renaissance and nuclear terrorism questioning global stability, international nuclear regulatory mechanisms, and even the survival man especially in the contemporary era.

Thus, many strategic experts agree that global nuclear safeguards are inadequate especially in relation to deterring misappropriation that could benefit terrorists (Ramussen 1975; Gilinsky, 1977; Primach, 1975; Chapman, 1974; *Newsweek*, October 20, 1975). The nuclear process readily makes the misappropriation of nuclear materials feasible and the vulnerability of nuclear facilities pronounced. The balkanization of the former USSR compromised to a very large extent the safeguards hitherto associated with nuclear facilities on its territory. Poorly paid guards, for example, allegedly compromised their commitment to atomic control in exchange for cash and other perks the establishment could not then

afford to avail them of. Thus, cases of USSR multiple MUFs and nuclear facility security lapses abound in literature (Kegley, 2007; *USA Today*, 30 June 2002: 1; *Proliferation: Threat and Response*, January 2001). In contemporary Russia, for example, fundamentalist separatists of Chechnyan extraction have shown the vulnerability of Rusian nuclear facilities and materials. These fundamentalists came near to detonating a dirty bomb in Russiaôs Moscowôs Izmailovo Park which consisted of a lethal amalgam of dynamite and highly radioactive by-products of nuclear fission-Cesium 137

(http:www.cdi.org/terrorism/nuclear.cfm).

Sopko (1996-1997:55), for example, admits that:

> Weapons-grade uranium and plutonium are still beyond the reach of most proliferants and terrorists, but the disintegration of the Soviet Union made accessing these materials and sophisticated nuclear know-how far easier than in the past. Despite Western efforts to address these problems, large surpluses of weapons ï and bomb-grade material stockpiles still remain poorly protected. In addition, some of the worldôs most highly trained scientists still suffer economically, and they may be induced to work for proliferants if the price is right. One Russian military prosecutor who was investigating a spate of diversions from Russian naval facilities stated that ñpotatoes were guarded betterò than weapons-useable fuel.

Another source of concern vis-à-vis the threats from inadequate safeguards for nuclear facilities and materials in the contemporary era is Pakistan. Pakistan as a nuclear power (1998) constitutes a socio-economic as well as a geo-strategic nightmare in our nuclear age under globalization. It is yet to be tested the resilience of the Pakistani nuclear facilities in the face of determined onslaught from its unfair share of Islamic militants and apocalyptic Jihadists verifiably bent on going nuclear. The safety of Pakistani nukes and nuclear materials remain in doubt. Thus the US, arguably the globeôs policeman, has put measures in-place with a view to preventing possible nuclear misappropriation from Pakistani nuclear facilities. One of such measures is the bringing into existence of the Nuclear Emergency Search Team (NEST). Its major, though daunting, task is to assist in locating, seizing and

disarming any nuclear weapons or materials under unauthorized custody. This constitutes a plus to the Russian threat which is being taken care of by the Russian-American Nuclear Security Advisory Council (RANS-AC) under the Nun-Lugar programme. This extra measure, arguably, demonstrates the level of confidence bestowed on the atomic-control capability of the IAEA.

The foregoing constitute just a tip of the iceberg vis-à-vis the challenge of nuclear terrorism whose only impediment remains the inaccessibility of nuclear materials and weapons to contemporary international terrorists. Global nuclear renaissance has bequeathed a global plutonium economy to the globe. The problem of inadequacy of safeguards for nuclear facilities and materials is a global one. Even the US, Chinese, British, French, North Korean and Indian nuclear facilities and materials are not immune to the foregoing nuclear-related problems of strategic concern (Boner, 1976; Fuller, 1975; Dickey, 2006/2007; Matthews 2006/2007; Theil, 2006/2007).

Experts agree that the world is witnessing a resurgent and resilient global nuclear renaissance that highlights the challenge of nuclear terrorism (Barnaby, 2007; Tilberson, 2006/2007; Dickey, 2006/2007; Underhill, 2006/2007). In Africa, for example, Nigeriaôs nuclear programme is on full throttle even in the face of its daunting terrorist challenge posed by the Jamaôatul Ahlil Sunna lid wati wal Jihad generally known as Boko Haram Islamic terror outfit. South Africa has recently reevaluated its energy policy and opted for nuclear energy amidst the attendant protest peculiar to nuclear technology choice over time. South Africa, before giving up its nukes in 1994, had a robust nuclear technological programme that even produced nuclear weapons. It had so much nuclear wastes and materials of utmost concern. In November 2007, for example, burglars with unknown intentions infiltrated its Pelindaba nuclear research facility near Pretoria, and allegedly

escaped without acquiring any of the uranium held at the nuclear facility (http://www.pretorianews.co.za/?; Zenko, 2007).

Even the nuclear goliaths, the US and Russia, have problem related to the handling of their nuclear waste especially plutonium which can be used in the manufacture of nukes. Ditto for nuclear materials and weapons which are very cumbersome and delicate to handle and keep beyond unauthorized acquisition and possible application. Mowatt Larseen, a former investigator with the CIA and the US Department of Energy admits that there is ña greater possibility of a nuclear meltdown in Pakistan than anywhere else in the world. The region has more violent extremists than any other, the country is unstable, and its arsenal of nuclear weapons is expanding.ò The US Congressional Research Service, conducted a study in 2010 entitled ñPakistanôs Nuclear Weapons: Proliferation and Security Issuesò. This study noted that even with the so-called optimal security allotted Pakistani large nuclear materials and weapons in recent years, ñInstability in Pakistan has called the extent and durability of these reforms into question.ò What is clear from the foregoing is that under contemporary nuclear renaissance there is obviously an increase in the worldôs stockpile of separated plutonium, nuclear materials and weapons. Determined terrorists, as we are currently blest with in the contemporary era of new terrorism, have an overwhelming volume and stock of nuclear materials to exploit. As the ñnuclear clubò snowballs with new entrants overtime and by the day, the daunting nuclear stockpiles are bound to grow and not deplete. We are living under globalization and in an age dominated by information in a highly interdependent global village extremely and intricately intertwined (Kegley, 2007).

With the computer, cell wireless phones and the World Wide Web as vital features of contemporary information age, there exists a-near-infinite source of information augmented and enhanced by global television (Gilboa, 2003). The cyberspace allows

subscribers and users to communicate well off the restraining radar of the state actor. The speed of transformation in the aforementioned information spectrum is blinding with staggering consequences, chief of which is the production of the singularity which according to Ray Kurzweil is bound to becloud and preempt our capacity to even imagine the future on the basis of the present (Bell, 2006).

There is thus an unquestionable increase in the availability of information on nuclear technology, as well as other issues known to man. The IAEA, in pursuit its mandate of atomic control is incapacitated here especially because it cannot stop the current global free flow of information even those related to nuclear technology. One can with relative ease today surf the net and scoop up even technical information on the fabrication of nuclear weapons, sourcing of requisite materials; and indeed information related to nuclear technology hitherto deemed classified and inaccessible before the liberalisation of global information arguably enhanced by the internet in 1991. Contemporary terrorist cells are mainly cadred by relatively educated and committed practitioners that have demonstrated rare capacity for ingenuity, creativity and uniqueness. The attackers that carried out the now legendary 9/11 terrorist attack on US homeland, in retrospect, were discovered to have made extensive use of the internet. Prior to that, the 1993 Twin Tower attack in the US and the 1998 simultaneous coordinated attacks on the US embassies in Nairobi, Kenya and Dar es Salaam, Tanzania, show the hallmark of the fillip advances in communication have availed terrorists of in this era. Sopko (1996:41) appreciated the challenge of nuclear terrorism vis-à-vis the increased availability of information on nuclear technology and asserts that:

> Traditionally, our working assumption has been that only nation-states have the resources and expertise to develop or acquire weapons of mass destruction. Today, it appears terrorist and other groups or individuals can develop massively destructive capabilities. Plans for making weapons of mass destruction, including nuclear devices, can now be

> accessed on the internet, through catalogues, and at the local public library.

Furthermore, there is admittedly an increase in the willingness of groups to resort to terrorism for many reasons,. Terrorism is relatively a cheap form of warfare; hence many groups are more drawn to it as the ideal form of warfare to rein in an opponent with superior fire power. It is evidently suicidal to conduct conventional warfare with an adversary with an overwhelming superior fire power. Thus, it is not surprising that the US is today the *numero uno* on the terroristôs target list. In the volatile Middle East Israelôs established military superiority partly explains why terrorist outfits such as Hezbollah and HAMAS prefer engaging Israel via terrorism and not conventional warfare. Thus it remains sound not to put nuclear terrorism beyond contemporary terrorists who are willingly drawn to terrorism in an era when the IAEA is weakened and atomic control highly compromised. Especially in the contemporary era, apocalyptic terrorists by nature are not expected to appreciate the terminal uniqueness of nuclear weapons. Deterrence is bound to fail here because in the contemporary era of new terrorism martyrdom constitute even the *raison d'etre* and not necessarily the channel for accomplishing set objectives which by nature of terrorism are usually political. In the contemporary era, nuclear terrorism as a prospect is brighter because of the nature and disposition of the globeôs new terrorists most of who erroneously believe in mass slaughter in the name of God with a view to meeting God in Paradise where they would be rewarded with virgins for good measure. Thus, the then leader of Al Qaeda, Osama bin Laden, sees even death in the practice of his trade as fulfilling and adorable. He mocks the West in derision and asserts that ñThe Americans worship life, while we worship deathò (Stoessinger, 2005:32). It would thus represent a strategic myopia to put nuclear terrorism beyond contemporary apocalyptic terrorists ably represented by Al Qaeda.

Thus, Abel Gonzalez, Director of Radiation and Waste Safety of the IAEA, apparently appreciative of the IAEAôs limitations vis-à-vis atom control and nuclear terrorism, warns about nuclear terrorism and observes as cited in Theil (2002:37) that:

> Before September 11 (2001), we thought the deadliness of handling intensely radioactive material was an effective deterrenté But with the terrorists who are both intelligent and willing to give up their lives, weôre facing a far more dangerous situation.

Contemporary terrorists are inclined toward more violence and technical sophistication. This inclination arguably constitutes the fundamental distinguishing thin line between them and their predecessors ï the old terrorists (Lesser, et al, 1999; Smith, 2002; Rapoport, 2001; Quillen, 2002; Beumen, 2003; Wilkinson, 1990). In the contemporary era, terrorists favour unlimited violence and a tilt toward sophistication. Events from the 1980s tend to buttress the foregoing assertion to the effect that terrorist incidents since then has demonstrated an ascending inclination towards pronounced violence and uncommon sophistication. Six terrorist incidents, for example, constitute both a pointer and buttress to the foregoing thought, as summarized from Barnaby (2007):

- the 23 October, 1983 suicide bombing of the US Marine base in Beiruit, Lebanon that killed a total of two hundred and ninety nine soldiers ï 241 American and 58 French.
- the 7 August 1998 coordinated simultaneous suicide bombing of the American embassies in Nairobi, Kenya and Dar es Salaam, Tanzania. These attacks have the following breakdown: Nairobi ï two hundred and thirteen deaths (twelve Americans and two hundred and one Kenyans (Africans) with five thousand injured: Dar es Salaam ï eleven deaths.
- the 11 September, 2001 terrorist attack on the US homeland which killed two thousand, nine hundred and eighty six people, and injured many more
- the 12 October 2002 terrorist attack in Bali, Indonesia which killed two hundred and two people and injured two hundred and nine more
- the 11 March 2004 terrorist attack on Madrid, Spain which killed one hundred and ninety one at the train stations,

> wounded two thousand and fifty, fourteen of whom later died in hospital
> - the 7 July, 2005 terrorist attack in London, United Kingdom which killed fifty two people and injured seven hundred more.

From the foregoing, one could discern evident sophistication and uncommon ingenuity mixed with steeled resoluteness in the disposition of contemporary terrorists. The discernible grim harvest of daunting mass-casualty evident in the foregoing incidents demonstrates sophistication due contemporary terrorists in an era when global atomic control is on its head and the IAEA is incapacitated by it structure and constraints largely foisted on it by the realpolitik of the international system. This is more worrisome accepted as given by Abruzzese (2006:91) that ñé terrorism thrives on innovation.ò With religious fundamentalists dominating the cadre of new terrorists, it probably remains apt to expect more demonstrations of ingenuity and sophistication in the future from determined operatives in the globally privatized terrorism of the contemporary era dominated by religion-inspired terrorists. A worrisome likely source of this sophistication is in the acquisition and inevitable application of nuclear weapons in the conduct of asymmetrical warfare. Laqueur (2004:15), apparently factoring in the contemporary loose atomic control and sophisticated terrorists admits that:

> The advent of mega terrorism and the access to weapons of mass destruction is dangerous enough, but coupled with fanaticism it generates scenarios too unpleasant even to contemplateé even 9-11 was a stage in between old-fashioned terrorism and the shape of things to come: the use of weapons of mass destruction.

Terrorists, especially in the contemporary era, are resolute in the pursuit of sophistication especially as related to keeping apace with technological innovations and trends in the strategic as well as tactical spheres of the conduct of warfare. Three startling incidents buttress the foregoing assertion: a) the employment of well-trained scientists by the

Japanese Aum Shinrikyo terrorist outfit responsible for the March 20, 1995 sarin attack on Tokyo Subway, b) the discovery in Afghanistan after the fall of the Taliban regime in 2001 that Al Qaedaôs Osama bin Laden had actually footed the bill of scientists using animals to test all sorts of WMDs ostensibly supervised by trained and experienced scientists with uncommon capabilities, and c) the involvement of scientific geniuses such as the USô Theodore Kaczinski in privatized terrorism.

It is yet on record that many terrorist outfits, especially Al Qaeda, have more than a passing interest in the acquisition of nuclear weapons. Such desire and attempts at being sophisticated is not new but highlighted in this era of new terrorism. Logically, an interest in mass destruction apparently presupposes an equal interest in a befitting and matching weapon to attain that - weapons of mass destruction (WMDs). The nuclear version yet remains the apex of such weapons and the one most sought after by contemporary terrorists. In human history, the nature of any task has always determined the sought-after tool for its accomplishment. In the same vein, available technology determines the approach to the accomplishment of tasks in the march of civilization. The foregoing thrust of thought explains partly why the then Al Qaeda generalissimo, Osama bin Laden, calls the acquisition of nuclear capability a sacred duty befitting his chosen cause, and the channel of getting even with the US and Medinat Israel ï two nuclear-armed nations.

Deterrence constitute the major guard against nuclear exchanges among states with such capability over time. Thus, since 1998, for example, India and Pakistan have refrained from engaging each other in conventional warfare as they have done on four occasions with India winning all. Their nuclear capabilities is arguably the deterrent factor since both tested nuclear weapons in 1998. Logically, any conventional warfare engaged in by both nuclear powers could conceivably escalate into nuclear war especially when India brings its established conventional superiority to bear on such conflict. Thus, both nuclear

powers are deterred by the MAD doctrine. However, both nations have resorted to terrorism by proxy because of the virtual anonymity enjoyed by terrorists and terrorism especially when acts of terrorism are not claimed.

Furthermore, in evaluating global atomic control and the challenge of nuclear terrorism, however, one needs to appreciate the ineffectiveness of traditional deterrence in the nuclear extortion scenario. The terrorist is clandestine and anonymous except when he chooses publicity for obvious political reasons. Of utmost concern is the fact that terrorists are not amenable to conventional deterrence such as the MAD doctrine of the nuclear sphere as exemplified by the cause of the belligerent nuclear states used in my aforementioned analysis ï India and Pakistan. The apocalyptic terrorists of the contemporary era of new terrorism are not expected to be deterred like the state should the yawning loopholes created by our global nuclear renaissanceôs daunting nuclear proliferation remain unchecked. Bush (2002:15), for example, observes that:

> Traditional concepts of deterrence will not work against a terrorist enemy whose avowed tactics are wanton destruction and the targeting of innocents; whose so-called soldiers seek martyrdom in death and whose most potent protection is statelessness.

The foregoing reservations were articulated by many other experts over time. On 31 March, 2005, for example, the then Australian Prime Minister, John Howard, for instance, in an address to the Lowy Institute for International Policy, observed that:

> From the murder of 88 Australians in Bali in October 2002 and the attack on our Jakarta Embassy last September, we know that the threat to our country is very real. Australiaôs national security depends upon a collective response to this terrorist threat. Strong links with our partners in Asia form a vital part of this response. The war on terror is a different kind of war. It is a war against loose networks, neither dependent on nation-state sponsors, nor responsive to conventional deterrents (*Country Reports on Terrorism*, 2005:48).

A terrorist outfit with nukes, as many states under our nuclear renaissance posses, cannot be deterred like states are. A state has everything to lose in a messy nuclear exchange ï territory, population, and even existence. This restraining observation does not apply to terrorists especially our contemporary terrorists who unlike Americans in the words of Osama bin Laden ñworship death.ò In the contemporary era, we are bound to grapple with loose cannons euphemistically called terrorists who primarily have no stake in the international system; hence nothing to lose even in a nuclear Armageddon. The most dangerous product of any system known to man is that loose canon of frustrated undeterrable aggressive man with a grudge and nothing to lose. Contemporary terrorists can lay fair claims to the foregoing strategically worrisome characteristics of a systemic loose canon.

Many strategic experts still highlight the inadequacy of global atomic control under the IAEA watch and the threatening challenge of nuclear terrorism. Bill Powell, for example, quoting Aston Carter, a counter proliferation expert at Harvard, university, USA, believes the risk of nuclear proliferation out the back door of a rogue state is increasing. North Korea or Iran would conceivably sell a bomb to a terrorist group, and Osama bin Laden is unlikely to be put off by traditional methods of deterring a nuclear attack (*Time*, October 23, 2006). Experts still aver with apprehension the undesirable nature of terrorists. Michael Elliot, for example, highlights that:

> More terrifying is the possibility that malefactors operating without such restraints-such as the suicidal jihadists of al Qaeda - might acquire atomic materials. It is the global terrorist threat that has made this the least predictable moment since the dawn of the nuclear age (*Time,* August 1, 2005:28).

In the contemporary era, there is a remarkable growth of state sponsorship of terrorism and the international ñterrorist industryò. Data in the foregoing respect, however, remain scanty

and contested for obvious reasons anchored on the clandestine nature of terrorism on one hand, and the fact that no entity readily accepts the stigma-laden label of a ñstate-sponsor of terrorism ñon the other. Even the United States with irrefutable cases of involvement in the sponsorship of terrorism yet denies involvement, and goes further to designate other states as such. Its *Country Reports on Terrorism* (2005:112) designates Libya, Sudan, Iran, Cuba, North Korea and Syria as state sponsors of terrorism, and observes with apprehension that:

> State sponsors of terrorism provide critical support to non-state terrorist groups. Without state sponsors, terrorist groups would have much more difficulty obtaining the funds, weapons, materials, and secure areas they require to plan and conduct operations. Most worrisome is that some of these countries also have the capability to manufacture WMD and other destabilizing technologies that can get into the hands of terrorists.

On the issues of atomic control by the IAEA, the assumption of the state actorôs rationality is questionable because state sponsorship of terrorism as a menace has been around and appears bound to stay. The chances of a rogue state sponsor of terrorism sharing nuclear weapons with a terrorist outfit of choice is not remote. Many sophisticated weapons of Iranian origin, for example, have turned up in the hands of some terrorist outfits such as Hezbollah, and HAMAS in the Middle East, and the Iraqi Resistance against the 2003 Anglo-American invasion of Iraq on the faulted premise of defanging the then Iraqi presidentôs WMD capability, and al Qaeda link. The USô sophisticated weapons, such as the lethal Stinger Missile Gun, ended up in the hands of the Mujahedeen Islamic fighters fighting the Soviet occupation of Afghanistan in the 1980s. The USôs attempt to ñbuy backò these weapons from the then Majaheeden ñfreedom fighters,ò who now constitute the bulwark of al Qaeda terrorist network, failed woefully.

Thus, Rourke (1999:346) , vis-à-vis the foregoing observes that:

> Weapons that a country supplies insurgents today may also wind up being used against it tomorrow. Only about 30 percent of the $2 billion in arms purchased through the CIA-coordinated program and meant for the Afghan rebels during the 1980s ever arrived at their destination. The diverted weapons included sophisticated, shoulder-fired stinger surface-to-air missiles. Black-market Stingers were used, among other ways by Iran to attack U.S. helicopters in the Persian Gulf in 1988. Indeed, concern about such missiles is so high that the CIA has tried to buy them back on the subterranean arms market. The official U.S. price for a Stinger is about $30,000; the CIA was offering a reported $68,000 per missile; but it was being considerably outbid by eager rebels, terrorists, and other arms shoppers willing to pay a reported $200,000 for a Stinger.

Thus, one can conclude with appreciable accuracy that the challenge of nuclear terrorism remains daunting as long as states continue to sponsor terrorism and permitted under the IAEA and NPT charters to mount the so-called nuclear technology with only civilian applications. A state sponsor of terrorism, for example, could unwittingly open up its ordinance depot as a benefactor to terrorists without factoring in the entire gamut of the implications of such lethal benevolence. In al Qaeda, for example, the US is currently suffering a blowback syndrome occasioned by its anti-communist sponsorship of the heavily armed and lavishly funded Mujahedeen guerrillas that defeated the USSR invaders and occupiers of the largely Islamic Afghanistan between 1979 and 1988. Thus, since the IAEA allows states to access nuclear technology for peaceful non-military applications, one cannot therefore guarantee that states cannot with relative ease divert to nuclear technology with military applications and share the same with favoured terrorists that could, as in the past, interchangeably be called ñfreedom fightersò. This is more worrisome because a state can comfortably mount a military nuclear programme and pass it for the civilian version under the IAEA watch. The intertwined nature of the processes of nuclear technology-both civilian and military-are practically the same. Concealment of activities

by a nuclear cheat, for example, is possible because the IAEA comes only when, where an how it is invited as prescribed in its charter.

In the contemporary era, there exists an apparent though undeclared global tolerance and support of terrorism in various fora such as the media and the UN. This makes the challenge of nuclear terrorism brighter in particular and by extension especially when terrorists accessed nukes. The inability of the UN, the media and even global citizens to come up with a generally or universally accepted definition of terrorism constitutes a fillip to the prospects of nuclear terrorism. As it is today, one cannot say with even pretence toward honesty, what constitutes or amounts to terrorism. Terrorism as a contested term still betrays the bias of the one doing its conceptualization; hence many carry it out under many guises supported by a gullible media especially those with commensurate global reach. Thus, it could be appreciated that terrorists are no signatories to any of the conventions on terrorism or the one on atomic control under the IAEA, for example. This confusion creates worrisome loopholes in the dual source of nuclear terrorism ï terrorism and nuclear proliferation.

Since no one can for example, proffer a generally accepted definition of terrorism one can conclude that in spite of the public condemnation of terrorist acts, terrorism is still condoned under guises such as ñdefending civilian populationò against ñcrime against humanity.ò The foregoing is best exemplified in the NATO choreographed terrorist mission in Libya purportedly to protect ñarmed rebel insurgentsò branded civilians. This campaign killed more Libyan civilians that any other programme. When the dust settled with the murder of Colonel Muammar Gadafi, then Libyan leader, on October 20, 2011, it became harder to define terrorism or conceptualise what exactly is meant by ñcrimes against humanityò. This definitional complexity also extends to the nuclear realm where under the NPT regime, for example, one can pursue the acquisition of nuclear technology for civilian

purposes under the supervision of the IAEA. The convergence of terrorism and nuclear proliferation ï two contested concepts ï as unwittingly supported by the UN and media, for example, highlights the challenge of nuclear terrorism.

Coming to the issue of the global proliferation of nuclear weapons, highly liberalized by the contemporary nuclear renaissance, the challenge of nuclear terrorism looms larger on the globeôs security radar. Under contemporary global nuclear renaissance, the proliferation of nuclear weapons has been taken to the hilt under the IAEA watch. The concern here is not necessarily in relation to weapons in the possession of known nuclear states as declared, but the undeclared nuclear weapons possibly in the hands of the nuclear threshold states, mafia, terrorists, and indeed unauthorized hands. This is more worrisome, because in recent times there has been a noticeable change in the nuclear proliferation threat hitherto posed by states bent on joining the nuclear club. This change, more than any other factor, highlights the challenge of nuclear terrorism. John F. Sopko as cited in Purkitt (1998:194), for example, observes with due concern that:

> One notable difference in the proliferation threat is that the actors themselves have changed. The cast of proliferation characters has gradually expanded beyond the initial five nuclear weapons nations and a few outlaw states such as Iran, Iraq, Libya, and North Korea to include regional powers, religious; ethnic, and nationalist groups; other politically disaffected groups and non-state actors; terrorists; and, possibly, criminal organizations. Few of these actors attracted attention in the past analysis of proliferation.

John F. Sopko further asserts in Purkitt, (1998:194) that:

> Organized crime has also become one of the new additions to the proliferation game. Russian and U.S. officials alike ï including Russian Prime Minister Viktor Chernomyrdin, former Russian minister of internal affairs Viktor Yerin, FBI director Louis Freeh, and CIA director John Deutch-have expressed concern that organised crime groups may gain access to poorly secured nuclear weapons and materials in the former Soviet Union.

Thus, strategic experts are generally worried because of two factors which evidently are elusive to realization and containment. The first is the issue of nuclear weapons proliferation under our global nuclear renaissance which automatically makes more nuclear weapons available and possibly in circulation. The second is the fact that terrorists are evidently bent on going nuclear with a view, unlike states, to applying it in the conduct of warfare and not deterrence. Thus, only the putting of nuclear weapons beyond terrorists suffices to address the challenge of nuclear terrorism. The potential for the escalation of nuclear incident to a limited, theater or global nuclear war also enhances the challenge of nuclear terrorism. Nuclear weapons application in the conduct of warfare has no learning curve; hence its implications yet belong to the realm of imagination. In this vein some global nuclear flashpoints such as India-Pakistan, North Korea-South Korea, and Israel ï Iran call for concern. Strategists believe that any nuclear fallout from any conflict especially in the aforementioned spheres constitutes a fillip to nuclear terrorism. Nuclearisation of the aforementioned spheres remains a strategic issue of global concern because of the concern for the interface between terrorism and nuclear proliferation, especially in the contemporary era of new terrorism.

Thus, looking at the irrefutable lessons of history vis-à-vis the relationship between technology and the conduct of warfare on one hand, and the template of the ten trends related to nuclear terrorism as discussed on the other, one can conclude that our contemporary global nuclear renaissance exacerbates the challenge of nuclear terrorism. This is more worrisome when the capacity of the IAEA as an international regulatory mechanism against nuclear terrorism through atomic control appears to be on its head. Many documented incidents only buttress the foregoing point of view by laying bare the worrisome ubiquitous availability of nuclear materials and weapons, and those avenues and trends that constitute a fillip to the challenge of nuclear terrorism. Sopko (1996), for

example, posits three unnerving incidents: In November 1995, Chechen rebels threatened to detonate radiological devices in and around Moscow. In December 1994, Prague police seized 2.77 kilogram of weapon-grade highly enriched uranium (HEU) and, arrested a Czech, a Russian, and a Belurussian with ties to the nuclear industry. Later, a Czech police officer was arrested as well. According to Czech authorities, these individuals dealt with suppliers in Russia who claimed they could deliver 40 kilograms of HEU. Also in August 1994, German authorities seized 363, grams of PU, 239 from a Lufthansa flight arriving in Munich from Moscow. According to German authorities, the material had come from a nuclear facility in Obninsk, and the smugglers had claimed they could supply 11 kilograms of plutonium.

Furthermore, the then head of the United Nationsô International Energy Agency, Mohamed El-Baradei, as cited in *Daily Sun* (November 9, 2004:11) highlighted the challenge of nuclear terrorism in Sydney, Australia and thus expressed the helplessness of the IAEA vis-à-vis the global loose atomic control and called for a preemptive reaction to the established threat ñin Asia-Pacific, you have a lot of nuclear materials, you have a lot of radioactive sources. This is a danger that can occur anywhere. We need not wait to see the kind of situation like the attacks on 9/11 or Chernobylò. With the level of international terrorism rising especially vis-à-vis its technological tilt, the fear that terrorists could make some lethal nuclear acquisitions to our collective peril is founded, and should be decisively fought. A group of anti-nuclear experts share this apprehension with startling revelations as cited in IPPNW (1995: 16-17):

> Another especially powerful force that shaped thinking about the long-term future of nuclear weapons was the continued rise in terrorist activities. With the release of nerve gas in Tokyo subway systems: the explosion of a massive fertilizer and fuel oil bomb in Oklahoma City, repeated explosions in Paris; and suicide car bombings in Israel, terrorists seemed to draw no lines as to whom they attacked or the methods they used.

The informed fear that the IAEA atomic control is loose and that terrorists might obtain nuclear weapons were also exacerbated by reports of leakage of weapons usable material from the former Soviet Union. Between 1991 and 1994, the German government detected at least 350 instances of apparent attempted nuclear smuggling. Between 1991 and 1995, there were at least sixty seizures of nuclear materials by authorities, and in 1994 a pound of plutonium was seized at Munich airport and six pounds of highly enriched uranium were seized from a parked car in Prague. In addition, news reports from Moscow indicated that Aum Shinrikyo scientists, responsible for the Tokyo nerve-gas attacks, had met with Soviet nuclear specialists and had shown a strong interest in acquiring nuclear weapons (IPPNW, 1995).

There is every reason to believe that terrorists are not sleeping vis-à-vis the acquisition of nuclear capability and other WMDs. This point to the possibility of resilient terrorists being in a position to manufacture nuclear weapons of their own. This calls only for the acquisition of both Strategic Special Nuclear Materials (SSNM) and the expertise to convert them into bombs or any other WMD. According to the nuclear physicist, Ralph Capp, any crafty technician having plutonium might fashion a modestly effective explosive bomb. He posits further that as small as 3.5 ounces of highly toxic plutonium substance could pose a lethal hazard to everyone in a building (William, 1999).

Even as bad as this situation is, the prospect of terrorists having access to nuclear weapons is becoming brighter by the day. This includes access to nuclear power plants or even nuclear waste storage facilities. This is highlighted by the fact of nation-state involvement in international terrorism. Logically a state with such facilities could be less than careful when a fellow terrorist actor in the international system warms itself into its heart. Also with proliferation, there is this possibility that new members of the nuclear club

might be naïve enough to compromise essential safeguards such that terrorists could sabotage their facilities. This is highly possible because even under the IAEA watch, the nuclear facilities of some of the so-called old and experienced members of the nuclear club have been compromised in the past. From the report of the International Task Force on Prevention of Nuclear Terrorism peril lurks in the proliferated development of tactical nuclear weapons. There exist, for example, published reports of a terrorist group in Europe that made a futile attempt at availing itself of information on NATO nuclear weapon storage facilities (*The Canadian Journal of World Affairs*, Sept./Oct. 1986:1).

However, researchers have over the years taken a peep into the prospect of terrorists acquiring nuclear capability. The findings are not encouraging by every standard. They have confirmed that the precautions on the nuclear weapons and materials are very inadequate to discourage proliferation informed by theft and sabotage. Hence the apprehensive thinking that it is only time that is standing between the terrorist and his desired quarry-nuclear weapons-since essential fissile materials

could be taken from the nuclear power plants by either a thief or worse still the highest bidder. Davies (1985), for example, confirms that in the US alone, not less than 9000 pounds of nuclear explosive materials were missing from the books in 1981. More than 260 commercial nuclear power plants are operational in the then non-communist world as at today. Each of these commercial nuclear power plants has the capability to produce bomb-grade plutonium. Some could produce up to 300kg per annum, adding up to a total of about 45 metric tons a year. This is an equivalent of 6000 nuclear weapons. The once super secret technology of uranium enrichment which produces fuel for reactors and material for weapons is perilously proliferating. Globally, at least, twelve countries are known to have enrichment facilities. These explosive materials are transported by sea, air, land in trains and trucks from mines to enrichment plants, bomb assembling depots and power reactors.

This mode of open transportation, even amidst tight security, may end up attracting terrorists most of who are even ready to die on suicidal missions, or what they call martyrdom. This trend exacerbates the worry over global atomic control especially that of the IAEA.

As noted earlier, another fillip to the challenge of terrorist acquisition of nuclear capability is the disintegration of the Soviet Union and the opening up of the region to fortune hunters. This opening up had on its heels the advent of dire economic hardship. Thousands of scientists and other employees in the sensitive security industries lost their jobs and those still retained are paid meager salaries that are nothing to write home about. This trend points empirically to the prospect of these experts pandering to the whims and caprices of the highest bidder who is more likely to be at least an ordinary crook or at worst the dreaded terrorist. Also, as global warming is tackled by reduction in carbon emission, many states have reevaluated their energy policy and have turned nuclear power as energy source. However, it must be pointed out here that in this nuclear renaissance the by-products of fission in a nuclear plant are the basic ingredients for a nuclear fission bomb. Thus, there is this frightening likelihood that as increasingly large amount of plutonium 236 are produced in the nuclear power plants, terrorists could exploit any security lapse possible in all human endeavours to avail themselves of a nuclear capability. This is more so because most entities that embark on nuclear programmes, experience has shown, are actually after the military and not necessarily the civilian version of nuclear technology as India, Pakistan, North Korea and now Iran has demonstrated.

Put in a summarized perspective, however, the international system is not only threatened vis-à-vis the possible acquisition and eventual utilization of nuclear weapons, but is threatened the more with extinction if and when terrorists reduce the globe to a charred lifeless cinder (Bush, 2002). It must also be pointed out here that terrorists are

primarily outlaws without a stake in the international system, and by this fact have neither laws to obey nor treaties to respect. As unwelcome actors in the international system, they constitute a loose cannon of sort. Nuclear capability could in their hands be blackmail-oriented bargaining chips at best or worse still a means of ending life on earth advertently or inadvertently. There is thus the need for apprehension and collective preemptive action as many loose nukes and nuclear materials are globally unaccounted for as MUFs especially as advancements in technology seem not to be leaving contemporary global terrorists behind or deterred. The need for even preemptive actions is now because even with the thriving of megaterrorism, ñDependence on nuclear power persists despite the possibility of disasters such as that experienced in 1986 at Chernobyl, in the former Soviet Unionò (*Awake*, March 8, 2002:6).

The erudite terrorism expert, Bruce Hoffman, as cited in Williams *et al* (2006:638) warns of nuclear terrorism in contemporary era and asserts that:

> In sum, compelling new motives, notably those associated with religious terrorism, coupled with increased access to critical information and key components, notably involving WMD, leading to enhanced terrorist capabilities, could portend an even bloodier and more destructive era of violence ahead than any we have seen before.

Finally, the need for concerted actions against the evident challenge of nuclear terrorism to the march of civilization is imperative. The IAEAôs atomic-control capability appears compromised. Many strategic experts are thus harping on the threat of nuclear terrorism especially for that reason. Thus, Wilson (2010:27), for example, wants the world led by the US, who first introduced nuclear weapons in the conduct of warfare in 1945, to take action by asserting that:

> In the previous century, America led the world and defined the age ï defeating Hitler, rebuilding Europe through the Marshall Plan, promoting civil rights for all people, sending men to the moon. Now we must again lead the world to conquer the greatest danger of this young century ï nuclear terrorism.

CHAPTER FIVE

THE NUCLEAR NON-PROLIFERATION TREATY AND THE PROBLEM OF UNAPPROVED SPREAD OF NUCLEAR TECHNOLOGY

5.1 The NPT and the Problem of Atomic Control

No appraisal of the Nuclear Non-Proliferation Treaty of 1968 can be deemed worthwhile without going back to the year 1945. However, the enactment of this treaty by an apprehensive world and its coming into force in 1970 appear to have anticipated nuclear terrorism. Many strategic experts situate the origin of hyper-destructive modern terrorism in 1968. Thus, the enactment of the NPT regime in the same year constitutes more than a mere coincidence. The import of this treaty remains atomic control via non-proliferation. The treaty simply created the NWS-NNWS dichotomy in the international system by placing respective obligations on both categories of signatories to it charter.

However, signatories to its charter, NWS as well as NNWS, have consistently reneged on their obligations such that the globe is today witnessing a snowballing global nuclear renaissance. As an international regulatory mechanism it came as a support to its nuclear enforcement precursor-the IAEA. It stipulates that all signatories to its charter are free to mount nuclear programmes with the dicey proviso that such programmes be for only civilian applications and subjected to the supervision of the IAEA especially as it concerns signatories in the NNWS category. The five members in the NWS category-the USA, UK, China, France, and Russia are by the charter of the NPT regime obliged to refrain from helping those in the NNWS category to acquire nuclear weapons and to work toward the eradication of nuclear weapons on the globe (Rourke, 1999).

The year 1945 constitutes a milestone in the world of energy generation, storage and application. Nuclear energy premiered by application in the conduct of warfare, thus revolutionizing energy, warfare, and indeed altering life as it was hitherto known with

lingering effects to this day. Nuclear energy came to represent the ultimate and efficient energy source with zero-carbon emission; hence ideal for combating global warming in the contemporary era. Nuclear energy has both civilian and military applications. In the civilian sphere it has, for instance, featured in the generation of electricity and manufacture of medical isotopes used in the treatment of cancer and other medical challenges. In the military sphere the manufacture of nukes tops the list. The military utilization of nuclear energy is a global issue of strategic concern primarily because contemporary terrorists could benefit from the diffusion of nuclear know-how occasioned by contemporary global nuclear renaissance. In both the civilian and military spheres nuclear energy is at the apex of the energy pyramid in terms of efficiency and effect. Thus, in the military sphere, for example, nuclear weapons remain the most destructive weapon yet known to man. Chemical and biological weapons share the same paradigm with nuclear weapons as Weapons of Mass Destruction (WMDs), but nuclear weapons remain verifiably the most destructive. This explains the founded concern over the prospects of terrorist acquisition of it especially in contemporary era marked by myriad robust global strategic challenges.

Since Enrico Fermi split the atom in December 1942, the world of energy generation, storage and transmission altered dramatically and tremendously. In the strategic security and defence world, the prospect of destruction with the release of quantum atomic or nuclear energy loomed in the horizon. However, this trend on realization in 1945 revolutionized warfare with daunting strategic implications that mankind is still grappling with to this day especially under globalization. Under globalization, warfare has progressively manifested a snowballing sophistication occasioned to a very appreciable extent by the spectacular feat of man in science and technology. The theatres of warfare are now ubiquitous as we live in a world of placelessness. Warfare is now, in its fifth domain ï cyberspace-as dictated by spectacular advances in Information Technology (IT).

This constitutes a far geometrical progression from the established domains of land, sea, air, and space. The splitting of the atom was at inception heralded as manôs triumph over retardation vis-à-vis indispensable energy. Contemporary events, however, portray this feat as a Faustian bargain when evaluated against the background of the daunting externalities of nuclear science and technology as discovered over time. Palmer and Perkins (2004:739) highlight that,

> For some years scientists had been conducting experiments which suggested that a controlled chain reaction was possible. Einstein (Albert), in his famous formula E ï MC^2, had advanced the startling theory that energy could be converted into matter. The splitting of the atom, however, with the consequent release of atomic energy, was the work of many scientists.

Lapp (1964) observed that it was the renowned physicist, Albert Einstein, who in a letter convinced the then US President, Franklin D. Roosevelt, of the imperative of building the atomic bomb to beat the German Nazis to it. Albert Einsteinôs letter impressed the president and thus came into existence the Manhattan Project established on August 13, 1942. Dr. J. Robert Oppenheimer, at Los Alamos, New Mexico, U.S.A directed other scientists in building the first nuclear bomb. This bomb was tested at Alamogordo in New Mexico in July 1945, thus confirming its hyperdestructive capacity demonstrated in the three steps of Blast, Heat, Radiation (BHR).

This nuclear or atomic bomb, like all wartime scientific and technological leap or shift, automatically was brought to bear by application on the conduct of warfare. The then USAôs President, Harry Truman, ordered the application of this dreadful weapon on Japan. Thus, the bomb was dropped first on the Japanese city of Hiroshima on the 6th day of August, 1945. Another was also dropped on another Japanese city, Nagasaki, on the 9th day of August, 1945. Both cities were virtually incinerated with staggering cost in human and

material resources culminating in the immediate and unconditional surrender of Japan, and arguably the end of World War II (1939 ï 1945).

Apprehension followed the introduction and application of ñthe basic power of the universeò (Palmer and Perkins, 2004:738) in warfare. Spaak (1955:359) concludes that ñTruly, our imagination is not in step with our era.ò De Wolf Smyth (1945:224, 226) apprehensively averred that:

> We find ourselves with an explosion which is far from completely perfectedé . It is conceivable that totally different methods may be discovered for converting matter into energy since it is to be remembered that the energy released in uranium fission corresponds to the utilization of only about one-tenth of one per cent of its mass. Should a scheme be devised for converting to energy even as much as a few per cent of the matter of some common material, civilization would have the means to commit suicide will --- Here is a new tool for mankind, a tool of unimaginable destructive power. Its development raises many questions that must be answered in the near futureé . These questions are not technical questions; they are political and social questions, and the answers given to them may affect all mankind for generations.

Thus, Palmer and Perkins (2004:739) projects that:

> No competent analysis of international relations é can ignore the consequences of the availability, for the first time in history, of power without limitò ï power for the benefit or for the destruction of mankind. The unseen atom has become perhaps the greatest force in the world.

Since the application of the atomic bomb in warfare by the US in 1945, the quest for atomic energy for military as well as civilian purposes has been ongoing. However, it is on record within the strategic circle, for instance, that this power is not only very diffused today but also availed of myriad applications and destructive enhancement. Thus we are bound to grapple with the fact that the nuclear bomb dropped on the two Japanese cities of Hiroshima and Nagasaki in 1945 in terms of destructive capacity pales into insignificance on comparison with what many nuclear entities have in their contemporary stockpiles.

Nuclear weapons today incorporate also hydrogen bomb, cobalt bomb as well as neutron bomb, all designed to achieve enhanced permanent destruction. Albert Einstein, the father of the atomic bomb, in Palmer and Perkins (2004:742) declares that:

> The hydrogen bomb appears on the public horizon as probably attainable goalé if successful, radioactive poisoning of the atmosphere, and hence annihilation of any life on earth, has been brought within the range of technical possibilities.

The hydrogen bomb now belongs to the domain of the realized and no longer possibility. The US tested its own on March 1, 1954 at the Bikini Atoll in the Pacific. Twenty months later the then USSR followed. France, Britain and China followed. China tested its first nuclear weapon in June 1967. As for its precursor, nukes, the US also started it all with its first nuclear test in Alamogordo, Mexico on July 16, 1945 followed by the devastating application of nukes in warfare also in 1945. The then USSR followed on 23 September, 1949; Britain October 3, 1952; France ï February 13, 1960, China ï October 16, 1964, India ï 1974 and 1998, Pakistan ï 1998, and North Korea ï 2006. Many strategists believe that Israel has nukes but is yet to refute or confirm its ambiguous nuclear status. With contemporary nuclear renaissance strategists believe that many nuclear aspirants could be on the threshold of nuclear acquisition.

Thus, the application of nuclear technology premiered in the military sphere; hence my starting from thence in its elucidation. Nuclear technology also has civilian applications. The chief among these is the generation of electrical power. However, it is unfortunately under this strategic smokescreen that many entities hide to develop nuclear weapons many by capitalizing on the interconnected nature of the nuclear processes, the legal loopholes in the NPT regime, and the incapacitation of the International Atomic Energy Agency. The globe today is dotted with nuclear reactors which possess the capacity to churn out capacities to meet military and civilian needs in the same vein.

Ever since Enrico Fermi split the atom in 1942, and the US benefited by splitting the atoms of Uranium 235 from Shilombe mines in the then Belgian Congo to manufacture the first atomic or nuclear bomb, the course of energy evolution changed lethally (Nkrumah, 1974). Since then, man has been sitting on the edge of extinction staring at two issues; mass survival and mass extinction. Unfortunately, however, looking at the games played over time by actors and audience alike in the international system, the dire prospects of extinction looms. This is so because all contemporary nuclear brinkmanship tends to suggest that the collective choice is mass extinction.

Nuclear energy could be accessed via two ways: fission and fusion reactions. Energy of nuclear fission is derived from the breakup or split of large nuclei while that of thermonuclear fusion occurs when two light nuclei fuse together giving rise to a heavier one. In both, all reactions are induced to set off a self-sustaining chain reaction which releases constant quantum energy. These reactions are normally achieved in what is normally identified as ña pile,ò cyclotron or reactors in contemporary nuclear technological literature. Especially in fission reaction, the quantum of derivable energy per equal unit of fissile material vis-à-vis nuclear reaction and other sources of energy is almost one million percent. So far, however, nuclear fusion has only been realized in concrete terms in the hydrogen bomb. This explains why scientists describe it as three-stage weapon, a fission ï fusion-fission bomb. It is this efficiency of nuclear energy that attracts those in pursuit of it especially for the generation of electricity. Even in the frightening military sphere, history shows that any weapon produced from the foregoing fissile processes has doomsday potential and capability. Thus it is frightening enough that states against whom deterrence could work, has nuclear weapons. As for terrorists, verifiably impervious to conventional deterrence, the prospects of their coming into possession of nukes constitutes a cataclysmic *nunc dimitis* for humanity.

Nuclear or atomic energy, though not in exclusivity, is a dual ï or multiple-use energy. It could be used for civilian, industrial, as well as military purposes as it suits the design and capability of its purveyor. At this stage in energy evolution, there is yet no type of energy need that atomic energy can not meet. It is extremely efficient when properly harnessed and protected from getting into the hands of criminals, anarchists, terrorists, fundamentalists and rogue states. Whatever hunch any civilized man has over nuclear technology is informed by a strategic appreciation of its military utility as was racially demonstrated by the US on Japan in the waning days of World War II (1939-1945). Current literature however, tend to suggest that the destructive capacity of the two atomic bombs used on Japan pale into insignificance when compared with the nukes many nations currently have stocked in their ordinance depots dotting the globe. Against this background, nuclear proliferation has attained nuclear renaissance with nuclear know-how even making the internet lists.

The NPT today is prostrate and abused many because of the nature of the nuclear technological processes. Thus, the signatories to its charter take undue advantage of the myriad loopholes therein especially under the contemporary global nuclear renaissance thereby compromising the atomic control capacity of the NPT against nuclear terrorism. This is worrisome because we are arguably in the age of terrorism with terrorists verifiably making the global nuclear proliferation list of concern. The NPTôs atomic control capability is compromised in many ways that make atomic control cumbersome: These ways make nuclear proliferation relatively easier especially for unapproved actors to access nuclear weapons by taking undue advantage of the fallout of the so-called civilian nuclear technology permitted by the charter of the NPT regulatory mechanism.

(i) Fuel Diversion ï Atomic bomb, which many seekers of nuclear energy actually gun for, is fabricated using enriched uranium or plutonium whose energy could as well be used, for

instance, to generate electricity. North Korea, for example, started its clandestine nuclear programme on the platform of using nuclear energy for peaceful civilian purposes alone in accordance with its obligations under the NPT regime to which it was a *bona fide* signatory before opting out unilaterally. Unfortunately, however, the NPT charter makes provision for a signatory to opt out after giving a ninety-day notice to that effect when its national interest is threatened by its NPT obligations. It tested its nuclear weapons in 2006 and 2009. Material for that nuclear device came verifiably from plutonium derivative of its nuclear reactors hitherto purportedly primed to generate nuclear energy for peaceful purposes only.

Iran, a signatory to the NPT, for example, is today on collision course with the West over the tilt of its nuclear programme for the same reason ï civilian or military? Iran has consistently maintained that its nuclear programme has as its raison dôêtre the generation of electricity and other civilian nuclear applications. However, Iranôs strategic antecedents do not redeem or buttress its claim. An analyst in *The Economist (*August 8, 2009:50), for example, confirms the genuineness of the reservations over Iranôs so-called peaceful nuclear programme:

> é Iran personifies a more insidious problem: that of separating civilian from military nuclear technology ï and intentions. Iran says its nuclear work is peaceful, and notes that the NPT promises access to civilian nuclear power for all who honour it (theoretically all countries save India, Israel and Pakistan which never signed and North Korea which cheated and left). That includes sensitive nuclear technologies, says Iran, though the NPT doesnôt specify.

It has the dubious honour of being the only country to have built uraniumï enrichment plant and to be developing plutonium-reprocessing technology without having a single working nuclear power reactor that could use either. That sets off alarms because a country that has mastered making low-enriched uranium for reactor fuel just has to spin machines in different formation to produce the high-enriched stuff for a bomb. Plutonium can be

extracted from nuclear wastes and expensively reused in special sorts of fuel, but it can also be fashioned into the fissile core of a nuclear weapon. And instead of throwing open all doors to inspectors from the International Atomic Energy Agency (IAEA), the UNôs nuclear guardian, Iran has stymied them and ignored calls from the UNôs Security Council to stop its suspicious work of uranium enrichment especially at its myriad undeclared nuclear sites.

Thus, discernible in the foregoing is a pointer to just one of the myriad problems plaguing the utilisation of nuclear energy and the NPTôs mandate of atomic control. In the above scienario, Iran could interchangeably use the derivative fuel from its hitherto clandestine nuclear programme to make nukes or generate electricity and produce medical isotopes for the treatment of cases such as cancer. The latter has consistently been canvassed by it as the raison dôêtre of its nuclear programme. This position makes fuel diversion a threat and nightmare to scholars and policymakers vis-à-vis whose reservations, Iranôs or the Westôs, to believe. Thus, Dorf (1978:234-235) observes that:

> Atomic bombs are fabricated from enriched uranium or plutonium. Thus, the danger of the diversion of these substances from their peaceful use to use in nuclear weapons must be considered. Even small amounts of plutonium in the hands of terrorists would expose a nation to intense danger. Plutonium might be stolen in the fuel-processing plant or in the transportation system between the processing plant and reactor.

The transportation of nuclear fuels and wastes will require extremely secure methods. The loss of plutonium in ñmaterials unaccounted forò (MUF) is difficult to monitor in a fuel-processing plant and during transportation. Dr. Theodore Taylor has stated that it would be relatively easy for a terrorist group to fabricate a bomb from a small amount of stolen plutonium. Thus, security systems must be designed to address the problems of detection, prevention, and recovery of any diversion of nuclear fuel materials.

The above prescriptions and safeguards sound euphonious especially on realization. But antecedents do not seem to support such as there is yet no verifiable case of a fully recovered stolen materials, if any. Thus, in 2009, the Director General of the International Atomic Energy Agency, Mohammed El Baradei, raised alarm over the global burgeoning incident of fuel diversion in the strategically sensitive nuclear industry. He demonstrated being at a loss as to whether the increment was informed by a spiraling in the demand for radioactive material at global level or signatories to the NPT regime were more accurate in reporting radioactive-material losses.

Elbaradei (2009:30) asserts that:

> The possibility of terrorists obtaining nuclear or other radioactive material remains a grave threaté The number of incidents reported to the Agency (IAEA) involving the theft or loss of nuclear or radioactive material is disturbingly high ï nearly 250 in the first half of 2008 alone. Equally troubling is the fact that much of this material is not subsequently recovered.

From the foregoing, fuel diversion remains a threat. Nuclear cheats have over time benefited from this holes in the nuclear process and the NPT statutory limitations for nuclear programmes with civilian non-military applications which makes it almost impossible to disentangle the intertwined binary issue of nuclear programme for civilian and military applications. The intricate aspect of this buttresses the attendant global apprehension in relation to who gets nuclear capability or not. Thus, the possible threat from the nuclearisation of any entity on the globe does not belong to the dicey realm of assumption. The threat therefore is not fiction but fact given the unfolding trends in global politics today. A strategic evaluation of these trends makes it imperative that the global community act even preemptively to nip a real lethal fuel diversion in the bud. The only sensible way is to deny a potential cheat access to nuclear technology. This could logically

entail a structural review of the NPT charter in light of unfolding strategic challenges related to nuclear technology.

Furthermore, antecedents also support the foregoing assertion and prescription. India, for example, is a nuclear power today for having tested nuclear weapons in 1974 and 1998. The scary aspect of its nuclear attainment is scarier when evaluated in relation to how India was able to go nuclear. Indiaôs case represents a template for the appreciation of the dire problem of fuel diversion in the nuclear process. It is on record that India got its nuclear know-how and assistance from Canada ostensibly on the basis of tapping nuclear technology for peaceful civilian purposes only. However, it remains curious that Canada should have obliged India such technological largesse when India remains outside the orbit of the NPT regime and its verification agency, the International Atomic Energy Agency (IAEA). Indiaôs stand vis-à-vis the NPT regime constitutes a profound signal to show that it had interest in the acquisition of nuclear weapons.

Thus Dorf (1978:248) observes that:

> As the use of nuclear reactors spreads through the world, an associated concern is the possible proliferation of the capability to build nuclear weapons. India used the waste from a nuclear power plant purchased from Canada to detonate an atomic weapon in 1974.

The problem of fuel diversion remains daunting even with the NPT prescriptions and prescription made by sundry strategic experts over time. The problem is compounded by the intricate and intertwined nature of the nuclear processes. Deming (1976:51), for instance, prescribed that in order to curtail the proliferation of atomic weapons, the nations selling nuclear reactors ought to reach a consensus and binding agreement on the following sore points of strategic importance:

(1) Any country buying nuclear technology from them must accept inspection and supervision by the International Atomic Energy Agency (IAEA);

(2) Purchasers must give assurances not to use any imported nuclear facilities to make nuclear weapons, and
(3) Those purchasers will employ tight safeguards against the theft or diversion of nuclear materials.

The foregoing prescriptions are sound enough but fail on the strategic scale of evaluation. This is so because in strategic studies, nothing, especially the negative, is put beyond any actor; thus it has always been a case of ñbelieve but verify without notice of when, where and how.ò India was able to circumvent all hurdles presented above. It is not a signatory to the NPT regime. By this, the UNôs nuclear watchdog, the IAEA, has no business with it. The assurance from any entity not to veer into nuclear-weapons production in its related nuclear programmes does not hold water. Even nations who officially do not possess nukes but has nuclear programmes can at short notice assemble a nuclear weapon from the abundant plutonium produced as waste by their reactors. Japan, Taiwan, Canada, Sweden, Norway, Denmark, Brazil, Argentina, Algeria are on record known to posses this capability and, among others, classified as threshold states in the global strategic circle. They are called nuclear threshold states because of this potential to assemble nuclear weapons at a short notice. The aforesaid third prescription belongs to the realm of the relative and ambiguous. How tight is tight security against the worrisome concern of the IAEA vis-à-vis the volume of MUFs detected in the global nuclear technological programmes? Thus, fuel diversion remains a looming catastrophe in the nuclear business whose resolution is not only imperative but urgent and pressing as many entities are enjoying the loopholes of the NPT thereby compromising global atomic control.

(ii) Nuclear Accident ï Scientists ascribe a percentage of limits as imposed by error or mistake to all phenomena given and accepted, but not excusable, human limitations. Nuclear accidents occur sometimes with debilitating results that tend to cancel whatever one gains from harnessing and subsequent utilization of nuclear energy (Hammer, 2011;

Kluger, 2011). The devastating and lingering dysfunctional effects of these accidents have over time put a very worrisome question mark on nuclear energy. Thus, protests have erupted with protesters demanding an end to nuclear activities across the globe. Nuclear accidents have come to represent the staple of debates on the safety of nuclear energy in all its ramifications. This, however, does not mean that nuclear energy in terms of hazards stands in isolation from all other energy sources, which in reality have their externalities as well. The crux of the trend here is that nuclear energy releases quantum energy that dwarfs other energy sources with lesser energy capacity and output capability. It is, however, noteworthy that the volume of energy released per unit of mass by nuclear fissile materials stands at equilibrium with its externalities.

Since the advent of the nuclear age in 1945, many nuclear accidents have occurred. Many were reported as shown in Table 5.1 below, while many were either under-reported or given outright media blackout. For reasons bordering on nationalism, prestige and strategy, nuclear technological accidents are not always deemed newsworthy by affected nuclear reactor owners. Thus, little is known even about reported and established cases. It took the then USSR time to admit the ramifications of the Chernobyl nuclear accident in Ukraine which was then part of the USSR. The cause of that accident is still a staple of debate, while the cost is till not exactly established beyond contention.

Table 5.1: Reported Major Nuclear Accidents Since 1945

Accident	Cause	Country	Date
Chalk Rivers, Ontario Nuclear Facility	Human error	Canada	1952
Windsscale England Nuclear Facility	Procedural limitation	UK	1957
Fermi 300-Miv Detroit Rector	Mechanical limitation	US	1956
Brazoria Ferny 1000-MW, Decatur, Alabama	Fire outbreak	US	1975
Chernobyl	human error	USSR (Ukraine)	1986
Fukushima	Tsunami	Japan	2011

Source: Adapted from Dorf, 1978: www.iaea.org.

However, a panoramic view of some reported major accidents in the nuclear technological business takes us back to 1952. In 1952, Canada had one accident at its Chalk River, Ontario nuclear facility. This accident was ascribed to human error and limitation. Another happened in Windscale England in 1957, ascribed to procedural limitation. One happened at the Fermi 300 ï MW reactor near Detroit, USA in 1956 ascribed to mechanical limitation. Another happened at Brazoria Ferry 1000 ï MW plant at Decatur, Alabama, USA in March 1975 due to a fire outbreak. There have been nuclear accidents, with many unreported and concealed as I earlier asserted. Perhaps, the Chernobyl nuclear accident of 1986 in the then USSR, but now in Ukraine, so far tops the list in relation to its immediate lethal effects which lingers on to this day (Mevdev, 1989; Buldyk, 1991). Echezona, (1992: 160) points out that ñWhat has happened at Chernobyl could happen at any other nuclear power site in any other part of the world.ò Echezona (1992:161) went further to warn that:

> The disaster at Chernobyl and indeed in other nuclear power plants throughout the world has taught the advanced industrial societies the urgency needed to tackle the dangers posed to our planet by a probable nuclear war or even an accident involving nuclear weapons.

Thus, nuclear energy with its quantum energy delivery and zero carbon-emission is still, for instance, fraught with daunting toxic and radioactive externalities. The prospects of nuclear accidents are very daunting especially when appraised against the background of the fact that the nuclear business runs low on learning curves. The dire effects of nuclear accidents are very telling. Up to this day, the Chernobyl nuclear site is still off-limit to safe access. This trend remains especially of understandable concern to those who hitherto shared their neighbourhood with the nuclear plant. Even with the alienating effect of nostalgia telling on these folks, scientific prescription still dictates that they safely remain where they were lucky to have been evacuated to. With the plight of the people of Chernobyl a common knowledge, one needs not go further to fathom the reason behind the expressed resentment attendant to locating a nuclear plant by its prospective host community.

The Chernobyl nuclear accident of April 26, 1986 was occasioned by the accidental blowing up of the nuclear siteôs Reactor No 4 which contained the extremely toxic and radioactive plutonium element. The effect of that accident is still felt today by the fauna and flora of that environment where the nuclear plant was located. The rate of cancer is disproportionately higher in Chernobyl. Incidents of the birth of grotesque babies lingers. Still on nuclear accident; the Japanese witnessed a devastating earthquake of 8.4 on the Ritcher Scale which triggered a tsunami on the 11th day of March, 2011. This damaged Japanôs Fukushima nuclear plant which emits radioactive plutonium up to this day. Areas of up to twenty kilometers to the plant site have been declared off- limit, prompting the evacuation and relocation of affected residents most who were killed by the tsunami. Japan

is bound to grapple with electricity shortage, decontamination of a big area and a slump in productivity, among others.

The effect of this accident is still unfolding at a worrisome pace that an empirical assessment now is bound to necessitate cumbersome reevaluation. Scientific projections, however, appears only to forecast measures that come on as just palliatives suited for a lullaby. The plant keeps on emitting radioactive plutonium while plant hands scurry around to make best a dire situation to calm apprehensive Japanese and global citizens alike. Nuclear renaissance, however, is undergoing criticism as many entities appear to reevaluate their nuclear programmes. Majority remain undaunted. The same reaction followed the 1986 Chernobyl accident.

(iii) Nuclear Proliferation ï The lethal nature of nuclear energy makes nuclear proliferation an existential threat of immense magnitude (Bayne, 1993; Hafele, 1990). This is where the atomic-control capacity of the NPT is made more manifest because the global nuclear renaissance has shown that nuclear proliferation has attained a critical mass. Many actors in the international system, including terrorists, are today secretly and openly seeking nuclear technology for its energy for civilian as well military uses. The military uses, however, constitute the dimension of great concern. Since August 1945, many countries have joined the United States of America in the veto-wielding nuclear club members of the UN Security Council, charged, among others, with the maintenance of global security and stability. The UK, France, Russia and China belong to this club as well as the U.S simply because they are nuclear powers with the capacity to incinerate the earth and put an end to existence as we know it. These UNôs Security Council members charged by the UNôs charter to foster global security and stability have placed the NPT regime on its head, and have by their actions bordering on nuclear blackmail stimulated nuclear proliferation.

Table 5.2 below shows the position of the foregoing countries vis-à-vis the NPT nuclear regulatory regime.

Table 5.2: Status of the UN Security Council Members vis-à-vis the NPT Nuclear Regulatory Regime

Country	Date of becoming a Nuclear Power	Status and obligations under the NPT Nuclear Regulatory Regime	Adherence to Obligations under the NPT
U.S	1945	Signatory/nonproliferation and nuclear disarmament	None
USSR (Russia)	1949	Signatory/nonproliferation and nuclear disarmament	None
Great Britain	1952	Signatory/nonproliferation and nuclear disarmament	None
France	1960	Signatory/nonproliferation and nuclear disarmament	None
China	1954	Signatory/nonproliferation and nuclear disarmament	None

Source: Adapted from Dorf, 1978: Rourke, 1999: SIPRI, 2005

In the interim, other countries have embraced proliferation at least for deterrence and the hollow grandeur it is deemed to bestow on its beneficiary via the acquisition of nukes have given them up India, Pakistan, North Korea, Israel, Brazil, Argentina and Iran, among shadowy others, either possess nukes or are on the threshold of acquiring them (Levi and OõHanlon, 2005; Echezona, 1992:152; Cockburn, 1983). The threat of nuclear proliferation is real and the world needs to act faster as many scholars point out. Kissinger (2004:31), for example, points out that ñwhile militant Islam is the most immediate and obvious challenge to international order, nuclear proliferation is the most long-range and insidious threat to global survivalò Barry (2009:9), for example, highlights the perils of nuclear proliferation by relating it to nuclear-armed Pakistanôs Kahuta R & D nuclear-research and nuclear-production facilities. He asserts that ñKahuta was, after all, the

workplace from which the scientist, Abdul Qadeer Khan, managed to sell nuclear technology to rogue regimes like Libya, North Korea and Iranò.

Scholars, leaders and policymakers across the globe share this view even as prejudice, nationalism, and pride tend to dictate or suggest otherwise. Many strategic experts warn that while the ultimate horror would be working bomb constructed by terrorists on their own, the much likelier catastrophe is a large purchase of plutonium by a country working for a short cut to a nuclear arsenal.

Furthermore, quoting *Peace magazine*, an analyst observes that ñTerrorists possessing modern weapons-grade uranium would have a good chance of setting off an explosion, simply by dropping one half of it into the other halfò (*Awake,* March 8, 2004:7). The Al- Qaeda leader, Osama bin Laden, confirmed the worldôs fear to the effect that even terrorists are warming up to reap the fruit of nuclear proliferation that has attained a critical mass in contemporary global nuclear renaissance. Strategic experts, however, believe that this trend is neither new nor out of step with anticipated change, shift and tilt and the attendant conduct of warfare ï conventional or asymmetrical. Bin Laden (2001:49) equivocally committed a *faux pas* in response to a question with a view to ascertaining the claims that he was bent on acquiring nuclear capability. He asserts that ñif I seek to acquire these weapons, I am carrying out a duty. It would be a sin for Muslims not to try to possess the weapons that would prevent the infidels from inflicting harm on Muslimsò. Thus proliferation constitutes one of the dual externalities of nuclear technology. In the strategic word where preemption rather than amelioration suffices by nipping the existential problems in the bud, the spectre of nuclear-wielding terrorists is not only grave but constitutes an existential problem of great concern (Dorf, 1978; Kegley, 2007, Mingst, 1999; Kaarbo and Ray, 2011).

(iv) Nuclear Waste Management ï So long as the NPT permits even nuclear programmes for civilian applications, there are bound to be wastes from civilian reactors dotting the globe. However, of strategic note is that plutonium from wastes could be used in fabricating atomic bomb. Thus, management of nuclear waste products is not only hazardous but many issues pertaining to it are yet to be verified via the scientific method. However, of the array of issues so far evaluated by experts, the demands are gargantuan. Plutonium 239, a waste product of nuclear reaction in a reactor, for example, is the most toxic and radioactive element yet known to man. It has a radioactive half-life of 24,400 years; cesium ï 137 has a radioactive half-life of 30 years while strontium ï 90 has 28 years. By radioactive half-life, we mean the time required for a radioactive substance to lose 50 percent of its activity by decay (Dorf, 1978:471). Ralph *et al* (1997:893) observes with concern that:

> Besides threatening a nuclear doomsday the steadily expanding manufacture of armaments has produced huge stockpiles of highly toxic radioactive waste. While the manufacture of substances that will retain their toxicity for thousands of years continues, no reliable plan for disposing of or storing these wastes has yet been devised.

Thus, a peculiar problem emerges as a fallout of the quantum energy gained in nuclear fission and fusion ï how to deal with the waste products of the nuclear processes. These waste products include plutonium which can conveniently be used in the fabrication of nuclear or atomic weapons and bomb. This explains why experts have gone as far as suggesting that storage sites for wastes must be such that chances of sabotage or theft is extremely low; ideally located where the occurrence of denudation, earthquake or other natural disasters are remote. Also sites for such storage must be geologically stable with safe transport system in place (Turner, 1975; Willrich and Taylor, 1974; Rochin, 1977).

The storage of the long-term radioactive wastes is the major challenge to the nuclear industry (Dorf, 1978). Attempts at containing or circumventing this problem have been on

since the advent of the nuclear age. Many solutions have also been suggested by experts. Even to the uninformed, common sense questions most of these frightening palliatives suggested as they from all indications only postpone the dire prospects attendant to the nuclear industry. This is more worrisome when current approaches to these problems are evaluated against the background of the prescribed criteria for a safe storage approach. Dorf (1978:233), for instance, asserts that any storage approach must meet the following criteria:

1) The wastes must be isolated for at least 250,000 years;
2) The storage sites must be proof against sabotage or theft;
3) The sites must be safe from the effects of natural disasters such as earthquakes and hurricane;
4) The sites must be geologically stable; and
5) Handling and transportation methods must be fail-safe.

The aforesaid sound criteria vis-à-vis nuclear waste management fall off the orbital track of the feasible. This holds true as no nation in the nuclear industry can vouch with any degree of honesty that it has met any of the aforesaid criteria. Thus, in the contemporary plutonium economy of nuclear renaissance under globalization, the problem of nuclear waste management has only increased. The world could literally be deemed to be swimming in a radioactive plutonium sea. It is of high strategic concern because nuclear bomb could be fabricated with plutonium as the pivotal and indispensable material. This is a rather worrisome potential of waste ï utility gain. In the light of this problem of nuclear waste management, record shows that actors in the nuclear industry have over time neglected or compromised many nuclear storage standards in desperation. They have equally come up with solutions that turn out as naïve, illogical and even criminal on evaluation. The high-level radioactive nuclear waste in the US is buried at Idaho, Georgia, and at Hanford, Washington. In 1973, for example, the stored waste at Hanford released through leakage some 430,000 gallons of waste into the soil from the storage tanks.

Officialôs claim that none of the liquids have penetrated to the water table, but with the long life of the radioactive wastes, local water may eventually be contaminated (Dorf, 1978).

Europeôs contribution to this nuclear waste problem could be deemed frightening at best. Nuclear wastes are placed in drums and dropped into a northeastern section of the Atlantic Ocean, where the ocean is 2000 meters in depth. Over 40,000 tons has been dropped in the area centered on a point 46^{o} 15ô north and 17^{o} 25ô west (Turner, 1975). Many experts have also suggested methods of long-term storage for nuclear wastes to include: (a) disposal in salt formations and mines, (b) dumping into oceans, and (c) shooting into outer space (Dorf, 1978). Of the foregoing suggestions or proposals, the salt mine issue has received much consideration, and subsequent application by the United States and Germany, to mention but two. It is not surprising because the disposal of waste containers in oceans is unsafe, and in outer space it is dangerous because of the potential failure of the rocket (Dorf, 1978).

Even the issue of burying in salt mines is still subject to scrutiny given that the long term safety of salt-mine storage is dependant upon preventing the diffusion of water into the salt bed. Other experts have also suggested burying nuclear waste in the Antarctic rocks. But in the course of this research, profoundly absent in most of the literature encountered is the fact that over time, the nuclear goliaths of the global North have been dumping lethal radioactive nuclear wastes in the global South (The South Commission, 1990). This is ostensibly in concert with some gullible entities in the impoverished global South. Toxic radioactive wastes were, for instance, dumped in Koko, Delta State of Nigeria, Abidjan, Cote dôIvoire and Mogadishu, Somalia. The death toll in all the established dumpings were high, while the attendant environmental impact remains. More than three hundred people have died in Somalia as a result of radiation sickness over time (Noury, 2010). Strategic experts have, for instance, promptly established a relationship between terrorism in Somalia

and the lingering consequences of the toxic dumpings. They aver that the toxification of the Somali coastline have denied otherwise fisherman a livelihood thus making piracy and terror attractive options. It probably would not be out of reason to fathom the occurrence of other related incidents unreported or suppressed.

However, what is profoundly verifiable in relation to the intractile problem of nuclear waste management is that what we call problems today constitute only a tip of the iceberg to the problem in question. This problem is made more complex as the world is today immersed in a plutonium economy under nuclear renaissance. Dorf (1978:234) aptly captures the thrust and asserts that ñthe problem of nuclear-reactor wastes remains unsolved at presentéFurthermore, nuclear wastes are persistent in their danger. As the number of nuclear plants increases, the world is going to face the unresolved issue of nuclear wastesò.

Michael E. Long, a *National Geographic* writer conducted a research into nuclear wastes in the US nuclear industry in 2002. His startling findings exposed not only the enormity of nuclear wastes on the US table yet to be taken care of, but also the apparent care-free attitude to those lethal radioactive wastes that could kill in seconds. The relevant authorities are yet to decide on the final site to be deposited the wastes. These wastes according to Long (2002) come in four paradigms: high-level waste, transuranic waste, low and mixed low-level waste, and uranium milling tailings.

i) High-level waste ï This is the most dangerous of all wastes associated with the nuclear technological processes. It is the most radioactive and toxic. This waste comes from two major sources. These sources are (a) spent fuel from nuclear reactors and (b) liquid and solid waste from the production of plutonium.

ii) Transuranic waste ï This group of wastes are tools, clothing and other materials contaminated in the inevitable contact with neptunium, plutonium and other artificial elements heavier than uranium that are thus termed transuranic.

iii) Low and mixed low-level waste ï In this group of wastes feature radioactive and hazardous wastes from research institutions and hospitals including oddments of decommissioned power plants, clothing, tools and air filters, among others.

iv) Uranium mill tailings ï These are leftover components from the extraction of uranium from ore. This waste is the least radioactive but is, however, not ideal for a childôs toy.

Long (2002:8-9) highlights the daunting nature of nuclear waste management by appraising the problem in relations to the US nuclear industry:

> A long-deferred cleanup is now under way at 114 of the nationôs nuclear facilities, which encompass an acreage equivalent to Rhode Island and Delaware, combined. Many smaller sites, the easy ones, have been cleansed but the big challenges remain. Whatôs to be done with 52,000 tons of dangerously radioactive spent fuel from commercial and defense nuclear reactors? With 91 million gallons of high-level waste left over from plutonium processing, scores of tons of plutonium, more than half a million tons of depleted uranium, millions of cubic feet of contaminated tools, metal scraps, clothing, oils, solvents, and other waste? And with some 265 million tons of tailings from milling uranium ore ï less than half stabilized ï littering landscapes?

Thus, it would not be wrong to conclude that other sites dotting the globe are also facing this fundamental problem of nuclear waste management. However, what is empirically arguable is the attitude adopted by nuclear technologists to this problem as it relates individually and collectively to them. The issue of nuclear waste management remains one of great concern. All prescriptive approaches to its resolution, with their limitations, have always failed the rigours of critical evaluation. Thus, we see myriad experts come up with some innervating solutions that can not in any honesty pass the scrutiny of even common sense devoid of expertise. What has been achieved so far in this sphere could be placed with precision in the orbit of palliatives unwittingly pruned to postpone the resolution of an otherwise urgent problem of existential dimension. The neglect of this nuclear waste

problem, however, portends terminal consequences too perilous to ignore. Terrorists could benefit from lapses in this nuclear waste management. Such prospect is existential in nature given that putting the application of acquired nukes in the conduct of warfare beyond contemporary apocalyptic terrorists is naïve.

(v) Terrorist Acquisition of Nuclear Technology ï This is where the challenge of nuclear terrorism hinges. The nature of the NPT charter contains many loopholes such that terrorists would benefit by the contemporary global nuclear renaissance. The utilisation of nuclear technological processes to acquire nuclear weapons constitutes an aberration. This assertion, however, is relative. It constitutes an aberration when such attempt is made by entities branded ñrogue statesò, ñterroristsò and members of the ñaxis of evilò by the West in general and the US in particular. All the terms in inverted commas above are value ï laden and fraught with varied definitions that reflect the prejudice of the person or entity doing the definition. However, by terrorism, I mean a person, entity, actor or even a state that practices terrorism as defined and articulated in my previous contribution.

The fear that terrorists and other unauthorized actors could benefit by nuclear technology is founded mainly because the arms industry in the contemporary era is arguably the most liberalized on the globe especially since the collapse of the USSR in 1991 (Bogert, 1996). On the heels of this, is the unfettered diffusion of nuclear technological know-how which even as sensitive as it is shares domain with others in the internet and other channels of information flow and dissemination. Globalization has not only changed all facets of life, but the dizzying speed of the effects of globalization remains mobile on all cylinders. The effects are still unfolding and yet to be factored in and evaluated comprehensively.

Terrorists are working to acquire the WMDs in general and the nuclear version in particular. The Al Qaeda generalissimo, Osama bins Laden, calls it a duty to acquire

nuclear capability and weapons (Zakaria, 2004). Thus the issue of terrorist acquisition of nuclear weapons has earned a place in the dossier of problems attendant to the nuclear technological breakthrough. This, of course, is not new. It is now taken more seriously especially in the clandestine strategic and intelligence circles because of unearthed proofs to buttress the fact that terrorists have after all been working on the acquisition of nuclear weapons (Harrell, 2010:17).

This issue becomes more worrisome against the background of contemporary global terrorism which appears privatized, anonymous, and fundamentally and apocalyptically destructive and not restrained. Under this banner, state perpetrators and sponsors of terrorism feature prominently. An appraisal of trends in contemporary terrorism tends to suggest a progressive projection toward sophistication, reach, and impact hitherto unattained. This kind of strategic and tactical thrust requires commensurate weapon, WMDs, not only for good measure but in keeping with pattern and history. International terrorism has everything going for it. Globalization, poverty, lopsided global economic order, founded grudges frustration, clash of civilization, arrested development, among others, constitute issues working in favour of the terrorist. Thus for states known to sponsor or perpetrate terrorism, their acquisition of nuclear technology definitely constitutes an existential threat of global dimension and concern.

Furthermore, if terrorism is conceptually stretched, one is left with the conclusion that terrorists are already in possession of nuclear weapons. There is no nuclear power on the globe without a history of dabbling in terrorism. Thus, what we portray as the threat of terrorist acquisition of nuclear weapons is the possibility of non-state terrorist actors landing the weapon. We are talking about the contemporary apocalyptic warriors without return addresses or a stake in the international system. However, North Koreaôs testing of nuclear weapons in 2006 along the requisite missile delivery systems comes to mind here.

The world remains worried stiff about the Pakistanôs nukes getting into the hands of Islamic fundamentalists or being used in a war with an equally armed India. Barry (2009:9), for instance, expressed reservations about the security of Pakistanôs Kahuta nuclear complex:

> More recently, American officials think extremists have made determined efforts to infiltrate the site, perhaps even applying for jobs there. They may not be able to get their hands on warheads, but left over uranium could make for a dirty bomb and plenty of terrors.

There is real danger also in Iranôs acquisition of nuclear technology with its dualï civilian and military - uses. Zakaria (2009:24) sums up this threat that could benefit terrorists ñIranôs nuclear ambitions are a problem. Nuclear proliferation in the Middle East is a danger, and the Iranian regimeôs foreign policy ï which has involved support for militias and terrorist groups ï make it a destabilizing force in the regionò.

North Korea and Iran arguably are terrorist-supporting states, and terrorists are known not only to share ideological thrust but also logistics and facilities. The foregoing analysis adds up to one conclusion: international terrorism is bound to go nuclear, if it has not with Iran and North Korea, for example, going verifiably nuclear. Apprehensively though and worrisome according to the French terrorism expert, Roland Jacquard, Al-Qaeda is still out there, perhaps planning the big ñspectacularò ï a suitcase nuke, perhaps, or a germ attack é ò*(Newsweek*, July 18, 2005:16). It is also gravely worrisome because the world is today replete with other terrorist outfits, fierce, apocalyptic, independent and capable of improving on al-Qaedaôs performances. What with technological advancement snowballing by the day and electronically diffused into the nooks and crannies of the globalised and highly interconnected globe.

(vi) Safety of Nuclear Reactors ï Nuclear-energy generation is fraught with daunting externalities. It makes little or no difference to a terrorist whether a nuclear programme is civilian or military. So, if the NPT charter permits the so-called civilian reactors, they pose

virtually the same problems as the military version. Nuclear energy is generated via activities of induced reactions in a nuclear reactor. The reactor, fundamentally, is a machine, and like all machines could be classified as a human contraption. By this classification a nuclear reactor is susceptible to all failure due human contraptions. Even with such limitations, reactors are still built and commissioned because nuclear energy remains the most efficient energy vis-à-vis the quantum energy that could be realized from it. Many reactor safeguards appear only euphoniously, and theoretically sound without the requisite comforting praxis. Dorf (1978:235) outlined these safeguards:

> The safeguards include: (1) monitoring of reactor neutron intensity in order to maintain it within a prescribed range, (2) reactor control systems, (3) reactor safety circuit instrumentation (4) electric power maintenance and (5) an emergency core-cooling system.

These safeguards are hypothetical since the system can not scientifically be tested. It is truly hoped that it functions as programmed. Science questions every postulate including its very own. Since it can not verify the efficacy of these safeguards empirically and practically, assurance of safety cannot in any honesty be given. Nuclear reactors are logically seasoned terroristsô targets given their vulnerability as a strategic Achillesô heel. Natural disasters also compromise nuclear reactor safeguards as it bares the questionable safeguards ascribed to nuclear reactors. The Japanese Fukoshima nuclear facility is today virtually comatose as a result of the earthquake ï cum-tsunami incident of March 11, 2011. This occurred even with all the safeguards for which Japanese are arguably known for. This sobering insight constitutes one of the reasons behind the repeated calls from informed global citizens for the elimination of the entire processes of civilian as well as military nuclear technology. This could explain why the US President Barrack Obama got the 2009 Nobel Prize for Peace for advocating and committing the US to world without nuclear weapons.

5.2. The Nuclear Non-Proliferation Treaty and the Military and Civilian Dimensions of Nuclear Technology

The tricky debate raging in the realm of contemporary nuclear technology is to a very large extent informed by the impossibility of differentiating military from civilian intent and design in nuclear technology. Both dimensions of nuclear technology are arrived at via the same scientific processes. This raises up the problem of knowing where to draw the line between the two technological thrusts ï military and civilian. This scientific ambiguity has been transferred to the socio-political realm by leaders and policymakers desirous of accessing nuclear technological breakthrough as expressed in the acquisition of nuclear weapons. This ambiguity constitutes the sore on the feet of the NPT regulatory regime as well as the UNôs nuclear watchdog, the IAEA. Many entities have on appreciation of this ambiguity pursued and some are still pursuing nuclear programmes primed to acquire nukes under the guise of civilian objectives. Thus the similarity shared in terms of convergent processes by the civilian and the military dimensions of nuclear technology has come to pose the greatest threat to not only atomic control but also global stability. Powell and McGirk (2005:28-29), for example, lay bare the procedure for turning uranium into bombs:

> 1. DIG IT
> Uranium ore is *mined*, milled and soaked with sulfuric acid, leading out pure uranium.
> 2. CRUNCH IT
> Uranium is *dried* and filtered into a coarse powder called yellow cake
> 3. BAKE IT
> The yellowcake is exposed to fluorine gas and *heated* to 133^0F, (56^0C), converting it into a gas, uranium hexafluoride.
> 4. SPIN IT
> The gas is pumped into a *centrifuge* that spins at the speed of sound. As it spins, the heavier U-238, moves toward the outside, while the lighter highly fissionable isotope U-235 collects closer to the center.
> 5. SPIN IT AGAIN
> The slightly enriched U-235 is fed into another centrifuge where it is enriched further. It moves down a train of some

> 1,500 centrifuges. Once it is 20% pure, the uranium is considered *highly enriched*. Only at more than 90% purity ï which takes about a year ï is it *weapons grade*
> 6. SQUEEZE IT
> The enriched uranium is converted into a metal powder, uranium oxide, which can be *molded* into a sphere weighing 35 to 100lbs. (16 to 46 kg) and placed in a weapon.

Also plutonium which can be extracted from nuclear-reactor wastes can be used to fabricate nuclear weapons. This point of convergence between the civilian and the military application of the nuclear processes constitute the strategic concern of all stakeholders in the nuclear sphere. This remains the lingering strategic nightmare haunting both the IAEA and the NPT nuclear regulatory mechanisms-differentiating nuclear sword from nuclear plowshare. When, for instance, is an actor genuinely delving into a nuclear programme strictly for civilian purposes and not the rightly dreaded military purposes? Through what verifiable mechanism can the civilized world monitor and enforce the restriction of the nuclear processes to civilian applications only? At what point should the whistle be blown on an actor that has veered off the established route of the nuclear processes for civilian use? Where does one draw the demarcating line between military and civilian nuclear processes? This is the pivotal problem of the NPT regime which permits the pursuit of nuclear programmes with only civilian applications.

The foregoing questions, for example, bring to the front burner the current face-off between the Islamic Republic of Iran and the West, ably led by the globeôs sole superpower, the United States of America. Iran, a signatory to the Nuclear Non-Proliferation Treaty (NPT), claims its nuclear programme is strictly for peaceful civilian purposes as guaranteed it by the NPT regime to which it is a signatory. The West, however, believes and insists that Iranôs nuclear programme is for military purposes or precisely to fabricate nuclear or atomic bombs. The nature of the nuclear processes makes it hard to decipher the truth in the opposing claims. It is so for the simple reason that the same nuclear

technological processes capable of generating electricity for civilian use could with ease be manipulated to fabricate atomic bombs. This ambiguity remains one of the teething problems of NPT charter and nuclear technology that borders most on compromising global security. Thus, the world is worried stiff as the West insists on halting Iranôs nuclear programme for the concern that it is primed for the acquisition of nuclear weapons and not for the generation of electricity or manufacture of medical isotopes as Iran insists.

The world has come to a political cul-de-sac as the West threatens unilaterism in pursuance of stopping Iran from nuclearisation. Iran on its part insists on savouring the privileges accruable to it via sovereignty, and the NPT regime as recognized by the United Nations. The NPT regime permits signatories to pursue nuclear programme verifiably tailored toward peaceful civilian applications to the exclusion of its military version. This applies to the members in the NNWS paradigm like Iran. However, in relation to the issue of sovereignty in contemporary global politics especially in inter-state relations, sovereignty has always been a daunting intractable issue mostly impervious to traditional resolution. Thus, in global politics, sovereignty has acquired an added semantic feature as dictated by the nature of relationship between the NWS and especially one NNWS of the global South. Thus, apart from the ambiguity in the nuclear processes which mortgages the capacity to differentiate two dimensions of nuclear technology with a semblance of precision and exactitude, the West, it appears, is not going to allow Iran to enforce its complex privileges under the NPT charter and sovereignty vis-a-vis nuclear technological acquisition as China (1964), India (1974), Pakistan (1998), and North Korea (2006) did. The West in global politics determines sovereignty from meaning to enforcement. Eagleton (1945:174), for example, bares it all:

> It is just as foolish to say that sovereignty must be surrendered or eliminated as to say that it must be absolute and unrestrained é The problem is not one of asking whether we should throw off a thing called sovereignty, it is rather one

> of asking with regard to what matters would we gain by having an international control, and in which matters would we gain more by reserving control to ourselves?

Thus, we see the US President, George W. Bush in his State-of-the-Union address on January 29,2002 asserting that Iran must be prevented from accessing nuclear weapons which it logically believes will benefit terrorists. He asserts that: ñIran aggressively pursues these weapons and exports terror é States like these and their allies, constitute an axis of evil, arming to threaten the peace of the world ñ(*Time*, December 17, 2007: 24). Furthermore, in a press conference, President George W. Bush, on October 17, 2007 warned that:

> We got a leader in Iran who has announced that he wants to destroy Israel. So, Iôve told people that if youôre interested in avoiding World War III, it seems like you ought to be interested in preventing them from having the knowledge to make a nuclear weapon (*Time*, December 17, 2007: 25).

However, Iran debunks the claim that its nuclear programme falls outside the bracket of the civilian dimension. Through its President, Mahmud Ahmedinejad, Iran has consistently and persistently denied all allegations against it. As a signatory to the NPT regime, Iran is entitled to pursue civilian nuclear programmes under the supervision of the IAEA. In Weymouth (2009:40) President Mahmud Ahmadinajad of Iran asserts that ñthe nuclear issue belongs to the International Atomic Energy Agency, (IAEA). We have certain commitments and obligations as well as rights within that framework. We will carry out our obligations and also enjoy or rightsò.

The foregoing bares the ambiguity of the nuclear processes. Is Iranôs nuclear programme for civilian purposes as it insists or for manufacturing of nuclear weapons as the West insists? It is hard but not impossible to fathom on evaluation of antecedents and even the complex nuclear processes. Walsh (2007:24), for example, asserts that:

> Whether you want nuclear power or a nuclear bomb, you start off with the same basic material: uranium. In both civilian and military programmes, mined uranium is converted into a gas and then enriched in centrifuges to increase the proportion of U-235 ï the uranium atoms that start and continue a nuclear chain reaction. Uranium that feeds a power plant needs only 3% enrichment, but a nuclear warhead requires at least 90% enrichment, and more centrifuges.

It is in this intertwined nuclear processes that one must grapple with the complex task of differentiating atomic plowshares from nuclear swords. This problem from all indications was never factored into the drafting of the NPT regime, which allows nuclear programmes for civilian purposes only as it pertains especially to the NNWS. The IAEA thus has as its raison dêtre the onerous task of detecting infringements or deviations. It is on record, however, that entities have always circumvented the IAEA which has yet to live up to its billings vis-à-vis nuclear monitoring and enforcement. Klein (2007: 25), for example, observes that:

> The intricacies of nuclear proliferation can get very complicated very quickly but under the nuclear non-Proliferation Treaty (NPT), nations have the right to enrich uranium for peaceful purposes but they must do it in a transparent manner, under international supervision.

Thus, one sees one of the gaping holes in the NPT regime as well as the complicated task of the IAEA. Under the NPT regime countries are free to have civilian nuclear programmes as opposed to the dreaded military version. Scientifically speaking, both dimensions of the nuclear processes are the same especially in respect of procedure. The IAEA is empowered to monitor and supervise the expected adherence to this restriction of the nuclear processes to civilian applications only. How does one, for example, verify the intention of a nation or an actor enriching uranium? Against the background of the IAEAôs power to inspect nuclear sites as opened or declared by nations, how does one account for secret undeclared sites? It is on record that this reservation cropped up in respect of the Iranian nuclear

programme. Iran failed to show or declare many sites, and it took the shocking but exemplary coming clean by Libya in 2004 for Iran to even admit that it hitherto had a clandestine nuclear programme for ñcivilian purposesò. An analyst concurs that:

> Iran still insists its nuclear programme is just for making electricity. But few believe thaté But Iran, it seems, was just playing for time. Its work with inspectors has increased, but so have the holes in its nuclear story. It is about to start building heavy-water reactor that is too small for power generation but ideal for plutonium-making. It is preparing uranium feedstock for its centrifuges and still producing parts for them, despite a promise to stop. And western intelligence agencies suspect Iran is still hiding sites where other nuclear work has been done (*The Economist*, June 12, 2004: 15).

Finally, as the debate goes on, Iran for example, inches to the threshold of nuclear capability. This is possible because in terms of procedure, there is no distinct difference between civilian and military dimensions of nuclear technology. This makes the IAEAôs monitoring job the more cumbersome and the world extremely compromised vis-à-vis security. Global security especially in contemporary world order under globalization is extremely precarious. Being an information age, this era has highlighted the diffusion of knowledge at a fast rate. Nuclear know-how is not only extremely diffused today, but it is very hard to differentiate a civilian nuclear programme from a military one. This only compounded one of the complex IAEA tasks of telling atomic plowshares from nuclear swords and the puerile expectation of the NPT charter that actors in the highly competitive international system can mount nuclear programmes with only civilian applications when global super powers continue to blackmail and intimidate other actors with nuclear weapons.

5.3. The NPT Regime: From Nuclear Proliferation to Nuclear Renaissance

The emergence of the nuclear age in 1945 arguably marked a drastic shift and turn for the worse in the relationship between science and technology and the conduct of

warfare. It altered also all the tenets and modalities of international relations especially in the sphere of strategic studies which has to grapple with the evaluation of a novel mass-killing technology hitherto confined to the realm of scientific fiction. The effect of the emergence of and the application of nuclear weapons to the conduct of warfare appeared in an apparent choreographed sequence. The novel technological breakthrough was first greeted with awe vis-à-vis its capacity to arguably end World War II (1939-1945) by procuring the unconditional surrender of Japan whose two cities, Hiroshima and Nagasaki, were incinerated with atomic bombs on the 6th and 9th day of August, 1945 respectively.

The demonstration and appreciation of the enormous power of nuclear weapons triggered an arms race. It further polarized the world into NWS and NNWS. The attendant battle rages on to this day as the NWS maintain their own improved nukes, and works to deny the NNWS theirs. The dysfunctional impact of this arms race is still felt in the international system as the possession of nukes constitute a pivotal criterion for the allocation of status, and by extension resources in the international system. All the members of the UNôs Security Council, for instance, are members of the dreaded nuclear club. They enjoy the privilege of vetoing decisions of the UN, and using their nuclear capability as a blackmail weapon especially in relation to members of the NNWS deemed deviant. Thus nuclear capability constitutes the requisite criterion that can place a nation or actor above international as well as municipal laws. Thus, we witness vertical nuclear proliferation among the NWS as they try to improve their stockpiles of nuclear weapons vis-à-vis number and enhanced destructivity. Among the NNWS we notice an ongoing and clandestine horizontal nuclear proliferation as they try to even score or deter hegemonic tendencies peculiar to the foreign policy thrust of the NWS. However, of utmost concern, especially among informed strategists, is the verifiable fact that contemporary terrorists as

actors with global reach have joined the nuclear race (Sopko, 1996-1997; Zakaria, 2004; Kegley, 2007).

By 1945, the United States of America was the worldôs sole nuclear superpower by its monopoly of the possession of the atomic bomb. By 1949, the then USSR (Russia) tested its own nuclear bomb by stealing the technology from the US which hitherto enjoyed a monopoly of the ultimate weapon of destruction ï atomic bomb. For this feat, the United States executed three of its citizens after their trial and conviction for treason. Versteeg and Hofstadter (1971:750) assert that:

> At this time, it was revealed that Dr. Klaus Fuchs, a German-born British subject who had worked at Los Alamos, had turned over to Russian agents the details of the manufacture of atomic bombs. Fuchôs confession led to the trial of Julius and Ethel Rosenberg, who were alleged to have been his accomplices, and their ultimate execution for treason.

The conduct of nuclear weapon test by the USSR in September 1949 broke the US monopoly of nuclear capability on one hand, and irredeemably altered the globeôs strategic equation on the other. It also marked the commencement of vertical proliferation. This trend saw the two superpowers working to supercede each other both in the volume of nuclear stockpile and the enhanced destructive capability of the weapons thus acquired, stored or deployed (Raymond, 1964; Elis, 1955). In the 1950s both superpowers built, perfected and tested the hydrogen bomb which turned out to be much more powerful than the atomic bomb already built, perfected and applied in the conduct of warfare by the US in the World War II (1939-1945). The world was once more awed by the emergence of this weapon with improved destructive power. Shelpley and Blair (1954:228) noted that:

> Possession of the thermonuclear bomb holds no answer in itself and shows no way to a decent future. It simply prevents an immediate end to the future. The United States, certainly along with its allies, was caught in the unhappy stalemate President Eisenhower described in his memorable speech to the U.N. on benign uses of atomic energy. Yet, it is

> inescapable that two atomic colossi are doomed for the time being ñto eye each other malevolently across a trembling world.ò It can only be said that better this than a single atomic colossus ï Soviet Union-eyeing a trembling world.

Thus, we see that vertical proliferation created at least a semblance of global stability. The US and the USSR had the same weapons for mutual brinkmanship, deterrence and control. Both states had a stake in the international system unlike contemporary apocalyptic terrorists and thus are wont to guarantee its stability. They appreciated the fact that with the terrible weapons at their disposal bellicose exchanges can only add up to mutual annihilation. Thus vertical proliferation between nuclear Goliaths (the United State of America and Russia (the USSR) (Rourke, 1999) created a balance of terror and the sound prism via which the strategic concept of Mutual Assured Destruction (MAD) could be gainfully put in perspective and evaluated. That era was the era of spies and a boom in intelligence business as both states tried to know what the other had in terms of strategic and tactical advantage with the logical view of countering, containing, or erasing any. Vertical nuclear proliferation is still on between the US and Russia even with the disarmament treaties signed by both powers over time. However, vertical nuclear proliferation paid off in deterrence and thus contributed immensely to global stability as demonstrated in two conflicts of global dimension and implication in 1962 and 1979 ï the Cuban Missile Crisis (1962) and Soviet invasion and occupation of Afghanistan (1979) - respectively.

The 1962 Cuban Missile Crisis was a fallout of the abortive Bay of Pigs invasion of Cuba by Cuban exiles supported by the USô Central Intelligence Agency (CIA) in 1961 (Johnson 1964:Smith 1964; Alsop, 1961: Szulc, 1961. Ver Steeg and Hofstadter (1971:801) asserts that ñany notion that the United States would have an easy time with its neighbours

to the South was completely dissipated in April 1961 in the abortive American-sponsored invasion of Cuba at the Bay of Pigsò.

The Bay of Pigs invasion was contained by Cubaôs armed forces but it impressed on Cubaôs President Fidel Castro the vulnerability of Cuba to the US imperialism. This was made more manifest because of Cubaôs opting for socialism which the capitalist US naturally opposed as not only counter-ideological but also an affront to the tenets of the Monroe Doctrine of 1823. This doctrine was propounded by the then US President James Monroe as the foreign policy thrust of the United States of America in his message to Congress. According to Ver Steeg and Hofstadter (1971:183) this doctrine included four principal points, *videlicet*:

1. The continents (North America and South America) were no longer open to colonization by any European powers.
2. Any attempt by a European power ñto extend their systemò to any part of the Western Hemisphere would be considered a threat to the United States.
3. If any European power interfered with the independent republics in Latin-America, the United States would consider such action unfriendly.
4. Reaffirming the neutrality of the United States toward Europe, the United States would not interfere in the affairs of Europe.

Thus discernible in the foregoing is that President Fidel Castroôs taking of Cuba to the socialist camp at the height of the ideologically polarised Cold War (1947-1989) constituted a strategic threat to the US in particular and global capitalism in general. The logical threat from the US prompted Fidel Castro to seek Soviet military protection to counter the US belligerent policy toward it. The Soviet responded by the installation of nuclear missiles capable of hitting US targets in Cuba. The US intelligence system detected the threat, quarantined and blockaded Cuba; insisting that the Soviets remove the offending missiles or risk a showdown without removing nuclear options. Ver Steeg and Hofstadter (1961:803) observes that ñSince Russian freighters were already crossing the Atlantic with more

missiles a showdown seemed near. The world feared that a final holocaust was at hands. After a rapid exchange of communications between Kennedy and Kruschev, the Russian leader at last cabled that he would be willing to remove the missiles under UN supervision if Kennedy would end the American blockade and pledge not to invade Cubaò.

The 1979 Soviet invasion and occupation of Afghanistan constituted another proof of vertical nuclear proliferation as a source of multiple strategic deterrence among the two superpowers ï the US and the USSR (Russia). This invasion constituted a threat in three dimensions ï ideological, strategic, and the Carter Doctrine. This doctrine was a response to Soviet expansionism which declares the willingness of the US to use military force to protect its interests in the Persian Gulf. President Jimmy Carter concluded that ñSoviet aggression in Afghanistan ï unless checked ï confronts all the world with the most serious strategic challenge since the Cold War beganò (Kegley, 2007:114). President Ronald Reagan inherited this problem and came out with his Reagan Doctrine. This doctrine, according to Kegley (2007:115) constitutes declaration which:

> é pledged U.S support for anticommunist insurgents who sought to overthrow Soviet - supported governments in Afghanistan, Angola and Nicaragua. In addition, American leaders spoke loosely about the ñwinabilityò of a nuclear war through a ñprevailingò military strategy that included the threat of a ñfirst useò of nuclear weapons in the event of conventional war.

Thus, in summary, both superpowers never applied nuclear weapon in warfare mainly because they were mutually deterred by a sane appreciation of its apocalyptic implication. The Soviets dismantled their nuclear facilities in Cuba and also withdrew from Afghanistan even when its silos were filled to the brim with nuclear warheads. In the case of the Afghanistan invasion and occupation by the Soviets, the US lavishly funded the Mujahedeen (Holy Warriors) insurgents. The Soviets left Afghanistan, worn-out and defeated. Ironically, these warriors had Al Qaeda leader, Osama bin Laden, as a fighter and

organizer. He later turned on his mentors for good measure. The strategic challenges posed by his terror and corporate network remain contemporary, efficient, and corporate but apocalyptically primed for optimal slaughter of the highest possible number (Crenshaw, 2001; Klare, 2001).

Furthermore, under vertical proliferation, the strategic lid on global security paradoxically relatively remained firmer. This was the case because it was relatively easier to know who has what. This notion constituted the restraining factor controlling the two superpowers. In the same vein, it was easier to decipher who did what in the event of unconventional application of nuclear weapons in warfare. Thus a quid-pro-quo relationship then existed in the international system between the US and the USSR. Even when the balkanization of the USSR occurred between 1989 and 1991 to usher in the end of the Cold War (1947-1989) vertical proliferation survives to this day. Thus the US and Russia (USSR) remain ñnuclear Goliathsò even in contemporary era of global nuclear renaissance. The Stockholm International Peace Research Institute confirms the foregoing and asserts that,

> As 2006 began, 8 states deployed more than 13,000 operational nuclear warheads. The united States deployed 4,896; Russia, 7,360; China, 400; France, 348; Great Britain, 185; Israel, 200; Pakistan, 30-50; India, 30-40 (SIPRI, 2009:578-579).

Horizontal nuclear proliferation emerged with the attainment of Great Britain and France of nuclear capability. Palmer and Perkins (2004) assert that Britain and France became third and fourth members of the ñnuclear clubò on October 3, 1952 and February 13, 1960 respectively. This development horizontally brought the strategically worrisome and challenging issue of atomic control to the fore. Strategic analysts started an informed reappraisal of the issues and perspectives of the nuclear technology with more apprehension. This apprehension got to the hilt on October 16, 1964 when China joined the

so-called ñnuclear clubò by conducting its first nuclear test. Palmer and Perkins (2004:741) observes that, ñthus in the first two decades of the atomic age, five states had joined the ñnuclear clubò, and questions regarding the ñ*n*th nation problemò and nuclear proliferation moved to the forefront of international concernò.

The emergence of China as a nuclear power brought a new dimension to the nuclear equation. The most notable aspect of this new dimension was the breaking of the racial barrier that ostensibly confined the nuclear know-how to the Caucasian race. Through China, the Mongolian race joined the ñnuclear club.ò This feat highlighted the loud paradoxical silence produced by the absence of the black race ï the primary constituency of the researcher. The Chinese nuclear achievement prompted Chinaôs Marshall Nic Jung-Chem, the overall head of Chinese atomic weapon development, to address a conference in Peking in 1964. In that conference, he told 353 scientists from 43 countries of the world with earned pride that ñModern science is no longer the monopoly of Western countriesò (Oyebola, 1976:118).

Furthermore, Chinaôs emergence as a nuclear power in 1964 created panic and alarm in the Asian strategic sphere, while creating apprehension in the West. The apprehension of the West vis-à-vis Chinaôs nuclear capability led to the occurrence of two major strategic trends: the acceptance of China as a global super power of reckon by the West, and the enactment of the NPT regime. With Chinaôs joining of the ñnuclear clubò, Oyebola (1976:119) asserts that,

> So within 20 years, the Republic of China became the third greatest scientific power in the world with only USA and USSR ahead of her. A world super-power was born. China, a country vilified, ostracized and ridiculed for years had won world recognition and acceptance through self-reliance, purposeful leadership and a total national commitment.

The emergence of China as a nuclear power in 1964 arguably informed the enactment of the NPT regime. The NPT regime was opened for signature in 1968 and was ratified in 1970. The NPT regime, on proper evaluation, could be seen via the prism of its raison dõêtre- atomic control. The West was alarmed that the emergence of China, a hitherto perceived ñBanana Republicò could spur other insignificant ñHaitisò of the globe to achieve the same spectacular feat; hence the imperative of preempting the emergence of such multiple and intractable global security threats. However, contemporary trends in the nuclear sphere tend to suggest that the horse was already gone before the barn keeper locked the barn. This is because the NPT regime has not to a very appreciable extent stemmed the discernible threats from nuclear proliferation and the attendant abuses of nuclear technology for military purposes. The same was the fate of the ñAtom for Peaceò proposal made by the then US president, Dwight Eisenhower, in 1953. Palmer and Perkins (2004:741) asserts that ñé in December, 1953, in an address to the General Assembly (UN), President Eisenhower advanced a proposal for the pooling of atomic resources for peace purposeò.

The acceptance of President Dwight Eisenhowerõs ñ ñatom-for-peaceò proposal and its divergent interpreted applications constituted a fillip to nuclear proliferation and the utilization of the thus acquired nuclear know-how for the manufacture of nuclear weapons by beneficiaries. Moreso, it was during the Cold War (1945-1989) with a world polarized along ideological fault lines fiercely contested by the capitalist and socialist groups. Thus this atom-for-peace programme naturally created more security challenges than it was expected to preempt or contain. The capitalist as well as the socialists were scandalously sharing nuclear know-how and facilities with fellow ideological camp mates without the requisite strategic evaluation of the disposition of prospective beneficiaries. In the

programme, ideological convergence triumphed over indispensable strategic scrutiny. Its dysfunctional strategic impacts are still with us.

The emergence of China as a nuclear power, however, opened the floodgate of nuclear opportunism further. This emergence arguably shifted the nuclear pendulum away from horizontal nuclear proliferation to contemporary nuclear renaissance. This nuclear apex was not reached only because China acquired nuclear capability but because Chinaôs acquired nuclear capability at least, triggered a nuclear domino. India, for example, pursued the acquisition of nuclear capability to contain the possibility of its being blackmailed or intimidated by nuclear-armed China whom it has fought and lost border wars. Pakistan went nuclear, *inter alia,* to contain its number one strategic rival, India, via the deterrence created by a balance of terror which has worked for it. India in conventional warfare has defeated Pakistan four times. However, India got its nuclear bomb from nuclear materials stolen from Canada while Pakistan benefited as much from its own Abdul Qadeer Khan and China.

Thus, the world has witnessed a worrisome strategic geometrical progression in the nuclear realm. This is from vertical proliferation through horizontal proliferation and to the contemporary nuclear renaissance. This renaissance is informed by four cardinal factors (1) President Dwight Eisenhowerôs ñatom-for-peaceò programme, nuclear blackmail, the dual-use nature of nuclear technology, and (2) Chinaôs taking of nuclear proliferation to the hilt. Russett, *et al* (2006) give five stages in nuclear competition as (1) period of U.S. Nuclear Monopoly: 1945-1950, (2) period of U.S. Nuclear Dominance: 1951-1957, (3) period of U.S. preponderance: 1958-1960, (4) period of Essential Equivalence: 1967 to the End of the Cold War, and (5) Period of Strategic Debate: End of the Cold War to the present. President Dwight Eisenhowerôs ñatom-for-peaceò proposal of December 1953 was accepted with apprehension. This was especially in relation to the strategic and historical credentials of

the United States of America which the proponent of the ñatom-for-peaceò programme represented. Even then and up to this day, the United States remains the only nation that has applied nuclear weapons in the conduct of warfare in 1945. It was absurd, preposterous and contradictory that the same US would then propose a highly ambiguous pacifist programme. The apprehension remained then and remains up to this day.

The concession made by the then USSR, however, led to the subjecting of the atom-for-peace proposal for detailed scrutiny by the United Nationsô Disarmament Commission. In ñthe summer of 1955, an international conference on the peaceful uses of atomic energy, attended largely by scientists, was held in Geneva,ò Switzerland. This conference created false hopes that could not survive the scrutiny of evidence. Fundamentally, these hopes were premised on the knotty expectation to the effect that those nations that were already ahead and far gone in the development of nuclear weapons ï the United States, Great Britain, Canada and the Soviet Union ï would do two major things for global stability. The first was the imperative of collectively searching for some means of international regime in sharing their atomic resources and know-how with other nations not so blest. The second, and perhaps the one that is questioning the survival of mankind today, is cooperation in strictly utilizing nuclear energy for civilian and not military purpose as, for instance, represented in the generation of electricity and manufacture of nukes respectively. These were not to be as the stakeholders turned out to be hypocrites. Palmer and Perkins (2004:741) captures the charade and observes in relation to the foregoing that,

> At the same time, however, the atomic powers were adding to their stockpiles of atomic and perhaps also of hydrogen bombs and they were pressing forward with experiments in the development of even more powerful instruments of destruction.

The atom-for-peace programme backfired in relation to intent and objectives. It triggered the rat race for the acquisition of nuclear weapons rather than the civilian utilization and

application objectives it was, at least on the surface, primed to achieve. The lapses created by this nuclear proliferation, to an appreciable extent, informed the discernible externalities of nuclear technology the globe is still grappling with to this day. It marked the declared commencement of nuclear proliferation which has attained a critical mass in contemporary nuclear renaissance. Under contemporary nuclear renaissance, nuclear technology has become so diffused that one could access strategic information on nuclear technology - civilian and military ï on the World Wide Web (www) or the Internet as it is widely known. Thus the atom-for-peace programme constituted a Faustian bargain, much more so since it opened the floodgate wide to nuclear know-how which events prove are subject to frightening especially abuses in the military sense.

Contemporary nuclear nightmares the world strategic community is bound to grapple with today arguably emanated largely from this atom-for-peace progamme, though not in exclusivity. Great Britain and Canada, evidently, in the spirit of their capitalist ideological convergence shared nuclear know-how ostensibly obtained from the US, the bulwark of the North Atlantic Treaty Organization (NATO). It is given on authority in the strategic circle that socialist China got the know-how from the then socialist USSR who stole the same technology earlier from the US. Coming on the heels of atom-for-peace progamme is the issue of nuclear blackmail as an incentive to nuclear proliferation. Nuclear capability has consistently remained a nightmare to NNWS in their interactions with entities in the NWS paradigm. Nuclear weapons have over time played decisive roles in reining in opponents. NWS members always bargain from positions of strength, and more often than not these so-called barganings are so only by name but are in actual fact ultimatumï issuing sessions of coercive diplomacy. Thus many entities gunning for nuclear capability do so fundamentally with a view to bargaining from a position of strength in the tense international system. The capability thus acquired is wont to perform basic functions

in two spheres. It reins in those with the same capability by highlighting the senselessness in Mutual Assured Destruction (MAD) on one hand. On the other, it reins in those without the so-called ultimate capability by highlighting their irreversible vulnerability if or when nuclear weapon is applied in the conduct of warfare. Many thus believe that it is better to possess the nuclear weapons than not since the blackmail capability due to its possession far outweighs its vulnerable non-possession.

The US proved the dire strategic price of its non-possession on Imperial Japan toward the end of World War II (1939-1945). Japan was first given the ultimatum to surrender unconditionally. It naturally thought the US was bluffing. The first-atomic bomb was dropped on Hiroshima on August 6, 1945; the second on August 9, 1945 on Nagasaki. Japan surrendered because there was no military answer to the atomic or nuclear bomb. That lesson was and is not lost on strategists, classical and contemporary. From 1945 to 1949, the US held the world literally to ransom as no entity challenged its hegemonic disposition especially on the global strategic turf. This was moderated by the USSR which became nuclear in 1949. The emergence of the USSR as a nuclear power challenged the USô monopoly of violence and brinkmanship, and triggered the Cold War (1949-1991).

Nuclear blackmail has triggered and sustained nuclear proliferation presently taken to the hilt in a contemporary nuclear renaissance. China, for example, took nuclear acquisition seriously because of the fallout of the Korean War (1950-1953). In that war, Communist North Korea (Democratic Peoplesô Republic of Korea) mounted a massive invasion of South Korea with tacit and concrete backing of China. This involved the US, a staunch ally of Capitalist South Korea. The human wave from the communist hordes was on the threshold of overwhelming South Korea. China only backed down and reined in North Korea when the US threatened to apply nuclear weapons to the conduct of that war. Neither China nor its ally, North Korea, had nuclear weapons then as they worrisomely do

today. The imperative of going nuclear dawned on both nations after succumbing to that nuclear blackmail by the beleaguered US.

Nuclear nations are neither shoved around nor ignored in all international fora but nuclear blackmail could apply to them. The USSR did not use nuclear weapon in Afghanistan mainly because the US promised a robust response. Thus they were both deterred. In the Middle East, attempt is yet to be made in the wiping out of Israel from the map because of the prospect of a robust nuclear response especially as a last resort for survival. So the use of nuclear capability for blackmail over time has brought to bear on human psyche the implication or otherwise of its possession. This constitutes a veritable incentive to the contemporary nuclear renaissance. It is on record that many entities searching for nuclear capability beguile the issue by fronting the civilian dimension whereas in fact the military*, ab initio*, constitutes the sought. These entities, evidence has shown, are bent on evading the daunting blackmail capability of the nuclear weapons; hence the frantic search for nuclear capability especially under contemporary global nuclear renaissance.

When nuclear proliferation is discussed in the strategic circle as a global issue of concern, reference is actually made to nukes. Put in broader perspective, we refer to nuclear weapons ï that is weapons that have their basis on the splitting of atomic energy. Nuclear energy has both civilian and military applications. This dual-use capability makes nuclear energy amenable to abuses that enhance nuclear proliferation. This trend is mainly possible because most nations that actually desire nuclear weapons normally use the civilian version as a smokescreen to achieve their actual objectives. Thus the dual-use nature of nuclear energy enhances nuclear proliferation. India started its nuclear search on a civilian note but ended up building atomic bomb with materials ñstolenò from Canada probably on the strength of sharing membership of the British Commonwealth with Canada. North Koreaôs

programme was clandestine at first and open later on the strength of startling revelations made by the US satellites beamed on it. North Korea owned up and asserted that its programme was for only peaceful civilian purposes. Further satellite revelations punctured their argument, and they once more owned up citing the tense bellicose US foreign policy toward it on one hand. On the other hand, they made the world to know that they are under US siege with all US fleets in the Korean peninsula boasting of nuclear submarines and bomber aircraft. They said they needed nuclear weapons to deter the aggressive US. Iran is also touting its nuclear programme as peaceful civilian version. But trends tend to suggest otherwise. Thus the dual-use nature of nuclear energy tends to exacerbate nuclear proliferation. This is so because many entities are hiding under this ambiguity to pursue the actual development of nuclear weapons as examples have shown (Dorf, 1978).

Furthermore, Chinaôs disposition toward the nuclear technological equation enhances nuclear proliferation and arguably accounts for most of the daunting issues of global security concern relating to nuclear science and technology. Chinaôs attainment of nuclear capability in 1964 marked the commencement of a relaxed laissez-affaire attitude toward nuclear energy and its availability. China availed Pakistan and North Korea of the indispensable nuclear know-how. Pakistanôs so-called father of nuclear energy, A.Q Khan, created a vast thriving nuclear black market with many questionable beneficiaries-Libya, Syria, Saudi Arabia, Egypt, Algeria, Iran, Iraq, Sudan, and others. The damage done global security by this network and the attendant domino effect thereof remains incalculable and ominous. Nuclear-armed North Korea remains in the front burner of global strategic concerns today, and tend also to be sharing its own nuclear know-how in exchange for cash. The frightening aspect of this trend is the prospect of terrorists benefiting by this cash-and-carry policy of a starving hermit kingdom ï North Korea.

Huntington (2002:189), for example, observes in relation to China and Pakistan that:

> Of much greater significance, China provided essential help to Pakistan in developing its nuclear weapons capability: é furnishing Pakistan with uranium for enrichment, advising on bomb design, and é allowing Pakistan to explode a nuclear device at a Chinese test site.

Chinaôs role in nuclear proliferation remains very daunting. Huntington (2002:188) asserts that,

> Weapons proliferation is where the Confucian-Islamic connection has been most extensive and most concrete, with China playing the central role in the transfer of both conventional and non-conventional weapons to many Muslim states. These transfers include: construction of a secret, heavily defended nuclear reactor in the Algerian desert ostensibly for research but widely believed by Western experts to be capable of producing plutonium, the sale of chemical weapons materials to Libya; the provision of CSS-2 medium range missiles to Saudi Arabia; the supply of nuclear technology or materials to Iraq, Libya, Syria and North Korea.

The domino effects of Chinaôs nuclear proliferation, albeit restricted at the initial stage, has now snowballed such that they, to a large extent, account for and explain the contemporary global nuclear renaissance. With Pakistan and North Korea benefiting initially, the fallout of that arguably insignificant benevolence to the two nations has created a contemporary global security nightmare. The ensuing challenges remain enormous with many contemporary security challenges and flashpoints traceable to Chinaôs attitude toward nuclear energy and nuclear proliferation. From the foregoing, one can evidently confirm a worrisome transition in the nuclear ï energy industry. Evaluated strategically, the thrust of this transition suggests a move from bad to worse without a letup yet. It started with vertical proliferation and moved to horizontal proliferation; and now nuclear renaissance. At the vertical stage, strategists could hold the US and the USSR responsible for any nuclear fallout. At the horizontal stage, Great Britain, France, and China made the list. The emergence of China heralded measurably the contemporary global nuclear renaissance as it

opened the flood gate, directly and indirectly, to many nuclear enthusiasts of questionable stability and allegiance.

Thus, as the world grapples with contemporary nuclear renaissance and its attendant plutonium economy, one strategic issue of concern persists-the problem of effective nuclear control. The thrust of any global search for solutions could only be meaningful when paralleled with Harold Lasswellôs conceptualization of politics as ñwho gets what, when, howò (Lasswell, 1936). Transposed thus, we ask who is qualified to get nuclear technological capability; when is such safe, and how such acquisition should be done. Unfortunately, even the NPT regime, the global bulwark against nuclear proliferation, is replete with weaknesses that impair, to a large extent, the containment of nuclear proliferation. The IAEA, the globeôs nuclear watch dog, is also mired in its own contradictions and debilitating double-standards. Thus, nuclear technology is no longer exclusive, a ñnuclear clubò issue, or monopoly, all courtesy of the contemporary global nuclear renaissance. Amidst all the contemporary concerns of nuclear proliferation, however, the prospects of terrorists accessing nukes remains pivotal, outstanding and worrisome.

In the interim, under contemporary global nuclear renaissance, a nuclear arms race as chiefly informed by security dilemma, rages on across the globe. This is more so among some of these nations that are not under the protective nuclear umbrella of a nuclear superpower as NATO nations, Japan, South Korea, Taiwan and Canada are, for instance, covered by the US. Others such as Iran and North Korea, for example, are evidently responding to the security dilemma occasioned by mainly the US robust conventional and nuclear military siege on the Arabian Gulf and Korean Peninsula, respectively.

A strategic evaluation of the Map 5.1 partly explains the knotty issue of nuclear proliferation represented in the Arabian Gulf by Iran and the Korean Peninsula by North

Korea. Strategically speaking Iran is under a siege. The United State and its NATO allies have a robust overwhelming military presence in the Arabian Gulf. NATO as led by the US, has troops in Pakistan, Afghanistan, Turkmenistan, Iraq, Kuwait, Saudi Arabia, Qatar, United Arab Emirates and Oman, all surrounding Iran. By the US strategic position, Iran is a state sponsor of terrorism, member of the ñaxis of evilò whose theocratic regime must be changed for the secular version. In the case of North Korea, the US has a daunting military presence in the Par East/Pacific sphere, especially in South Korea, Taiwan, Japan and the Philippines. The US talks of a regime change in North Korea, its designated member of the ñaxis of evilò and state sponsor of international terrorism. Thus, the quest for nuclear weapons by Iran and North Korea could be strategically situated as can be discerned in Map 5.1 below.

Map 5.1: Asia Showing Iran and North Korea

Source: Macmilian Nigeria (2006) *Secondary Atlas*, Lagos: Macmillian Nigeria Publishers, p.79.

Many states and other actors are today at various and varied stages of the nuclear acquisition process. These actors in the international system of utmost concern include terrorists who use many genuine structures as fronts. Hertz (1949/50:157), though exhibiting the realist weakness of seeing the state as the dominant actor of note in the international system, puts this arms race into perspective and asserts that:

> Striving to attain security from attack, (states) are driven to acquire more and more power in order to escape the power of others. This, in turn, renders the others more insecure and compels them to prepare for the worst. Since none can ever feel entirely secure in such a world of competing units, power competition ensues, and the vicious circle of security and power accumulation is on.

Mingst (1999) concludes that the security dilemma, then, results in a permanent condition of tension and power conflicts among states. I hasten to add among actors in the international system. The terrorists, especially the contemporary dedicated fundamentalist types, have come of age as actors of note and security concern in the international system. This group constitutes the staple of most strategic evaluation of contemporary global strategic concerns for obvious and verifiable reasons. Terrorists are not amenable to conventional deterrence known to rein in even state actors in the NWS paradigm. Thus, in evaluating the strategic implications of contemporary global nuclear renaissance, the apex of nuclear proliferation, focus must be on its present and prospective relationship with contemporary international terrorism. This is imperative because unlike the state, whose dominant status as an actor in the international system has arguably tremendously watered down by globalization, the contemporary terrorist has emerged as an actor of note and concern. The terrorist as an actor has joined the nuclear arms race, and the strategic world is more worried because unlike the state, the terrorist is neither amenable to conventional deterrence nor has a stake in the international system and its indispensable stability. With the terrorist going nuclear as an actor in the international system, the global community has

come to a nuclear cul-de-sac where it must make an urgent reverse since the alternative, nuclear-armed terrorists, remains looming, daunting and too horrifying to contemplate (Barnaby, 2007:168; Gurr, 2002; Sagan, 1993; Blair, 1993; Bracken, 1983; Lennon and Eiss, 2004).

5.4 The NPT: Nuclear Weapons and the Globe's Systemic Actors

The Nuclear Non-Proliferation Treaty going by the quantum of available nuclear weapons stockpiled by state actors, especially those in the NWS category, could largely be deemed a defeat of purpose. To many global state-actor players the provisions of the charter of the NPT remains cosmetic. Those NWS signatories to the NPT charters have over time encouraged discriminatory nuclear proliferation to favour their allies while they suppress the nuclear pursuits deemed outside their clique and dangerous. Table 5.3 shows some culprits in the foregoing proliferation exercise that includes Canada which is not a member of the UNôs Security Council.

Table 5.3: Suspected Nuclear Programmes and their Suppliers

Country	Reactors	Supplier	Start up	Fuel source	Safeguard
Israel	Nahasoreq/Dimona	USA	1960	USA	Yes/No
Libya	Tajoura	USSR	1981	USSR	Yes
Iraq	Osiraq Tanaz	France	destroyed 1981 prior to start up	France	Yes
India	Tajoura I, II, III	USA	1969/1973	France and Canada	Yes
Pakistan	Kannep	Canada	1972	Canada and Pakistan	Yes

Source: Adapted from Leonard S Spector *The New Nuclear Nations* (1985), New York, The Carnegie Endowment for international Peace (Pp 106.126,149,160 & 170).

However, some in the NNWS category try to get even, thus, taking nuclear proliferation to its present hilt in the global nuclear renaissance. Thus, the pivotal thrust of

the NPT-nuclear non-proliferation-is defeated. Those in the NWS category evidently are not scaling down or phasing out their nuclear stockpiles while some in the NNWS category are playing a strategic catch-up similarly in a crass contravention of the NPT. Thus, when one appraises the NPT against the background of proliferated nuclear weapons and globeôs systemic actors, one is bound to draw blank vis-à-vis justifying even the raison *d'etre* of the tremendously abused NPT regime. In this abuse the state actor triumphs with its pride of place as a nuclear proliferant-in-chief and guarantor of the emergence of nuclear terrorism.

Joseph and Reichart (1998:10) observed that

> The possession of nuclear weapons by some states stimulates others to acquire them , thereby reducing the security of all. The inherent double standard in the Non-Proliferation Treaty (NPT) regime must be overcome and its commitments to pursue complete nuclear disarmament must be fulfilled. Only in this manner will states such as India agree to become members. This strengthening of international norms will present further barriers to other states that clandestinely seek-to acquire nuclear capabilities. The international community will thus come together to raise and enforce the barriers to acquisition of nuclear weapons.

Furthermore, the state actor, so far, enjoys an apparent monopoly of legitimate force and possession of atomic bomb; while the terrorist is the only known actor, among other actors in the anarchic international system, determined to challenge both privileges (Bergen, 2001; Gunaratna, 2002). Five states constitute ñthe nuclear club of fiveò ï US, Russia, the UK, France, and China-and each wields veto power as a privileged member of the United Nationsô Security Council. The foregoing privilege subsists because they tested nuclear weapons before the 1968 NPT regime was enacted and came into force in 1970. However, India (1974 & 1998), Pakistan (1998); and North Korea (2006 and 2009) have acquired nuclear-state status since then. Israelôs nuclear status remains a worrisome subject of speculation even in the strategic circle. Many other state actors since the emergence of

the nuclear age in 1945 to this day have variously pursued, suspended, and are still pursuing nuclear programmes both for civilian and military purposes. This constitutes nuclear proliferation in a rather dangerous era made more dangerous by the verifiable fact that, as actors in the international system, terrorists are also bent on going nuclear for good measure and to get strategically even (Laqueur, 1999; OôConnell, 1989). This overheats the international system, and highlights the strategic politics of nuclear science and technology for obvious reasons.

Thus, the political dimension of nuclear science and technology constitute the basis and pivotal factor in all contemporary strategic evaluations. This is for the simple and yet terminal reason that nuclear weapons constitute the most destructive weapon yet known to man. This frightening fact diminishes on appreciation for the misleading fact that it shares the same paradigmatic classification with ballistic missiles, biological weapons and chemical weapons collectively known as Weapons of Mass Destruction (WMDs). The terrible destructive capability of nuclear weapons, however, is not lost on strategists; hence the extreme caution taken vis-à-vis its acquisition, retention and possible cataclysmic application in the conduct of warfare. Paradoxically, however, the United States of America, the only actor that is on verifiable record to have applied nuclear weapons in warfare, is today leading the charge to eliminate nuclear weapons of all sorts over time while yet retaining its immense nuclear stockpile. However, the US President, Barack Obama, at Prague, Czech Republic in 2009 asserts that only the eradication of nuclear weapons suffices to contain the terminal externalities of the globeôs contemporary nuclear renaissance. This sounds very much like an American *mea culpa* that should not be taken seriously on an evaluation of the USô hitherto and contemporary strategic status and behaviour, especially vis-à-vis the strategic issue of disarmament.

Militarily, the US remains the worldôs strongest nation with its ordnance depots, silos and bunkers laden with conventional and non-conventional weapons as can be deduced from data in Table 5.4 and Table 5.5. Russia, China, France and probably the UK make the weird list of nations capable of putting an end to life on earth with nukes. Rourke (1999:353), for instance, paints the worrisome picture of ñtwo nuclear Goliaths ñ - the United States and Russia. He confirms that both states still have enough stockpiles of nuclear weapons to end life on earth. But only the US, however, has applied nuclear weapons in the conduct of warfare in World War II (1939-1945). However, of most concern to contemporary strategists is the revelation from informed nuclear physicists. A frightened world is given to know that contemporary nuclear warheads have more than a hundred times the destructive capacity of the nukes used on Japan in 1945.

Table 5.4: Comparative Military Expenditure, 2000

Country	Total US$ (Billions)	As Percentage of Budget	As Percentage of GNP	Per capita (US $)
Canada	7.1	5.9	1.2	299
China	12.6	18.0	5.7	10
India	10.0	23.8	2.7	10
Israel	8.7	15.0	9.5	1,513
Japan	42.9	6.0	0.9	339
Mexico	6.0	4.9	1.3	60
Nigeria	0.2	1.4	0.7	2
Russia	40.1	57.1	5.8	274
Sweden	4.9	3.9	2.2	467
United States	267.2	15.5	3.4	980
World	884	10.2	2.6	145

Source: CIA (2000); Center for Defense Information, *World Alamanac* (2000)

Table 5.5: Estimated Great-Power Military Capabilities, 2001-2006

				Heavy Weapons			
Country	**Military Expenditure (Billions of US $)**	**Soldiers (Millions)**	**Tanks**	**Carriers/Warships/ Submarines**	**Combat Air Planes**	**Nuclear Weapons**	**Arms exported (Billions of US $)**
U.S	545	1.5	10,000	11/12/74	3,600	10,000	18
Russia	25	1.0	20,000	1/40/69	1,800	16,000	5
China	45	2.3	10,000	0/29/6	2,100	410	1
France	50	0.3	1,000	0/19/12	300	350	4
Britain	55	0.2	1,000	0/35/16	300	200	2
Germany	40	0.2	3,000	0/14/0	400	0	1
Japan	50	0.2	1,000	0/39/20	300	0	0
Approximate % of world total	70%	30%	25%	100/60/50%	40%	99%	85%

Source: Adapted from Goldstein and Pevehouse (2008) p. 19.

However, the US President, Barack Obama then in his nuclear-eradication speech in Prague, Czechs Republic in 2009 asserts that:

> Today, the Cold War has disappeared but the thousands of those weapons have not. In a strange turn of history, the threat of global nuclear war has gone down, but the risk of a nuclear attack has gone up. More nations have acquired these weapons. Testing has continued. Black markets trade in nuclear secrets and materials. The technology to build bombs has spread. Terrorists are determined to buy, build or steal one é Some argue that the spread of these weapons cannot be checked ï that we are destined to live in a world where more nations and more people possess the ultimate tools of destruction. This fatalism is a deadly adversary. For if we believe that the spread of nuclear weapons is inevitable, then we are admitting to ourselves that the use of nuclear weapons is inevitable é So today, I state clearly and with conviction Americaôs commitment to seek the peace and security of a world without nuclear-weapons. I am not naïve. This goal will not be reached quickly ï perhaps not in my lifetime. It will take patience and persistence. But now we, too, must ignore the voices who tell us that the world cannot change (*The Economist*, April 11, 2009:1).

The foregoing speech underscores the fact that the world is on a nuclear precipice with the Nuclear Non-Proliferation Treaty battered and compromised under the contemporary global

nuclear renaissance. It frightens the informed mind the more when its contents are evaluated vis-à-vis the source. Such strategic evidence as could be inferred from the foregoing speech comes from the worldôs number one citizen who definitely is privy to sensitive classified information of strategic import. President Barack Obama admitted the waning status of the state as an unchallenged actor in the international system as realist and neo-realist theorists are wont to contest. Furthermore, the diffusion of nuclear secrets is on the march such that determined terrorists could benefit by that while a docile world looks on in exasperation. Thus President Barack Obama insists on the eradication of nuclear weapons by all. This is with a view to preempting the lethal acquisition and inevitable application of nuclear weapons in the conduct of warfare especially by terrorists.

However, on a discouraging note Table 5.6 below shows the status of Nuclear Weapon States as at May 1998 which shows that humanity is not home and dry vis-à-vis global nuclear threat posed by nuclear-weapons states to global security since the aforesaid 2009 meeting in Prague not much has changed in the nuclear sphere the to detriment of global nuclear security. The foregoing tends credence to earlier reservations by Calder (1979:58) who observed that under Article VI of the NPT Charter, the Superpowers have ignored their obligation of nuclear disarmament thereof on a ñground scaleò even after proclaiming to effect ñgood faithò vis-à-vis a complete nuclear disarmament.

Table 5.6: Status of Nuclear-Weapons States as at May 1998

Countries with Declared Nuclear-Weapons Capability				
S/N	**Country**	**History**	**No of Missiles**	**Missile Range**
1	U.S	Set off first nuclear blast in 1945 has concluded 1,030 tests, more than the rest of the world.	12, 070 Warheads	8000 miles (13,000 km) able to reach anywhere in the world
2	Britain	First test in 1952. has performed 45 tests in all	380 Warheads	7,500ml (12,000km)
3	France	Testing sine 1961. Has conducted 210 tests in all. Once a major player in arms race, its warhead is now shrinking	500 Warheads	3.300ml (5,300km)
4	Russia	Second to conduct tests. Has conducted 715 tests in all. Once a major player in arms race, its warhead count is now shrinking.	22, 500 warheads	6, 800 ml (11,000km)
5	China	Started testing in 1964. Has conducted 45 tests in all. Known to be helping Pakistan with its nuclear efforts.	450 warheads	6, 800 ml (11, 000km)

Source: Adapted from *Time* (New York) May 25, 1998, pp 26-27.

The foregoing speech cited earlier actually constitutes a clarion call to a docile world to brace up against the externalities of nuclear technology. This call remains cogent

because of the globeôs booming contemporary plutonium economy. But this call has met a strategic brick wall paradoxically and collectively constructed with the US as the chief mason and nuclear goliath (McNamara, 2005). In a blatant contravention of the NPT regime the ñnuclear fiveò have consistently been scaling up their nuclear stockpiles vis-à-vis quantity and destructive quality or capacity. Currently, this ñnuclear club of fiveò - the US, Russia, the UK, France and China ï has been joined as nuclear powers by India, Pakistan and the hermit kingdom of North Korea (Democratic Peoples Republic of Korea (DPRK). Israel remains a nuclear power in many informed strategic literature, but is yet to confirm or refute its generally ascribed nuclear capability. Moreover, the nations in the NWS paradigm have consistently been encouraging selected nuclear proliferation. This simply means giving nuclear secrets to a plethora of ñtrustedò and ñrationalò allies and actors as dictated by historical affinity, ideological convergence, need for prime resources or even cash. This creates a worrisome global security dilemma as well as two divergent schools of thought on the imperative or otherwise of arms control in general and nuclear arms control in particular.

Rourke (1999:380) observes that ñmany arms control advocates take it as a given that fewer nuclear weapons make the world more secure. Realists take the opposite view and argue that without political agreements, arms reductions only serve to make one more vulnerableò. It is thus fathomable why many entities possess or are pursuing nuclear capability with the dominant objective of dictating and not taking dictations. In the contemporary nuclear renaissance, the realist bias for scaling up military capability prevails, while the dominant status of the state as a dominant actor in the international system arguably wanes albeit gradually (Dunn, 1995; Lugo, 1996; Brown, 1998; Guenho, 1995). Thus we see the US double-talk of eradicating weapons as mere euphemism from an actor in the NWS paradigm that epitomizes nukes and flaunts the same.

The appreciation of global issues of strategic concern such as nuclear acquisition, control and possible application solely through the state-centric prism has run its course. The international system boasts of actors equally influential and powerful as some nation-state actors. The influence of the NGOs, MNCs, eminent personalities collectively termed non-state actor is growing and firing on all strategic cylinders. Thus, we hitherto apportioned the duty of atomic control to the nation-state as the over-riding dominant actors in the international system. This realist myopia is vehemently challenged today and informed political scientists are consistently evaluating new tools of analysis in the light of so many changes in the international system. Thus international politics is currently evaluated taking into cognizance other actors especially terrorists in the light of strategic challenges they pose to global stability, and in the event of nuclear terrorism, to the survival of mankind. Globalization, to a large extent, accounts for the changing status of the state in the international system vis-à-vis other actors with whom it must now competitively share the charged anarchic system (Keller and Rothchild, 1996). Scholars differ on the contemporary status of the state vis-à-vis other actors in the international system. Realists and neo-realists, as well as others, still assert against evidence the preponderant status of the state as an actor in the international system. Mingst (1999:112-113) captures the realist perspective and asserts that:

> Realists generally hold a statist, or state-centric view. They believe that the state is an autonomous actor constrained only by the structural anarchy of the international system. The state enjoys sovereignty-that is, the authority to govern matters within its own borders that affect its people, economy, security, and form of government. As a sovereign entity, the state has a consistent set of goals- that is, a national interest-defined in terms of power.

Contrary to the foregoing, however, the authority of the state in the contemporary international system is highly compromised by the burgeoning clout and relevance gained

by other actors in the international system. Russet, et al (2006:19-20) admits that apart from the nation-state, other actors of relevance to world politics exist. They point out that:

> Other organizations relevant to world politics include: (1) Private organizations operating within a nation-state, such as interest groups and banks; (2) parts of national governments, such as the British ministry of defense or the Republican leadership of the U.S. House of Representatives; (3) intergovernmental organizations like the UN or NATO; and (4) international nongovernmental organizations, such as Amnesty International, Roman Catholic Church, or al-Qaeda.

Thus, Hoffman (2005:3-7) observes that ñrealist orthodoxyô has trouble integrating change, especially globalization and the rise of non state actors.ò Rosenau (1990) admits that the ñstate-centricò world of politics now exists in keen competition with the ñmulti-centricò world of many actors other than the state. This reality has transformed global politics as well as the theatre of interaction ï the international system ï tremendously. Rosecrance (1999) warns of the harm inherent in the continuous evaluation of the world in the 1648 Westphalia reality, especially, now that national boundaries are becoming less relevant. The critical point remains that even with the assumed realist pivotal status of the nation-state, majority of activities in the international system today are carried out by man and social forces. Taking cognizance of this arguable perspective, he proffers the projection of man and social forces and not necessarily the state as the logical thrust of the study of international relations. He posits further in the same vein to buttress his argument that ñThe central and crucial point is that it is people, not abstract entities that interact with one other in the international society.ò Thus Russett, et al (2006:438) worries that:

> The state-centric view, with its emphasis on sovereignty of states, focuses on relation between governments and between governments and IGOs. The transnational view identifies a plethora of interactions that take place between governments and both international and domestic nongovernmental actors, as well as between international and domestic nongovernmental actors themselves. Much of what goes on in world politics is missed by the state-centric view.

The foregoing appraisals are made with the prime objective of making it clear that the state now shares the international system with equally ambitious actors. These actors share convergence with the state vis-à-vis quest for power with which relevance could be asserted and advantages leveraged in the anarchic international system. In the quest to guarantee global stability, it would thus constitute a strategically myopic decision to factor in the state without the other actors especially the alternately detested and celebrated terrorist. The foregoing argument holds relevance for two reasons. In the first place, the terrorist has come of age as an actor with clout especially in the contemporary era.

Furthermore, apart from the state actor, only the terrorist shows determination to acquire and apply WMDs in the conduct of warfare (Pasternak, 2001; Barry, 2009). Thus, when we want to rein in nuclear recklessness, blackmail or terrorism focus should be on the terrorist. The state actor is not anonymous; is amenable to conventional deterrence, and has a stake in the international system and its stability. No state in contemporary international system demonstrates an apocalyptic suicidal thrust. It is relatively safe and strategically a good risk to assume the rationality of the state who has a return address; hence cannot live in a glass house and be throwing stones. The contemporary terrorist is an actor of a different era without a stake in the international system and its indispensable stability. It is on the terrorist that our strategic focus should be as we grapple with the preemption of nuclear terrorism especially as our contemporary nuclear renaissance has bequeathed a lingering global plutonium economy. As an actor, the terrorist must never be allowed to access nukes as its possession equals to inevitable application on his destructive terms. The state has everything to lose in nuclear recklessness ï population, territory, government, sovereignty, nationality, and recognition ï unlike the fundamentalist apocalyptic terrorist of the contemporary era. The appreciation of the foregoing partly explains contemporary US President Barrack Obamaôs nuclear posture premised on a gradual but determined

realization of a nuclear-free world. He believes that the state actor is traditionally deterred and rationally reined in vis-à-vis nuclear attacks unlike the terrorist. Thus, an analyst aptly pointed out that ñAmericaôs priority was not so much deterring nuclear attack by other states, but preventing foes like Iran and terrorists from acquiring nuclear weaponsò (*The Economist*, April 17, 2010:55).

Furthermore, it must however be pointed out here that the suggestion of focusing on the terrorist vis-à-vis the assessing of nuclear weapons and the globeôs systemic actors has nothing to do with positive grandeur but worrisome notoriety. The state remains pivotal especially as an actor in the international system. However, an evaluation of the status of the various actors in contemporary international system still manifests patterns that yet distinguish the state as an outstanding actor. Be that as it may, it is arguably not yet a zero-sum game whereby what the state lost by the virtue of globalization automatically translates into gain due other competing actors. The pivotal points remain that (i) the realist view of the state as an actor vis-à-vis the international system remains valid to the extent that we also take into cognizance the snowballing competitive clout and challenges of other actors. Also is the fact that (ii) with all the global actors taken as a whole, the state on evaluation and in parallel with the cabinet system of government arguably remains at least a global *primus inter pare* (Rourke, et al, 1996; Manet, 2006; Thompson, 1995; Fowler and Bunck, 1995).

Finally, however, the stateôs competition for relevance with other actors in the international system rages on. In the nuclear realm, many state actors in contravention of the NPT charter are pursuing nuclear programmes with military applications under the guise of pursuing the civilian version. The terrorist actor, however, poses the most worrisome of these nuclear challenges. In the contemporary era under globalization, the terrorist is not only challenging the power of and influence of the state actor but also has

made the global nuclear proliferation list of concern. This is so because its challenges to the state has practical strategic bearing on the stateôs raison dõêtre as an actor, and the indispensable stability of the international system as a public or collective good. Al Qaeda, for example, constitutes a robust challenge to states and global stability. It is more so to the United States of America, its interests and allies. The keen conflict and competition rages on to this day. Thus, Russet, et al (2006:65), for example, observes that conflict arises:

> é when the nonstate actor or actors challenged the sovereignty of a nation-state, either in terms of its security or its control over internal political or economic matters. The dramatic acts of international terrorism by nonstate groups offer only the most striking example of this competition. Here, groups other than states employ substantial violence in the global system, directly challenging the monopoly of force that international law has always granted to nation-states.

5.5 The NPT: Nuclear Weapons and Global Stability

There exists a symbiotic relationship between technology and the conduct of warfare. The stage of any contemporary technological trend has a practical bearing on how equivalent warfare is conducted. Thus, as the world entered the nuclear age in 1945, warfare naturally was revolutionized factoring in the fatal innovation nuclear breakthrough brought to bear on warfare in particular and life in general. Nuclear weapon automatically dwarfed and trivialized all weapons of destruction hitherto known up to this day. It remains the only weapon viewed by informed strategists and nuclear physicists as capable of ending life on earth especially if applied in extensive warfare. Russell (1976:85) appreciated with awe the destructive capacity of the nuclear weapon by observing that ñone nuclear physicist is worth more than man divisions of infantryé ò Since the inception of the nuclear age in 1945, however, the contribution or otherwise of nuclear technology to global stability has consistently constituted the staple of strategic debate among policymakers, strategists, civil societies, NGOs and global actors in the international system. Up to the year 2012, the

debate goes on especially as terrorists have shunned the debate, in worrisome preference for the acquisition of nukes. In the ongoing debate, we have two camps or schools of thought. One highlights that nuclear technology constitutes a stabilizing factor in global security, defence and stability. The other camp asserts that daunting externalities of nuclear technology far outweigh its advantages; hence constitutes a destabilizing and not a stabilizing factor to global stability.

The realist, as well as neo-realist school of international relations and politics, believes that nuclear weapons since 1945 has somewhat guaranteed global stability. They insist that the yet non-realisation of World War III, arguably owes its life to the presence of nuclear weapons in particular and others in the WMDs category in general. The nuclear age exposed the suicidal and terminal nature of war where nuclear weapons could be brought to bear by application on the conduct of warfare. The appreciation of the enormous destructive capability of nukes tempered the bellicosity of many states in the NWS paradigm. They were tempered and deterred because a first-strike initiative is automatically tantamount to a second-strike reprisal; both devastating and terminal to the parties in such nuclear exchange. Thus, Mutual Assured Destruction (MAD) entered the strategic lexicon. In the ploughmanôs language this translates into ñattack me with nuclear weapons and be attacked with the same; hence both of us are inevitably mutually destroyed.ò

Since 1945, however, some recurrent strategic patterns could be discerned, evaluated, and put in proper perspective to explain trends and aver reliable forecasts and useful predictions. Magstadt (2009:65) observes that:

> Although balance-of-power politics and nuclear deterrence forged a relatively stable system of order after 1945, the end of the Cold War gave rise not only to new opportunities for order building but also to new dangers and sources of instability.

Nuclear weapon, up to this day constitute an equalizer especially in the strategic sense of the word. The entities that possess them view themselves as strategic equals; hence a war between or among them constitutes brinkmanship taken to the hilt of senselessness. Nations in the ñNuclear club of five,ò and even the contemporary worrisome additions to the list, as a matter of unwritten but implied and effective rule, do not fight each other except by proxy. The US has never gone to war with the then USSR throughout the tense Cold War (1947-1989) except by proxy. The 1962 Cuban Missile Crisis, and the Soviet invasion and occupation of Afghanistan (1979-1989) suffice to buttress the foregoing. Thus, the then conservative British Prime Minister, Margaret Thatcher, in Rourke (1999:361) asserts that ñA world without nuclear weapons would be less stable and more dangerous for all of us.ò

China and India for example, have never fought over their disputed boundary again since India became a nuclear power by virtue of its testing of nukes in 1974 and 1998. India and Pakistan are yet to fight again since Pakistan became a nuclear power by its nuclear test of 1998. India had gone to war with Pakistan, and defeated it in all since their 1947 partition. But since 1998, they have refrained from fighting even the misleading so-called ñlimited warò over their unsettled claims vis-à-vis the Kashmir region except again by proxy in a worrisome exchange of terror. Pakistanôs acquisition of nuclear capability made the Indians appreciate the import of balance of power through nuclearisation and the dreaded theory of MAD. Thus, Pakistan used nuclear weapons as strategic and tactical military equalizers to enhance deterrence, discourage nuclear blackmail, retain sovereignty, and enforce stability via a balance of terror.

France and the UK are protected under the NATO nuclear umbrella even with their own nukes deployed. Taiwan, South Korea and Japan are also, like many other US allies, protected under the US nuclear umbrella. Strategists, for example, believe that China is yet to invade and occupy Taiwan, as Iraq occupied Kuwait as its renegade province, because of

the USô robust nuclear presence in South Asia. Ditto for North Korea vis-à-vis the invasion and occupation of South Korea as it attempted to do in 1950 that sparked the Korean War (1950-1953). The threat of the application of nukes in that war prevailed on the then nukeless North Korea and China to end the aggression. The Japanese Hiroshima and Nagasaki experience of 1945 was then still fresh in the strategic minds (Lebowe & Stein, 1995).

Furthermore, the relative but equally worrisome asymmetrical warfare conducted against Medinat Israel in the Middle East shows the stabilizing factor that nuclear weapon constitute. Strategists as well as enemies of the Israeli state, especially in the Arab/Islamic world, have always expressed concern over Israelôs nuclear status and intent. This is so because it is believed that in the face of annihilation, Israel would, as a last resort, apply its nukes in warfare. Thus, all we hear is the imperative of an Arab bomb to counterbalance Israelôs nuclear mushroom arguably casting a gloomy cloud over Arab civilization.

From the foregoing, however, nuclear weapon from the state-centric realist perspective guaranteed global stability by deterring states who so far are believed to be the only actors in the international system with nukes. The realists believe that, as rational actors, states appreciate the destructive capability of nuclear weapons and the senselessness in its application in the conduct of warfare. The derivative deterrence from this appreciation makes nuclear powers understand that no nuclear power has a first-strike capability in contemporary strategic configuration. This is made plain the more on appreciation of the fact that reprisals by nature are more devastating. In strategic configuration, ñfirst strike capability means that one side can attack and destroy enough of the other sideôs capability that any retaliatory response will impose ñacceptableò damage (Russett, et al, 2006:255). This, of course, is not possible on a strategic evaluation factoring in the factual tenet of the MAD doctrine in a nuclear exchange.

Furthermore, Russet, *et al* (2006:55) assert that:

> Under conditions of stable deterrence, each side has a second-strike capability ï the capacity to absorb a first strike and still retaliate causing unacceptable damage ï but not a first-strike force. Because each has an assured capability to inflict enormous destruction on an attacker, neither is tempted to attack.

The fear of the near-infinite destructive capacity of nuclear weapons created stability the international system. Thus, in conflicts that ordinarily could have escalated dies out on the threat of the application of nuclear weapons in the conduct of warfare. The states in the NWS category use it mainly to intimidate others n the NNWS category. Even those in the NWS category use it to rein in themselves by highlighting the MAD doctrine. In the resolution of the 1962 Cuban Missile Crisis, the US and the USSR deescalated the crisis because of the MAD doctrine. Thus from the foregoing, it can be sensible to buy the realist theory that nuclear weapon as power in the hands of states availed the international system and globe of stability, however attained.

This stability, however, was mostly gained as a result of the cowing of states in the NNWS category; who obviously appreciated the strategic blunder inherent in confronting a nuclear power even with a superior argument and noble cause. The fate of Japan during the waning days of the World War II (1939-1945) is apparently not lost on any state actor in the contemporary international system. No state in the NNWS category, except those protected under the nuclear umbrella of a nuclear power, can strategically confront a nuclear power. However, contemporary terrorists have altered this equation and configuration as actors of note and clout in the international system. In recent times, nuclear states have come to be the staple of their trade and activities. Thus, with the arguable exception of China, all other known nuclear powers, hitherto feared and naturally avoided in conflict, have come on the radar screen of terrorists as targets of asymmetrical warfare.

The following provocative tally constitutes a daunting strategic concern. The US is mired down in an endless Global War on Terror (GWOT) noticeably since 2001. It has since then, with co-opted and coerced allies, been fighting ñterrorismò especially in Afghanistan since 2001; and ñWMDs proliferation and terrorismò in Iraq since 2003. Terrorists, especially those of Chechnyan extraction, have been challenging Russia since the 1990s. The UK and France are not left out either. India and Pakistan are also battling terrorists while North Korean exports terrorism. Israel has remained a victim of terrorism especially since its attainment of statehood on the 17th day of May, 1948. Thus, of all actors in the international system only the terrorist demonstrates the capability of confronting nuclear powers in warfare, albeit their conversant asymmetrical version-terrorism. It, however, remains to be seen and evaluated on merit, how nuclear weapons in the hands of terrorists could still, in the realist view, constitute a plus to global stability. As terrorists are bent on going nuclear, strategic thinkers are bound to reevaluate every aspect of nuclear science and technology in the light of contemporary global nuclear renaissance and its global contemporary plutonium economy highly prone to exploitation by creative terrorists.

Conversely, liberalists as well as neo-liberalists believe that nuclear weapon compromises global stability. They believe that since the international system is interconnected especially as enhanced under globalisation trade, diplomacy and cross-cultural relationships suffice to influence and enhance global stability. Since the primacy of the state as an actor in the international system is questioned by other recognized actors, it would be a strategically fatal error to still believe that the state alone can exert influence on the acquisition and control of nuclear weapons. The liberalists assert that only through cooperation can we collectively guarantee global stability given that many actors are involved in the international system not necessarily dominated by the state actor. They

believe that the system is too anarchic to accommodate bellicosity as opposed to cooperation and requisite mitigating institutions (Gray, 1995; Manning, 1976).

Furthermore, from 1945 when nuclear weapon premiered in the conduct of warfare, nuclear weapon has consistently featured as a terrible strategic concern with possible terminal implications. Thus, in trying to ascertain whether nuclear weapon augurs well for global stability it suffices to look at the beginning. The appreciation of the contribution of nuclear weapon to global stability could paradoxically be gleaned from the reservations of nuclear physicists, scholars, policymakers and informed strategists vis-à-vis nuclear weapons in particular and nuclear technology in general. Most go beyond global stability to look, at the far-reaching capability of the introduction of nuclear weapons in the conduct of warfare to put an end to life on earth as we know it (Guest, 1963:191; Russell, 1971:15). Russell, (1976:87) observes with apprehension that:

> The atom bomb, and still more than hydrogen, have caused new fears, involving new doubts as to the effects of science on human life. Some eminent authorities, including Einstein, have pointed out that there is a danger of the extinction of all life on this planet.

Baldwin (1948:317) in relation to the effect of the nuclear weapon on the world political and strategic situations observes that ñthe face of tomorrow is a black visage; we are embarked upon a ótime of troublesô é We have opened for all time the lid of Pandoraôs Box of evils. We cannot push the genii back into the box. We may not like, but we must face itò.

Boulding (1962:4) in reference to the nuclear age opined that: ñwe live in a society with a positive possibility of irretrievable disaster ï a possibility which grows every year. This is a very uncomfortable society to live in. Thus, it is correct to assert that even from the early stage of the nuclear age, the capacity of nuclear weapons to compromise global stability and even end life was not lost on the informed. The most frightening aspect of this

awareness was that even nuclear physicists, including the father of nuclear weapons, Albert Einstein, were privy to the reservations expressed over nuclear weapons, vis-à-vis global stability. Sulzberger (1955) observes in relation to the emergence of the nuclear age that in 1945, it was a question of peace. Now it is a matter of humanityôs survival. Those opposed to nuclear weapons disregarded even the realist-highlighted indispensability of power and the rationality of the state as an actor in the international system. They opined that nuclear weapons repudiate anything rational about man in general. They even observed that nuclear weapon has not only revolutionized warfare but transformed international relations negatively into an interaction fraught with fear, foreboding and enhanced distrust. With nuclear weapon, the future of man automatically came to be a factor in question up to this day (Buchan, 1966; Brodie, 1946; Bush 1949; Cousins, 1945; Masters and Way, 1946; Shils, 1948).

The foregoing scholars still factored into their convergent analyses of nuclear weapons and global stability the realist statist control of atomic weapons. Of note still is the fact that none exhibited or implied a trust of nuclear weapon even in the hands of the so-called rational state actors. This is understandable because even in the hands of the rational state actor nuclear weapons are not only costly in the economic sense but also in the socio-political and environmental sense. Thus, their view to the effect that rationally nuclear weapons should have no place in civilization as it possesses the capacity to end it, according to Guest (1963:191), ñé in a fiery furnace, leaving the earth a burnt-out lifeless cinder.ò

One incident of strategic importance, the 1962 Cuban Missile Crisis, came close to buttressing with regrettable finality the views of opponents of nuclear weapons as a global stabilizing factor. This crisis came close to bringing about a nuclear exchange between the Superpowers ï the USSR and US. It was brought to an end when the USSR president,

Nikita Khrushchev, ordered the removal from Cuba of hitherto deployed missiles carrying nuclear warheads primed at the US. Experts still assert that the crisis constituted an averted nuclear war with possible apocalyptic dimension and implication. Thus, the stabilizing capability of nuclear weapons in a tense world is still called to question. The then US president, John, F. Kennedy, actually risked a nuclear war by insisting on the verifiable removal of the offending nuclear missiles. It is on record that during that crisis both the US and the USSR placed their tactical and strategic nuclear teams on alert; that is waiting for the last coded command to commence the inevitable nuclear exchange (Rourke, 1999).

Thus it would constitute a fallacy to assert that, with the advantage of the knowledge of the foregoing, nuclear weapon enhances global stability or manifests any potential for the same. That crisis was a strategic brinkmanship especially as it was learnt on declassification of requisite intelligence that some of the USSRôs nuclear submarines protecting Cuba lost radio contact with their Command and Control Unit. They were supposed to take orders as communicated through their radio which was non-existent at the prime time. In furtherance of tactical blunder with terminal implications, the USSR submarine commanders could initiate an attack if faced with mortal danger-real or imaginary. The USSR SAM missile battery in Cuba shot down a US U-2 plane then on a mission to gather intelligence in Cuba on a dangerous order of a relatively low-level Soviet bureaucrat and not Kremlin (Nathan, 1992).

Since 1945, the call for nuclear weapon eradication remains current especially among those desirous of a stable globe based on equity and justice. But nuclear weapons with the terminal implications associated with them constitute a source of gain to many who naturally always attempt to market their indispensability to global stability in general and states in particular. Thus, the liberal transformationist view asserts with high level of conviction that in contradistinction with the realist view, nuclear weapons compromises

global stability. This view gains much currency in the light of contemporary threats to global stability featuring nuclear proliferation and international terrorism as topmost issues of strategic concern. The realist perspective appears logically hollow in the light of our contemporary global nuclear renaissance and apocalyptic privatized terrorism.

The prevalent deterrence touted by realists as the raison dêtre and import of nuclear weapons in global strategic calculation holds no water in contemporary world. Deterrence provided global stability because only states wielded nuclear weapons, and had a stake in the international system, whose stability they naturally pursued, albeit in varied ways. Furthermore, terrorists have now come of age as actors in the anarchic international system and are verifiably bent on acquiring nuclear capability for good measure (Magstadt, 2009; Bergen, 2001). The pivotal challenges facing global security and stability are daunting enough even with states as sole wielders of nuclear capability. The inevitable acquisition of nuclear weapons by terrorists, and certain application of the same in conduct of warfare only highlights the lethal terminal point of manôs strategic folly. So long as nuclear weapons are around, there is an almost hundred-percent chance of their getting into wrong hands. That, in contemporary strategic calculations means non-state actor such as the terrorist who apart from the state actor is the only international actor with a flare for nuclear weapons. This summarises the notion that nuclear weapons have only compromised global stability, with frightening contemporary and futuristic implications.

Thus, from 1945 up to 2012 many strategic thinkers have consistently been calling for the eradication of nuclear weapons from the face of the earth. At the initial stage, reservations of nuclear weapons arose from the appreciation of nuclear weaponsô near-infinite destructive capability. In the contemporary strategic era, the reservations are reinforced by the informed possibility of terrorists accessing nukes, and their inevitable application of the same in the conduct of warfare. These reservations, furthermore, are not

helped by the established and ongoing global nuclear renaissance-the apex of nuclear proliferation ï which enhances the availability of fissile materials and nukes (Potter, 1990; Walker and Lonroth, 1983). The thrust of the foregoing is that nuclear weapons are obsolete and more dangerous in view of the trends in contemporary international system. Terrorist as actors have no stake in the international system and cannot be deterred like state-actors who have a stake and verifiable return addresses. The hardest entity to deter is the suicidal fundamentalist outlaw with a grudge and nothing to lose. Contemporary apocalyptic international terrorists are qualified vis-à-vis the aforesaid.

Igwe, (1989:95) evaluated global security and stability in the nuclear era and concluded that:

> There is no other rational alternative for man in the nuclear era than peaceful co-existence and détente, followed rapidly by nuclear, as a precursor to general and universal disarmament. That is the only stable basis for a collective global security, and the best strategy to ñwinò or ñsurviveò a nuclear ñwarò.

The realist view on the relationship between nuclear weapons and global stability calls for reevaluation especially in view of the dual challenges of global nuclear renaissance and mutating international terrorism. With nuclear weapons playing tactical and strategic roles in the defence policy of many nations today, however, nuclear eradication is bound to encounter robust hitches. The terrorists are coming while domineering global policies, especially of those in the NWS category, only exacerbates their traditional grudges and resolve to inflict colossal harm. Thus, the only way to forestall nuclear terrorism in the 21st century is to deny terrorists nuclear weapons especially now that we are given to know that nuclear weapon only enhances global instability. A postponement of nuclear eradication only makes a terrorist acquisition of the nuke inevitable, and its application in the conduct of warfare certain. This becomes very imperative and urgent accepted as a verifiable given that there are many holes vis-à-vis atomic control capability in both IAEA and the NPT

regulatory mechanisms. (Barnaby, 2007; Routrke, 1999). The most provocative of these holes remains the right of the NWS to build and deploy nuclear weapons while the NNWS remain without them and vulnerable. Global stability can no longer be based on the imaginary deterrence provided by the possession of nuclear weapons by some actors in the international system. Terrorists can not be so deterred as state actors since 1945; hence only the phasing out of nuclear technology, especially the military application, suffices to contain the challenge of nuclear terrorism and guarantee global stability and continuation of life as we know it.

CHAPTER SIX

GLOBAL SECURITY AND THE STATUTORY LIMITATIONS OF THE INTERNATIONAL ATOMIC ENERGY AGENCY AND THE NUCLEAR NON-PROLIFERATION TREATY

The challenge of nuclear terrorism, more than any other factor makes an urgent collective review of both the IAEA organ and NPT convention imperative especially under the contemporary global nuclear renaissance because of their statutory limitations and the evident threat they pose to global security. The IAEA organ and the NPT convention evidently anticipated nuclear terrorism especially in relation to atomic control but the context of their drafting differs tremendously in dimensions and level of sophistication. Thus, as tools and regulatory mechanism to counter nuclear terrorism through efficient atomic control, the two regulatory mechanisms are understandably wanting and appear to be contextually anachronistic. This primarily is in the light of unfolding global trends fraught with daunting strategic challenges bordering even on the survival of humanity. The Nuclear Threat Initiative, for example, warns that ñToday, the threat of nuclear terrorism, fueled by the spread of nuclear materials, know-how and weapons, has brought us to a nuclear tipping point (www.nti.org). The fact that the IAEAôs Illicit Trafficking Database, for example, has documented more than six hundred and fifty instances of intercepted smuggling of nuclear materials alone between 1996 and 2006 alone calls for urgent global action (www.iaea.org).

However, no evaluation or review of the International Atomic Energy Agency (IAEA) and the Nuclear Non-Proliferation Treaty (NPT) as international regulatory mechanisms can be deemed comprehensive without at least a mention of the United Nations under whose auspices they both operate. Both international regulatory mechanisms

statutorily are under the United Nations both in structure and function. In the global battle for atomic control and containment of sundry atomic-control challenges such as nuclear terrorism, the UN complements the efforts of the above-mentioned regulatory mechanisms. Thus, in containing the challenge of nuclear terrorism, for example, the UN as the globeôs prime security supranational organization has put other tools to work especially in the realm of atomic control with a view to fundamentally denying unauthorized actors such as terrorists nuclear capability. The foregoing highlights the UNôs prime concern and position especially in matters of global strategic concern. The UNôs extra measures evidently underscore an appreciation of the threat to global security posed by the statutory limitations of both the IAEA and NPT regulatory mechanisms especially vis-à-vis atomic control

However, many strategic experts believe that the UNôs pivotal *raison d'etre* is to guarantee global security, peace, and stability especially via the enforcement of the doctrine of collective security which in our contemporary era is robustly challenged by international terrorism and nuclear proliferation (Weiss, et al, 2004; Kay, 1967; Goodrich, 1974; Riggs and Plano, 1994; Moore and Pubantz, 2006; Falk, 1995; Diel, 1997). Thus, issues of global security, especially as related to the concept of collective security, are usually evaluated since 1945 with the UN as the parameter. As a successor to the League of Nations whose failures informed the creation of the UN after World War II (1939-1945), the UN has come to represent the civilized worldôs attempt at guaranteeing global security, stability, welfare and even the survival of the human race. The imperative of keeping insecurity at bay and consolidating global peace, constitute the *raison d'etre* of the United Nations. Experts, however, believe that the UN is tremendously hampered by its structure vis-à-vis the imperative of its effective and proper functioning (Boutros-Ghali, 1992; Fox, 1994; Ginsburg, 1993).

As the dominant global supranational organization, the UNôs primary role or function as related to peace and stability converges in essence with that of the nation state at territorial level-maintenance of law and order within a specifically recognized territory. This conflicting capabilities incapacitates the UN as its *bona fide* member nation states more often grapple with the choice of foregoing at least a measure of their sovereignty in deference to empowering the UN vis-à-vis its primary role of a disinterested global security chief as specified in its Charter. Of great concern, however, is the fact that the UNôs debilitating structural and functional problems have also rubbed off on the IAEA and the NPT international regulatory mechanisms under its auspices. This evidently constitutes a threat to global security. An expert observes, for instance, that ñat no time, have the major powers been willing to surrender sovereignty to the U.N., arming it with the authority of a superstateò (*U.S. News and World Report,* June 12, 1967:37).

To many states, especially the five veto-wielding nuclear-weapons permanent members of the UNôs Security Council-the United States of America, China, UK, France, and Russia -the indispensability of surrendering at least an aspect of their state sovereignty to the UN in furtherance of global common good and peace has arguably been the core problem militating against the ability of the UN to function properly. In this regard, one can verifiably assert that a substantial failure of the UN in particular and its agencies and organs such as the IAEA and the NPT could be ascribed to the excess and lawless disposition of the aforesaid ñgang of fiveò (*The Economist,* January 6, 2007). Haass (2005:63) buttresses the foregoing and observes that:

> The role of the United Nations in any world is what the major powers want the role of the United Nations to be. The United Nations is not an independent sovereign entity. When the major powers agree, the United Nations can act, and when the major powers cannot agree, the United Nations essentially has to be a bystander to history, and that is the whole concept of the Security Council. So, almost by definition, if you are talking about a world in which order is breaking down in the political-military sense, in

> the areas of health, or in the areas of trade, where protection becomes the rule, by definition this is a world in which international institutions including but not limited to the United Nations, play hardly any role.

The USô crass unilateralism in global issues of concern, for example, arguably tops the list of worries plaguing the UN today. Global security and stability, which rests much on how the UN tackles nuclear proliferation and international terrorism, remains a mirage especially in the New Millennium. The UN, however, remains the last hope for the reining in of the aforementioned binary issues whose neglect is bound to precipitate nuclear terrorism. This notion informs our attempt to discuss the contemporary IAEA and the NPT regulatory mechanisms vis-à-vis the UN and nuclear terrorism whose checking constitutes the reason behind the founding of the world body in 1945 in San Francisco, US as espoused in its Charter. Viotti and Kauppi (2009:490-491) observes that:

> The UN Charter is more than just a legal document defining roles and authority of principal organs within the United Nations Organization (UNO) in relation to its affiliated agencies within a UN ñsystemò of states. Indeed, it is also a multilateral blueprint, grounded in political theory, for the maintenance of international peace and security and for the promotion of fundamental human rights, economic and social advancement.

Chapter 1, Article 1, Section 1 of the United Nationsô Charter unequivocally states that:

> 1. The purpose of the United Nations are:
> To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of the peaceé

Thus, it constitutes a yawning display of myopia to fail to factor in the UN in issues of global import, more so those premised on the related theme of global peace and security.

Nothing yet constitutes a more challenging security threat to the contemporary globe than nuclear terrorism which is made more possible by the unwholesome current trends in contemporary new terrorism, and the highly diffused nature of nuclear know-how as made possible by the globeôs nuclear proliferation which in the present era has made its summit in a nuclear renaissance. This is enhanced by the statutory limitation of both the IAEA and the NPT Mechanisms which permits only nuclear technology with civilian applications. However, nuclear proliferators have over time capitalized on this provision to veer into nuclear technology with military applications. Many global actors still defy the UN and its agencies such as the IAEA and the NPT to the discomfiture of concerned global citizens rooting for peace. Thus, in relation to the issue of global terrorism, for instance, we need to appreciate the foregoing reservations through the prism of the then UN Secretary-General, Kofi Annan, who asserted that:

> Terrorism is a global menace. It calls for a united, global response. To defeat it, all nations must take counsel together, and act in unison. That is why we have the United Nations (UN Press Release, SG/SM/7962/Rev. I, September 18, 2001).

From the foregoing it becomes sound to assert that global issues of security concern, such as nuclear terrorism in the contemporary era, are better checked with the ostensibly neutral UN as the arrowhead. This view by extension and implication entails nuclear proliferation and international terrorism whose convergence constitutes nuclear terrorism, which is yet to receive its due attention in strategic opus. This limitation is bound to precipitate nuclear terrorism if unchecked and left as a futuristic worry deserving future and not immediate attention. The evaluation of the challenge of nuclear terrorism using the prism and purview of the UNôs international regulatory mechanisms-the IAEA and the NPT-is informed principally by the fact that only the UN has the globally acceptable and accepted legitimacy and not necessarily the hard power to rein in global threats especially those bordering on

the strategic sphere. The foregoing could be assessed via the 2001 UN-sanctioned GWOT in Afghanistan and the unilateral 2003 Anglo-American usurpation of Iraqi sovereignty under the guise of fighting terror and containing WMD proliferation. Both lingering issues with yet unfolding global security implications are illustrative in relation to the UNôs raison dôetre and the danger posed to global security by the statutory limitations of the IAEA and the NPT regulatory mechanisms.

In the case of the Anglo-American invasion of Afghanistan which *ab initio* received UN mandate via a resolution and Security Council green light, the American-led coalition evidently hoodwinked the world by exceeding its mandate which was explicit enough: dislodge and bring al Qaeda terrorist organization to justice. This does not in any way mean the recolonisation of Afghanistan via the occupation of its territory expectedly by the installation of a puppet regime as the Hamid Karzai government in Kabul evidently represent. This trend is arguably, viewed by majority of Afghans as recolonialisation and thus resisted by Afghan insurgents under the banner of nationalism spear headed by the Talibans. The case of Iraq is more dangerous and costlier in all ramifications even as the its occupiers are allegedly flagrantly helping themselves to its vast oil wealth. The UN never sanctioned the Anglo-American invasion of Iraq, in 2003. This explains the instructive suicide bombing of the UN post-invasion office in Baghdad by Iraqi insurgents who evidently could not understand the UNôs dubious role of doing nothing concrete to condemn and reverse the US unilateralism.

Thus, one can conclude with a substantial degree of accuracy that only the UN can rein in deviations from norms put in place to guarantee global stability without attracting the stigma due a biased umpire or usurper. An effective and credible appraisal of the UNôs measures against nuclear terrorism can be done against the background of the supranational bodyôs measures against the binary issues of nuclear proliferation and terrorism. This

opinion is based on the verifiable assumption that nuclear terrorism is only possible when nuclear proliferation converges with terrorism ï that is when terrorists accessed nukes, nuclear materials or nuclear facilities. Thus, one can on a clear evaluation of trends related to the UN and the counter measures against nuclear terrorism aver with a measurable degree of accuracy that the UN is, at least through the IAEA and NPT mechanisms, alert to the many strategic dangers on the globeôs strategic radar especially those related to atomic control. The UN has been up and doing as related to containing nuclear proliferation and abuses via the IAEA organ of 1957 and the NPT of 1968.

The UN has also by virtue of its 1980 convention on the Physical Protection of Nuclear Material attempted to rein in nuclear proliferation especially as could benefit unauthorized entities especially the dreaded organized criminal and terrorist. In 2005, the UN came up with The 2005 Nuclear Terrorism Convention, ostensibly informed by an appreciation of the tilt of contemporary terrorism toward mega terrorism and the application of Weapons of Mass Destruction (WMDs) in the conduct of asymmetrical warfare. Furthermore, in the realm of reining in terrorism, the UN has also come up with many protocols and conventions to combat terrorism in all its ramification (Newman and Richmond, 2001; Rosenau, 1992; Roberts, 1986; Weiss, 1993; Boulden and Weiss, 2004).

Barnaby (2007) in a well-researched work, for example, outlined 12 UN anti-terrorism treaties, conventions and protocol targeted at containing and even preempting the menace of terrorism in general, and nuclear terrorism in particular. These are: The 1963 Convention on offences and Certain Other Acts Committed on Board Aircraft, (b) The 1970 Convention for the Suppression of Unlawful Seizure of Aircraft, (c) The 1971 Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation, (the Montreal Convention), (d) The 1973 Convention on the Prevention and Punishment of Games Against Internationally Protected Persons (e) The 1980 Convention on the Physical

Protection of Nuclear Material, (f) The 1988 Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation (g) The 1988 Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigators (h) The 1988 Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf (i) The 1991 Convention on the Marking of Plastic Explosives for the Purpose of Detection (j) The 1997 International Convention for the Suppression of Terrorist Bombing, (k) The 1999 International Convention for the Suppression of the Financing of Terrorism, and (l) The 2005 Nuclear Terrorism Convention.

From the foregoing, a pattern could be discerned vis-à-vis the thrust and target of the foregoing relevant conventions and protocols. This could better be appreciated against the background of trends and events that held sway during the applicable year of enactment of each instrument in question. The UNôs responses could thus be situated in time and event with a measurable level of accuracy. The evolving nature of terrorism especially in relation to tactics adopted by dynamic terrorists informed the enactment of the various instruments deemed appropriate to combat or even preempt peculiar types of terrorism. Thus, one can observe that the first three instruments of 1963, 1970 and 1971, for example, targeted aerial-related terrorism exclusively for obvious reasons. In the 1960s and 1970s especially aviation-related terrorism anchored mainly on the hijacking of aircraft was the vogue; hence the UNôs response to that version of terrorism. The 1973 Convention factored in the fact that terrorists had then come to breach diplomatic protocols by seizing diplomats and related persons with immunity and internationally recognized protection status. This convention ostensibly anticipated the 1979 Iranian terrorist seizure of American diplomats in Teheran, and in recent times the December 2011 breaching of the premises of the UK embassy in Teheran, Iran, also by Iranian fundamentalists as in 1979.

The convention of 1980 gives out the UNôs foresighted appreciation of two worrisome factors in evolving terrorism. The snowballing sophistication shown by the evolving terrorism, and the emerging, nuclear renaissance that was fast increasing the globeôs available nuclear materials and weapons. The three conventions of 1988 on airport safety, maritime safety and continental shelf safety were informed by incident of terrorism targeting the aforesaid platforms. The conventions of 1991, 1997 and 1999 relating respectively to plastic explosives, bombing and terrorist financing were also informed by verifiable incidents. The 1999 convention, for example was informed by the belief that Al Qaedaôs coordinated 1998 bombing of the US embassies in Nairobi, Kenya and Dar es Salaam, Tanzania was successful mainly because its leader, Osama bin Laden, has a deep pocket. The assumption was anchored on the verifiable fact that without financing, terrorism, especially the sophisticated new terrorism, cannot be executed. That convention anticipated the now legendary 9/11 terrorist attack on US homeland in 2001.

The 2005 convention represents the UNôs appreciation of the fact that nuclear terrorism is no longer a futuristic worry due a place in any opus of science fiction. This convention constitutes a departure from, and an extension of the related 1980 Convention on the Physical Protection of Nuclear Material. The 1980 Convention ñcriminalizes the unlawful possession, use, transfer, etc, of nuclear material, the theft of nuclear material and threats to use nuclear material to cause death or serious injury to any person or substantial property damage.ò The 2005 Convention ñcriminalizes the possession, use, or threat of use of radioactive devices by non-state actors, their accomplices, and organizers ówith the intent to cause death or serious bodily injuryô or environmental or property damage; any attacks on nuclear facilities that could risk the release of radioactive material are classified as punishable offences.ò

From the foregoing one can discern the UNôs appreciation of the challenge of nuclear terrorism. The 1980 Convention laid emphasis on the acquisition of nuclear materials while the 2005 Convention laid emphasis on all facets of nuclear terrorism. This disparity could be situated on the appreciation of the snowballing sophistication of terrorists over time. This convention anticipated the assassination of the ex-KGB agent, Alexander Valterovich Litvinenko, by assassins using the nuclear Polonium ï 210 radioactive substance. Experts often cite that act as the crossing of the nuclear terrorism threshold after Litvinenko died from the poisoning in a London hospital on 23 November, 2006.

In the sphere of the nuclear technological relationship with terrorism, the UN has always featured in all attempts to prevent nuclear materials and weapons from getting into unauthorized hands and custody. The emergence of the nuclear age in 1945 was greeted with awe and appreciation. This was informed by an apparent appreciation of the devastation wrought by the USô application of nuclear weapons in the conduct of warfare on the Japanese cities of Hiroshima and Nagasaki on the 6th and 9th days of August, 1945, respectively. Since 1945, the UNôs attitude toward nuclear proliferation has always demonstrated an anticipation of nuclear terrorism. This attitude is discernible in its battle for a hermetic global atomic control over time. The UN appears to project the maxim that only a denial of atomic capability of an actor stands the highest chances of denying the same actor the acquisition and application of atomic weapons in warfare. The UN has been able to attempt to put a lid on atomic proliferation that could benefit unstable and unreliable state actors as well as non-state actors. It has been able to make this attempt through the initiation and the establishment of the global nuclear watchdog, the Viena-based International Atomic Energy Agency (IAEA) in 1957; and the enactment of the 1968 Nuclear Non-Proliferation Treaty (NPT). Both instruments have the prime objective of making sure that nuclear materials and weapons are not accessed by unauthorized actors to

advance the unauthorized which in our contemporary era arguably means international terrorists and terrorism (Deutsch, 1992; Sagan, 2006; Bahgat, 2006; Broad and Sanger, 2009). However global security is still under threat a informed by the statutory loopholes in the UNôs charter as well as that of its organs-the IAEA and the NPT

The UNôs counter measures against nuclear terrorism can also be premised on the evaluation of the activities of its nuclear watchdog ï the IAEA. This is against the background of the fact that nuclear terrorism can not take place as long as terrorists are not able to access nuclear materials or weapons. Over time, the IAEAôs Charter has always entrusted it with inspections to verify that ñsafeguarded nuclear material and activities are not used for military purposesò (http://www.iaea.org/OurWork/SV/index.html). The success of the IAEA in this respect, if attained, extends naturally to denying terrorists the ability to go nuclear and use nuclear weapons to conduct nuclear terrorism. IAEA monitoring, to a relative extent, have over time compromised the ability of many actors to dabble into the military version of nuclear technological programme (Rosen, 1983; Ford, 1982). However, because of the statutory limitations of its charter which makes it a promoter of civilian technology many actors have always hoodwinded it vis-à-vis its duty of nuclear verifications.

Another UN counter measure against nuclear terrorism by extension and implication is the 1968 Nuclear Non-Proliferation Treaty (NPT). This treaty on thorough evaluation appears to have anticipated the contemporary nuclear renaissance which tends to cast nuclear science and technology in a mould accessible to all and sundry. Thus, taken as given that the non-availability of nuclear materials and weapons to terrorists remains the sure impediment to nuclear terrorism, one can fathom that the NPT role in the aforesaid dimension is largely effective though with room for improvement. The NPT has to a measurable extent placed a lid on nuclear proliferation which naturally taken to the hilt is

bound to benefit unauthorized actors especially the dreaded terrorist. Much as the world is inundated by frightening proportion of nuclear materials and weapons, suffice it to aver that it could have been worse without the arguable norminal restraints over proliferation as provided by the NPT regime since its ratification in 1970 (Campbell, et al, 2009). Kegley (2007: 515-516) observes that:

> Nearly 30 major multilateral agreements have been signed since the Second World War é Of these, the 1968 Nuclear Non-Proliferation Treaty (NPT), which prohibited the transfer of nuclear weapons and production technologies to non-nuclear weapons states stand out. This 2,400 ï word contract some say saved the world, is historically the most symbolic multilateral arms control agreement, with 189 signatory countries.

According to Allison (2004) the original NPT objective was based on the ñthree Noôs to prevent nuclear catastrophe: no ólooseô smuggled nukes for sale on the black market, no nascent nuclear states, new nuclear weapon states.ò In the contemporary era marked by understandable apprehension in the strategic sphere of global politics, no catastrophe appears to submerge the challenge of nuclear terrorism which prognostically the NPT regime appears to have anticipated even at a time when terrorism arguably had not carved a profound niche for itself on the list of issues of global concern. Thus taken as a whole, the NPT regime, if adhered to stands to deny terrorists and like-minded cronies their access to nuclear materials, weapons, and the inevitable application of nuclear devices thus acquired in the conduct of asymmetrical warfare ï terrorism. The foregoing argument is premised on the assumption that terrorists cannot carry out nuclear terrorism when they are verifiably denied nuclear capability by all means (McDermott, 1985).However, the charter of the IAEA permits access to only nuclear technology with civilian applications as that of the NPT does. The threat remains that this loose statute crates the lethal latitude abused by

signatories to proliferate and weaponise under the guise of mounting unclear programmes with only civilian application.

Thus, the UN mainly relies on four major instruments to save the world from nuclear terrorism: the 1980 convention on the Physical Protection of Nuclear Material, the 2005 Nuclear Terrorism Convention, the IAEA and the NPT regime of 1968. All instruments appear to target primarily the preemptive denial of terrorists and other unauthorized actors of nuclear capability in the same vein. By virtue of the 1980 convention terrorists are not expected to access nuclear materials and weapons. The 2005 convention goes beyond acquisition to address the issue of threat or actual use of nuclear weapons of any sort. The NPT regime of 1968 as ratified in 1970 also places a lid on nuclear technology acquisition and proliferation that could benefit unauthorized actors which in our present context are mainly terrorists especially those with international reach and impact. The IAEA by its charter is supposed to nose around to alert the world vis-à-vis unwholesome questionable nuclear activities of actors deviating from the peaceful/civilian version of nuclear technology. All foregoing instruments are evidently primed to restrict access to the military version of nuclear technology. The NPT regime goes the extra mile by not only stemming nuclear proliferation but also commits the states in the NWS paradigm to a systematic total disarmament in the nuclear category. This constitutes the *quid pro quo* of the NNWS who by that treaty foreswore not to pursue the acquisition of nuclear weapons.

In addition to the foregoing, the UN has also through many of its agencies over time organized many seminars, conferences, symposia, jamborees and colloquia to address sundry issues of global concern. Referring to the effectiveness of conferences to address issues by the UN, Rourke (1999:255) affirms that:

> Such UN-sponsored conferences as those in environment (Rio de Janeiro in 1992), human rights (Vienna, 1993), population (Cairo, 1994), womenôs issues (Beijing, 1995), social needs (Stockholm, 1995), and food (Rome, 1996) have all focused attention on global problems and have made some contribution to advancing our knowledge of and enhancing our attempts to deal seriously with a wide range of economic, social, and environmental global challenges.

The binary issues of international terrorism and nuclear proliferation whose possible convergence constitutes nuclear terrorism have received profound attention over time. In many fora, the UN has demonstrated an appreciation of and apprehension toward nuclear terrorism. The then UN Secretary-General, Kofi Annan, for example, in 1997 articulated the UNôs counter measure against nuclear terrorism and asserts that:

> Further decisive progress towards nuclear disarmament has become an expectation of the new era. I add my voice to those who have expressed strong support for the urgent need to continue with the process of nuclear disarmament and non-proliferation. The possibility of nuclear accidents, illicit trafficking in nuclear materials and the threat of nuclear terrorism all underline the need to maintain progress in this area (Annan, 1996:3).

The UN from the foregoing could be said to be at a alert vis-à-vis the issue of nuclear terrorism from its progressive tools deployed as counter nuclear-terrorism measures which targets a relative scarcity of nuclear materials and weapons. These counter measuresô allure is derivative of its preemptive nature which in strategic terms is more cost-effective. This motion when taken to the medical realm, for example, comes out transposed as the maxim to the effect that prevention is better than cure. However, looking at the unfolding trends in contemporary international terrorism that tilt toward sophistication in all of its ramifications, one is naturally compelled to subject the UNôs counter measures against nuclear terrorism to scrutiny. This is imperative for the obvious reason bordering on the fact that the UN constitutes the globeôs last hope especially as related to issues of global security concerns. This simply implies an appraisal of the UN counter measures against

nuclear terrorism vis-à-vis their capacity to deter and preempt nuclear terrorism. Thus, from the foregoing one can infer that global security is threatened by the abused statutory limitations of the UN in general and that of its organs, the IAEA and the NPT, in particular

Many strategic experts believe that nuclear terrorism is better prevented than ameliorated as it has no learning curve or easy remediation. To these experts preemption remains the most viable option which could be best achieved by denying terrorists access to nuclear facilities, materials, and weapons (Frank, 1975; Goldstein, 1980; Scheinman, 1974). The UN on an indepth evaluation of its counter measures against nuclear terrorism appears to have bought into the foregoing notions of security premised on the anticipatory preemption of nuclear terrorism. However, of note is the fact that of all the tools deployed so far by the UN as counter measures against nuclear terrorism none goes without debilitating statutory impediments in one form or the other and thus constitute a threat to global security. The civilized world, however, has no choice than to embrace the UN with all its warts especially when the problem is global security. This is also even against the background of the UNôs being incapacitated by one factor or the other as Annan (1998:A19), for example, affirmed that, ñThe reality remains that itôs the UN with all its warts or itôs the law of the jungleò. The UN belongs to the whole citizens inhabiting the globe as bona fide stakeholders. In this vein, the then UN Secretary-General, Dag Hammarskjold in reaction to the UN and its limitations opined that: ñeverything will be all right ï you know when? When people, just people stop thinking of the United Nations as a weird Picasso abstraction and see it as a drawing they made themselvesò (*New York Times*, June 27, 1955).

The UN 1980 convention on the Physical Protection of Nuclear Material reflects an appreciation of the dire prospects of nuclear terrorism that could logically be triggered by the acquisition of nuclear materials or weapons by an unauthorized actor. It constitutes a

pointer to and reminder of the fact that the attendant apprehension due the challenge of nuclear terrorism via horizontal proliferation is not new but founded. The subsequent 2005 Nuclear Terrorism Convention only highlighted the apprehension and fear vis-à-vis nuclear terrorism. This owed its emergence to the appreciation by the UN of the worrisome emergent trends associated with contemporary new terrorism premised on mass-casualty and gargantuan destruction. The UN in line with contemporary thought reasoned along the line of many strategic experts to the effect that sooner than later perpetrators of wanton destruction are wont to source commensurate weapons of trade. Thus nuclear weapons readily come to mind hences the imperative of preempting its accessing by terrorists.

However, in strategic issues as in myriad others, good intentions and legislations without effective enforcement often come to nothing in the final analysis. Nuclear proliferation since 1980, for instance, has been on the increase from vertical proliferation through horizontal proliferation, and now global nuclear renaissance. This trend arguably has made the worldôs store of nuclear materials and weapons very immense. Today, the proliferation threat list has come to include failing and failed states, rogue states, organized criminals and even committed terrorists (Robbins, 2003; CSIS, 1996). Much as the UNôs 2005 Convention on Nuclear Terrorism went further vis-à-vis, the preemption of terrorism, still discernible is the lacuna created by the fact that the UN lacks the capacity to enforce most of its mandates especially vis-à-vis the reining in of crass unilaterality demonstrated by powerful states against the UNôs position on issues of global concern and common good (Claud, 1964; Riggs and Plano, 1994; Kegley and Wittkopt, 1993; Crossette, 2000; http://www.globalpolicy.org/un-finance:html.; Page and Barabas, 2000).

The chief culprits in the compromising of the UNôs mandate especially as it borders on global security and commons arguably are the outlaw members of the UNôs Security Council. These states ï the United States, the UK, France, China, and Russia ï under the

UN are de facto laws unto themselves with their veto power as UNôs Security Council members to dictate the tilt of global trends. They collectively and individually stymie programmes deemed not in consonance with their interest over time. In this macabre trend the US prevails in involvement as illustrated for example, by its spearheaded invasion of Iraq in 2003 on the false premise of containing international terrorism on one hand and preempting Iraqôs acquisition of weapons in the WMD categories on the other. In that instance, the US unilaterally, against the UNôs stand on the issue, highlighted the UNôs weak statutory enforcement capability. The UN had insisted on continued inspections for WMDs in Iraq, and was unable to prevent or contain the US invasion in contravention of its resolutions thereto. More and Pubantz (2006:73) capture this challenge to the UN in particular and global security in general:

> President Bushôs doctrine of unilateral preemption, if maintained, challenged the 1945 commitment to collective security in the UN Charter. By acting without the UN authorization, or early UN ratification after the fact, when no imminent threat to U.S. national security seemed to exist, the Bush administration circumvented the bedrock principles on which the United Nations was founded. Other major powers on the Security Council noted the grave precedent set by its action and sought ways to constrain Washingtonôs unilateral foreign policy.

Thus, one can discern the UNôs incapacitation from the foregoing against the background of the imperative of preempting nuclear terrorism via organs, treaties, conventions, and protocols. As noble as the aforesaid conventions ï The 1980 Convention on the Physical Protection of Nuclear Material and the 2005 Nuclear Terrorism Convention ï are vis-à-vis preempting nuclear terrorism, the UNôs established incapacitation constitutes a lethal minus to the prospect of realizing any objective thereto. Nuclear proliferation owes its genesis and current vent mainly to the unwholesome activities of states in the ñnuclear clubò of five in the UNôs Security Council. They all without exceptions availed many actors of nuclear

know-how and supervised programmes at one time or the other in contravention of the statutory provision of the IAEA and NPT regulatory mechanisms (Huntington, 2002; Palmer and Perkins, 2004; Rourke, 1999; Viotti and Kauppi, 2009; Goldstein and Pevehouse, 2008).

The United States in 1953, for example, under President Dwight Eisenhower, proposed the largely accepted ñatom-for-peaceò programme which suggested the naïve template of pulling together the globeôs nuclear or atomic capabilities for only peaceful civilian applications (*The Economist*, December 12, 2009:15). That was followed on August 6, 1955 by the United Nations-sponsored International Conference on the Peaceful Uses of Atomic Energy convened in Geneva, Switzerland. All attempts at atomic control from the beginning have always been primed for actualisation by the UN in the interest of humanity but up to this day the UNôs lack of enforcement capability has always manifested itself at a dire global cost. This is understandable given and accepted that the worldôs superpowers have arguably crippled the UNôs independence and intervention capability.

The UNôs nuclear conventions, organs, treaties and protocols are flouted by both nations in the NWS and NNWS categories in pursuit of selfish objectives and organs interests deemed more germaine than global concerns and common good. Thus, these noble conventions, treaties and protocols, as noble and germane as they are to global stability, are reduced to mere hot air of no import. Of note in the contemporary era are the strategically threatening issues of North Koreaôs and Iranôs nuclear programmes. North Korea became a nuclear-weapon state courtesy of its test of nuclear weapons in 2006 and 2009 with robust technological assistance from China and Pakistan. Pakistan, a non-signatory to the NPT regime, raised the issue of nuclear proliferation a notch too far and perilous via the lethal activities of its nuclear father, A.Q. Khan, and his illicit global proliferation syndicate. In the case of Iran, the US started its nuclear programme in 1953, under the then Shah. The

Iranian Revolution of 1979 overthrew the Shah and placed Iran in understandable perpetual enmity with the US and other neo-colonial actors. Iranôs present nuclear programme, even under UN and EU sanctions, is arguably supported by two powerful UN members ï China and Russia. All these actions wee carried out on the false premise that the nuclear transfers were for civilian application as permitted by the charters of the IAEA and the NPT regulatory mechanisms.

The import of the foregoing analysis is premised on the imperative of highlighting the UNôs helplessness in the face of preponderant intrigues, hypocrisy and double-standard replete in global politics. Thus in relation to stemming nuclear terrorism via conventions, treaties and protocols primed to make nuclear materials and weapons relatively scarce, the UN suffers still the pain of its inability to enforce its resolutions. It would be absurd, for instance, to expect the UN as it is yet structured and empowered to rein in the excesses of say the US, China or Russia given that the preceding trio wield veto power in the UN by virtue of being members of the UNôs Security Council. Thus, the UN relies on ñsoft powerò which only triumphs at the whims and caprices of the Superpowers whose interests in a crass mockery of the UNôs Charter take precedence over every other issue. It is thus sound and logical to conclude that given the present structure of the UN, its organs, conventions, treaties, and protocols primed to stem the challenge of nuclear terrorism are inadequate mainly because of their unenforceability by the UN. The IAEA and NPT regulatory mechanism are suffering the same fate with the UN with their statutory limitations which actors exploit to the detriment of global security.

As noted earlier, one of the international regulatory mechanisms of the UN directly and indirectly put in place to stem the challenge of nuclear terrorism is the Vienna-based International Atomic Energy Agency. Since its establishment in 1957, the IAEA has always tried with relative success to live up to its mandate ñin serving as an international clearing-

house for nuclear materials for peaceful uses and for information on significant trends and developments in the field of atomic research and on their possible applications in such fields as agriculture, industry and medicineò (Palmer and Perkins, 2004:756). The UN was apprehensive of the strategic implications of the emergence of the nuclear age in a wartime ï World War II (1939-1945). Thus, the IAEA came at a time when it was imperative to stem nuclear proliferation and steer nuclear technology toward civilian non-military programmes and applications. Palmer and Perkins (2004:756) observes that:

> The emphasis on the use of atomic energy for constructive purposes is helping to right the imbalance that existed during the first decade of the atomic age, which, born in wartime, tended to give priority to the development of nuclear weapons.

The reasons that made the UN to establish the IAEA ï stemming nuclear proliferation and steering nuclear technology toward the civilian sphere ï are extremely more pressing especially in the contemporary era of global nuclear renaissance and megaterrorism. In relation to nuclear terrorism, the maxim remains that it has not taken place simply because terrorists are yet to benefit from our contemporary global nuclear renaissance and its near infinite plutonium economy. It is however, a staple of debate and conjecture the extent to which one can with a measurable degree of accuracy ascribe the non-realisation of nuclear terrorism to the restraining activities of the IAEA. But one thing remains irrefutable: the IAEA remains relevant vis-à-vis its raison dêtre. As an organ of the UN, the IAEA is, however, mired down in the inherent statutory incapacitations and contradictions imposed on it by its Charter, and exploited perilously by states and actors in the NWS and NNWS categories alike.

The UN from the beginning appear to be alert to the complexity of control stemming from the nature of the nuclear technological process which automatically makes it a daunting puzzle to differentiate between the civilian peaceful and military applications of nuclear

technology. Chowdhuri (n.d: 264) observes that: ñthere has always been an acute awareness of the fact that some of the materials, technologies and expertise that are relevant for the peaceful uses of nuclear energy can equally be of use for making nuclear weaponsò

The IAEAôs dual mandate ñof promoting peaceful uses of nuclear energy and ensuring that assistance provided by it or at its request or under its supervision or control was not used in such a way as to further any military purposeò remains tricky and daunting at best. The IAEAôs radar has, for instance, failed to detect many hitherto clandestine undeclared nuclear programmes in Libya, Iran, North Korea, Israel, Algeria, South Africa, Argentina, Brazil, until some of them were exposed, gave up their programmes or crossed the threshold and became nuclear powers. The IAEA statutorily still rely on information as provided by states it is statutorily bound to work with. As expected, states more often tell the intrusive IAEA less than they know vis-à-vis their own nuclear programmes as Libya, North Korea, for example, did and Iran is doing even against overwhelming and incriminating evidence. Evidence abound today to show that Iranôs nuclear programme is after all primed to a manufacture atomic bombs and not medical isotopes. In the face of this provocative impasse the restrictive statutory provisions of the IAEA charter, for example, empowers it only to report infringements and non-compliance of NPT signatories to the UNôs Security Council and General Assembly for necessary actions and nothing more. Of worry, however, is that members of the Security Council are also dubious nuclear proliferants themselves.

State signatories to the IAEA and the NPT charters have consistently and over time made a fool of the IAEA by availing it of inaccurate information, outright misleading lies, and concealing nuclear sites where uranium enrichment for nuclear weapons take place and taking it to inconsequential sites of no import. In relation to the foregoing, Iran, Libya under late Colonel Muammar Ghadafi, North Korea, and Iraq at one time or the other hoodwinked

did mislead the IAEA. Furthermore, the IAEA safeguards in furtherance to achieving its mandates are premised on three elements that could and have always been circumvented by many states running nuclear programmes. These elements are (a) material accountancy (b) on-site inspections, and (c) containment and surveillance measures.

(a) Material Accountancy ï The IAEA enforces compliance in this regard by establishing the quantities of nuclear materials present in a given state, and as the need arises compares such vis-à-vis any perceived changes over time. Experience, however, has shown that this arrangement is replete with incapacitation especially on the part of the IAEA which is by statute and procedure made a strategic one-handed basketball player. This safeguard remains open to abuses for obvious reason stemming from the discernible statutory limitations in the IAEA Charter. In the IAEA charter, for instance, reports on the nuclear materials available in a given state for IAEA safeguards are accepted as given and declared by the concerned state. *Ipso facto*, the IAEA is obliged to work on the basis of quantities declared by applicable states without question. In any given strategic context, it remains laughable to expect states with such foregoing latitude to demonstrate utmost good faith buttressed on verifiable honesty in an international system founded on cut-throat competition. No nuclear cheat should normally be expected to wittingly report and implicate itself vis-à-vis a mounted nuclear programme.

In relation to material accountancy, it is on record that Iran and North Korea after Iraq have never availed the IAEA of accurate information on the quantities of nuclear materials in their possession. There have always been discrepancies between materials declared and seen on subsequent verifications by the IAEA (*New York Times*, May 29, 1994; Karbo and Ray, 2011; Broad and Sciolino, 2006; Bahgat, 2006; Oh and Hassig, 2004). It must also be noted here that most nuclear programmes are clandestine in nature; hence most declarations made to the IAEA are extracted under duress and by coercion. It

thus constitutes no surprise that states are not forthcoming with accurate information to the IAEA whose restraining activities are deemed intrusive at best. Thus, the quantitative exactitude of materials published by the IAEA are dubious because they are informed by equally dubious declarations made by states who deem the IAEA activities inimical to their sovereignty in pursuance of the neo-colonial disposition of global superpowers whose own nuclear programmes are evidently and provocatively below the IAEA verification radar. This is largely so because the IAEA charter places the IAEA under the supervisory role of the UNôs security council composed of the global Superpower of five, *videlicet*, the US, China, Russia, France and Great Britain.

(b) On-site inspections ï This safeguard method is primed to verify the veracity of the myriad information as provided the IAEA by a given state. Sites that could be subjected to inspection by the IAEA are those declared by a given state. Here clandestine sites automatically fall outside the purview of the IAEA. Thus, it is on record that many clandestine undeclared sites were discovered in Libya, Iran, North Korea and Iraq by the IAEA. On-site inspection of sites declared by a state simply means performing a number of functions such as checking that fuel quantities at nuclear-reactor facilities match the declared quantities. It also entails taking independent measurements and samples of materials verifying the functioning and calibration of instruments, and applying surveillance and containment measures.

It is, however, on record that states hide nuclear sites, clean nuclear sites before inspections, and play all manner of cat-and-mouse to cheat on the IAEA. Iraq threw out the operatives of the IAEA now, and accepted them then through the 1990s. The IAEA ï UNSCOM (United Nations Special Commission) inspection merry-go -round in Iraq was advanced by the US as its justification for the invasion of Iraq in 2003. In the case of Iran, the IAEA has fared no better as Iran keeps on hiding sites, clearing sites and even locking

the inspectors out of sites. North Korea toed the same path before testing its first nuclear weapon in 2006 and then in 2009.

(c) Containment and surveillance measures ï Of containment and surveillance measures as safeguard method of the IAEA, Chowdhuri (n.d.: 269) asserts that:

> Containment and Surveillance measures are designed to take advantage of physical barriers such as walls or containers to restrict or control access to, or the movement of, nuclear material or equipment, and to reduce the probability of undetected movements. These measures include the use by the IAEA of seals, automatic cameras and videotape recorders, which would reveal the removal of nuclear material.

The success of the foregoing technique of the IAEA could, for example, be evaluated using the template of North Koreaôs relationship with the IAEA over time. The Iraqi case under President Saddam Hussein also falls into applicable purview in respect of highlighting the weaknesses of the containment and surveillance measures of safeguard of the IAEA. States still circumvent most attempts of the IAEA aimed at reining in nuclear cheats who use civilian applications of nuclear technology as a smokescreen to mount processes to manufacture nuclear weapons. For obvious reasons, however, what is highlighted most often are the illicit activities of states in the NNWS category. Indications are strong to the effect that the IAEA is less meddlesome with states in the NWS category who obviously, for example, are less forthcoming in fulfilling their major obligation of a gradual and systematic nuclear disarmament as specified in Article VI of the 1968 NPT regime.

North Korea, for example, put the IAEAôs containment and surveillance measures safeguard on its head with unparalleled impunity in the 1990ôs and well into the new millennium. China tacitly supports North Korea for obvious ideological and strategic reasons. North Korea has consistently benefited by Chinaôs veto power and prerogative in the UNôs Security Council. China supported North Korea in the Korea War (1950-1953),

and continues to support it arguably and fundamentally to contain the USô intrusive hegemonic disposition in the Asian-pacific sphere in general and the tense partitioned Korean Peninsula in particular. Thus, it could be concluded that North Koreaôs intransigency with the IAEA is bankrolled and strategically backed by an arguable global superpower ï China which in the global nuclear equation falls into the NWS category. On January 30, 1992 North Korea signed a safeguards agreement with the IAEA as specified in Article III of the NPT regime. In accordance with Article III of the NPT regime the IAEA set to oversee the nuclear programme of North Korea. However, in 1993 North Korea in pursuance of Article X of the same NPT regime invoked the legal principle of *rebus sic stantibus* and withdrew from the NPT regime. Article IX, paragraph 2 of the NPT regime reads ñeach state 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 its supreme interestsò. Global diplomacy, however, prevailed on North Korea to abandon its nuclear programme in exchange with sundry perks and lifting of hitherto debilitating UN sanctions against it. North Korea, however, reneged on its obligations mainly by restarting its nuclear programme. It flagrantly dismantled all the restraining tapes, cameras and other gadgets put in place in its nuclear facilities by the IAEA. In pursuance of Article XIIC of the IAEA statute which states that the ñBoard shall report the non-compliance to all members of the Security Council of the United Nationsò. The IAEA Board actually reported North Koreaôs breach of its Relationship Agreement with it. China vetoed actions arraigned against North Korea for that deviance just as the US always vetoes actions against Israel at the Security Council over time. Thus, amidst daunting sanctions and dire socio-economic conditions, North Korea tested its first nuclear weapons in 2006 and the second in 2009. These demonstrations of impunity, evidently, fall short of buttressing the confidence the international community bestows on the

effectiveness of the IAEA and NPT regulatory mechanisms to control atomic proliferation and by implication nuclear terrorism.

In the case of Iraq, the 1981 bombing of its nuclear research reactor at Osirak by Israel exposed Iraqôs meddling with the acquisition of nuclear weapons. The Gulf War (1991) ended with Iraq as a precondition made to open its military inventories for an unfettered access to the IAEA or any other agency as the UN deems worthwhile. The then Iraqi president, Saddam Hussein throughout the 1990s into the new millennium played cat ï and-mouse game with the UN-mandated inspectors in all ways ï hiding sites, restraining inspectors, tampering with their containment and surveillance measures, and throwing them out as he deemed worthwhile. The IAEA was helpless throughout that nightmarish exchange of intrigues. When the US led an invasion gang into Iraq in March 2003, no weapons in the WMD category were discovered. This suggested that Saddam Hussein had all along been bluffing with the possession of such deterring possession and the West only invaded to ameliorate its persistent energy crisis with Iraqôs vast hydrocarbon energy ï oil. Many strategic experts, however, still insinuate that Syria has Iraqôs weapons for keeps to create a strategic balance of terror with Israel in the volatile Middle East.

The international community also relies on the effectiveness of the 1968 NPT regime to check nuclear terrorism. But as a tool this NPT regime is replete with many debilitating statutory constraints even as it is primed to make civilian nuclear capability relatively scarce and military nuclear capability extinct via a verifiable gradual disarmament. Logically, terrorists can neither access nukes that are not there in the first place nor apply non-existent nuclear weapons in their conduct of asymmetrical warfare ï terrorism. The NPTôs attempt at curtailing nuclear proliferation on one hand and phasing out of nuclear weapons on the other represent foresight that appears more relevant in the

contemporary era of megaterrorism when terrorists are well entrenched among global nuclear proliferation threats.

The NPT regime in its Article II, for instance, requires all signatories in the NNWS category not to ñreceive the transferé of nuclear weapons or other nuclear explosive devices or of control of such weaponsé ; not to manufacture or otherwise acquire nuclear weaponsé and not to seek or receive any assistance in the manufacture of nuclear weaponsé ò In a seeming *quid pro quo*, the treaty also requires those states in the NWS category to scale down their nuclear stockpiles with a view to an eventual total but phased nuclear disarmament (Perkovich, et al, 2004). However, states in both categories are all culpable in violating their obligations under the NPT regime. Thus, the globe is today witnessing a global nuclear renaissance which buttresses the ineffectiveness of the NPT regime vis-à-vis its primary objective of keeping a lid on nuclear excesses that could, among others, benefit terrorists.

Furthermore, some nations of the UN are still non-signatories to the NPT regime. Pakistan, Israel and India, all nuclear powers, are the worrisome trio in question. India acquired nuclear capability from Canada while Pakistan got its capability from China. Israel however, remains a strategic nuclear puzzle. Many states under our contemporary nuclear renaissance are having nuclear programmes touted as representing only civilian applications in conformity with the statutory requirements of the NPT regime. However, the nuclear programmes of states such as Iran and North Korea have shown that most states are after all gunning for the military applications of nuclear technology. Under the NPT watch, however, the globe today has up to ninety-two states toying with one form of nuclear technology or the other. Up to forty five states are on the list of what strategists call threshold states that means states with the know-how and capability to assemble unclear weapons at a short notice. (Dorf, 1978; Huntington, 2002).

The drafters of the 1968 NPT regime were evidently extremely hampered by trends of their time when nuclear proliferation has neither attained nuclear renaissance nor international terrorism attained its contemporary megaterrorism status. Furthermore, they never factored in the intertwined nature of the nuclear processes which makes the differentiating of the civilian and military application processes impossible or cumbersome to accomplish with accuracy. India, for instance in 1974 claimed that its nuclear test involved ñpeaceful nuclear explosivesò or PNEs ideal for earth moving. However, the contradiction in the misinforming explanation for that nuclear-weapon test was prognostically betrayed in a faux pas by the then Indiaôs Prime Minister Indira Ghandhi. In her address to the UN General Assembly on October 14, 1968, the then Prime Minister Indira Ghandi, exposed the hypocrisy of the NPT regime and asserts that:

> It is by restricting, reducing and eventually eliminating the growing nuclear menace that firm foundations of peace can be laid. The limited achievement of the Partial Test Ban Treaty has been offset by the refusal of states to halt the testing of nuclear weapons. The problems of insecurity cannot be solved by imposing arbitrary restrictions on those who do not possess nuclear weapons, without any corresponding steps to deal with the basic problem of limiting stockpiles in the hands of a few powers. How can the urge to acquire nuclear status be controlled so long as this imbalance persists? Unless the powers who possess these weapons are prepared to exercise some self-restraint, collective efforts to rid the world of the nuclear menace cannot bear fruit (UN Document A/PV, 1693).

It should, for example, be noted further that India started its nuclear programme on the oft-touted peaceful note. Ditto for Pakistan, North Korea and now Iran. Thus, if the lesson of history is any compass, the NPT regime as a tool to contain nuclear terrorism via atomic control is arguably inadequate as it has failed on the primary and pivotal score of stemming nuclear proliferation which, especially under globalization, could benefit contemporary terrorists among other weird prospective beneficiaries. What is evident is that signatories to

the NPT regime are not living up to expectations vis-à-vis the content and import of their obligations under the treaty. The UN, whose regulatory mechanism the NPT regime is, appears bereft of enforcement resolve and capacity in this context involving signatories both in the NWS and NNWS categories. Verifiable signatories in the NWS category, have availed selected members of the UN in the NNWS category of nuclear capability in contravention of the NPT regime. They have also evidently failed to verifiably pursue nuclear disarmament as stipulated in the terms of their obligations under the NPT regime. What one hears are the concerted attempts at building more sophisticated nuclear weapons.

Many states in the NNWS category are toying with the manufacture of nuclear weapons in contravention of the NPT regime which permits only peaceful non-military nuclear programmes. The inherent problem here is that in terms of nuclear technology, there is virtually no difference between the processes leading to both the civilian and military applications of nuclear technology. It is very cumbersome if not impossible to differentiate the sword from the plowshare in the nuclear processes as experience has shown.

The whole signatories to the NPT regime arguably have the NPT regime on its head; hence it should be appreciated as precarious the UNôs reliance on the regime as a buffer against nuclear terrorism. This is given the fact that the restraining capability of the NPT regime on nuclear proliferation is wanting in all parameters of evaluation. The informed fear especially in the strategic circle is that terrorists could exploit the yawning statutory gaps in the NPT regime and carry out nuclear terrorism (Potter and Tucker, 1999; Allison, 2004; Allison and Kokoshin, 2002; Garwin, 2002).

Holum (1995:8), for example, posits that:

> The NPT serves two mutually reinforcing aims-nuclear non-proliferation and disarmament-by balancing positive and negative rights and obligations. It is at once an agreement to forgo nuclear weapons; an agreement to put peaceful nuclear

> facilities under international safeguards; an undertaking to end the arms race and pursue nuclear disarmament; and an agreement to promote access to technical cooperation in the peaceful uses of nuclear energy.

But in relation to achieving its objectives the NPT, to a very reliable extent, has failed especially in the light of contemporary global nuclear renaissance. Nuclear technology since the 1968 NPT regime has become an all-comerôs game in a proliferation that has now attained what is appropriately termed a global nuclear renaissance. This trend has now widened the worrisome list of nuclear proliferation threats to include terrorists, and rogue states such as North Korea and Iran, and failing states such as Russia, Ghana, Ukraine, Pakistan and Nigeria, among others. In the light of the foregoing, many experts view the NPT regimeôs controlled maintenance technique against nuclear excesses as anachronistic. They rather insist on deproliferation which entails the removal of nuclear materials and even weapons from failing states and ensuring that no new states acquire them (McCarthy, 2000; Kristof, 2004; Abraham, 2004; Carter, 2004; Fairclough, 2004).

However, most nuclear `proliferants especially from the Global South are arguably reacting to their peculiar regional circumstances against the universal nature of the NPT regime. The NPTôs inability to stem nuclear-weapons proliferation, arguably, is betrayed by the success of the Treaty for the Prohibition of Nuclear Weapons in Latin America. Table 6.1 below shows signatories to the aforesaid treaty which includes Cuba, a non-signatory to the NPT regime. This treaty has kept nuclear weapons out of Latin America. This feat is yet to be achieved at global level as the NPT was, *ab inito* primed to achieve.

Table 6.1: Member States of the Treaty for the Prohibition of Nuclear-Weapons in Latin America

S/N	Country	Year of Signature	Year of Ratification
1	Argentina	1976	-
2	Antigua and Babuda	1983	1983
3	Bahamas, The	1967	1976
4	Barbados	1968	1969
5	Bolivia	1967	1969
6	Brazil	1967	1968
7	Chile	1967	1974
8	Colombia	1967	1972
9	Costa Rica	1967	1969
10	Dominican Republic	1967	1968
11	Ecuador	1967	1969
12	El Salvador	1967	1968
13	Grenada	1975	1975
14	Guatemala	1967	1970
15	Haiti	1967	1969
16	Honduras	1967	1968
17	Jamaica	1967	1969
18	Mexico	1967	1967
19	Nicaragua	1967	1968
20	Panama	1967	1971
21	Paraguay	1967	1979
22	Peru	1967	1969
23	Suriname	1976	1977
24	Trinidad and Tobago	1967	1975
25	Uruguay	1967	1968
26	Venezuela	1967	1970

Source: US Arms Control and Disarmament Agency, (1982) *Arms Control and Disarmament Agreements: Trends and histories of Negotiations*, Washington: US Arms Control and Disarmament Agency., and US Department of State.

The former defunct USSR president, Mikhail Gorbachev, in Ratnesar (2009:26), for example, highlights the NPT nuclear-control failure by asserting thus:

> Letôs be frank ï the process of nuclear disarmament had slowed down. The members of the nuclear club were not showing a good example to the other countries. They had forgotten about their obligations under the Non-Proliferation Treaty, and quite naturally all of us were concerned about that situation.

The foregoing apparently explains why the beleaguered UN has over time become creative in pursuit of atomic control. The UN also relies on conferences, seminars and workshops to enlighten the world vis-à-vis the reality and imperative of containing nuclear terrorism especially in our contemporary era of megaterrorism and global nuclear renaissance. The UNôs attempt at publicizing perilous issues afflicting humanity has to a very large extent at least brought such issues to the front burner. The issues of international terrorism and nuclear terrorism have always featured as issues of urgent strategic concern. In a related vein the UN has also highlighted the urgency due the preemption of nuclear terrorism against the background of our snowballing megaterrorism and nuclear proliferation that has in a global nuclear renaissance bequeathed humanity a thriving global plutonium economy of great strategic concern. The issue of climate change and global warming are very topical today largely owing to the UN-sponsored conferences to treat them among other myriad global issues of concern. However, the UN yet lacks the enforcement capability to actualize most of the fallout of its publicity and enlightenment conferences and others like it. This is largely informed by the statutory limitations in its charter.

The UN, since its founding in 1945, could be empirically vis-à-vis success or failure evaluated using a hypothetical template of a world without the UN. The UN was founded mainly, according to the Preamble to its Charter ñé to save succeeding generations from

the scourge of waré ò The UN Charter, however, took cognizance of the sovereignty of its member states with a disclaimer that allows the UNôs intervention as it relates to matters involving international peace and security. The foregoing issues are amply enunciated in the UN Charterôs Article 2, Sections 1 and 7, and Chapter vii. The General Assembly by virtue of Chapter iv enjoys a broad authority over issues of global importance such as global peace and security, which though according to Chapter V is the primary responsibility of the veto-wielding Security Council. Chapter V-VIII of the UNôs Charter outlines a global plan for dealing with international peace and security.

From the foregoing, it is pertinent that the UN anticipated nuclear terrorism which by every definition constitutes a threat to global peace and security. This is buttressed by the UNôs relentless fight against nuclear proliferation and international terrorism whose convergence constitutes nuclear terrorism. However, it must be noted here that the UNôs tools to check nuclear terrorism on appraisal are found wanting on all scales of evaluation. This does not, of course, mean that all security challenges plaguing the globe could be explained solely in the light of the UNôs limitations (Wesley, 1997). However, the UN has problems most of which are debilitating to the extent of hampering its effective functioning vis-à-vis its raison dôetre ï fostering global peace and security. Thus the then UN Secretary-General, Kofi Annan, for example, was of the informed view that by virtue of its Charter, the UN has ñbeen asked to do too much with too littleò (*New York Times*, January 6, 1995;A3).

Thus, the present structure of the UN calls for a radical restructuring that could abolish the almost sacrosanct status of the members of the veto-wielding Security Council. This would make the UN more democratic and rein in the penchance for impunity as is immensely demonstrated by members of the UNôs Security Council in global politics. A democratized UN would function better in checking threats to global peace and stability,

given that most issues challenging global stability such as international terrorism and nuclear proliferation are arguably mostly informed by the unwholesome arrogant activities of the Superpower members of the UNôs Security Council. Thus, for the UN to effectively counter the contemporary challenges to global peace and security its radical restructuring is imperative. This restructuring is bound to affect by liberation its extant tools and organs such as the IAEA and the NPT by achieving its set indispensable objectives.

In relation to the IAEA, for instance, a restructured UN is bound to restructure the IAEA by availing it of the teeth it lacks in its present form. It should be recalled that the IAEAôs supervisory role in the issue of global nuclear acquisition and application has many statutory limitations that are consistently exploited by nuclear cheats. That simply means it is imperative that the IAEA Charter and modus operandi be reviewed in the light of daunting contemporary trends. Ditto the NPT regime which assumes that states can honestly restrict themselves to the civilian applications of the nuclear processes. The NPT regime also needs to be reviewed in the light of contemporary trends that have apart from challenging global stability also exposed the misplaced puerile assumptions and contradictions in the regime.

The NPT regime, for example, recognizes the states in the NWS and NNWS categories in relation to their rights and obligations. It constitutes a tall order to expect states in the NNWS category to forego nuclear weapons as specified by the NPT regime while states in the NWS retain the same for intimidation and blackmail. Furthermore, states in the NNWS cannot forego nuclear weapons while those in the NWS category stockpile more of its dangerous and improved versions in contravention of their obligation under the NPT regime. Perhaps Homerôs observation in *Odyssey* (ca. 70 B.C) that ñthe blade itself incites to violenceò hold true (Rourke, 1999:380). Thus, as long as the tenets of the NPT regime remain discriminatory vis-à-vis who should arm and who should remain vulnerable,

nuclear proliferation and by extension nuclear terrorism remains a potent global threat of terminal dimension.

There is not much positive effect the UNôs attempt could have in containing the challenge of nuclear terrorism via the IAEA and NPT regime designs when there is no strategic level playing ground based on uniformity of treatment and equity. Thus, unless the UN is restructured, it cannot be expected to fulfill its general mandate of maintaining global peace and stability or the particular mandate of containing nuclear terrorism. A reformed UN is in a better position to reform its organs and tools to achieve specific objectives. This is more pressing at a time when especially because of the status and predisposition of its Security Council members, the UN is viewed as an organ of the imperialists and neocolonialists especially in the global South which constitutes an overwhelming chunk of the UNôs impotent General Assembly and three quarter of the globeôs population (Rourke, 1999). The challenges of our contemporary era, as daunting as they are *ab initio*, can best be sorted out by a more transparent and democratic UN. This can only be achieved by restructuring the present UN and its organs of the IAEA and the NPT in the light of daunting challenges of the contemporary era. This is more urgent because under the contemporary global nuclear renaissance, Perkovich (2005:64) observes that ñClearly, new rules are needed to ensure the dual international interests of expanding nuclear-power generation while preventing weapons proliferationò. Unless this is done, actors for example, would definitely be capitalizing on the statutory limitations of the IAEA and the NPT regulatory mechanism to the detriment of global security.

CHAPTER SEVEN

SUMMARY, RECOMMENDATIONS AND CONCLUSION

7.1 Summary

The emergence of the nuclear bomb in 1945, and the attacks on Hiroshima and Nagasaki, revolutionized warfare, and engendered concern among many great powers, who immediately rushed to acquire their own, as a means of deterring nuclear annihilation; and fear among many other nations, who felt they also needed the weapon, as a means of preempting intimidation, and maintaining their national independence. This situation combined to create a global nuclear proliferation, both vertical within the great powers, and horizontal between almost all other concerned nations, later made worse by the rise of international terrorists and violent groups, who were thought to be also eyeing the bomb, a frightening prospect which has alarmed all states, above all, the United Nations. In the environment of international terrorism, attention was drawn to the threat of nuclear terrorism, with many strategic experts asserting that only a firm control capable of denying terrorists nuclear capability suffices to preempt the emergence of nuclear terrorism. Tackling nuclear terrorism through a firm international atomic control was the theme of both the April 2010 Nuclear Security Summit in Washington and its follow-up in March 2012 in Seoul, South Korea. However, despite all these efforts, the world to a large extent, still relied on two international regulatory mechanisms under the auspices of the United Nations, namely, the 1957 International Atomic Energy Agency (IAEA) and the 1968 Nuclear Non-Proliferation Treaty (NPT), as the most effective mechanisms for containing the challenge of nuclear terrorism. Existing analyses highlighted the relationship between nuclear proliferation and nuclear terrorism, while others stressed the impact of deterrence, atomic control and violent conflicts. Hence, the broad objective of this study was to

scrutinize the adequacy or otherwise of the two pivotal international regulatory mechanisms in meeting the challenge of nuclear terrorism between 1998 and 2012.

Based on the above, the specific objectives of the study were to:

1. Find out whether the statutory provisions of the International Atomic Energy Agency undermined its enforcement capacity against nuclear terrorism;
2. Investigate whether there were impediments to the capacity of the Nuclear Non-Proliferation Treaty to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology; and
3. Examine whether the statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.

The hypotheses investigated by the study, and which were tested in various sub-sections of the chapters were that:

1. The statutory provisions of the International Atomic Energy Agency (IAEA) undermined its enforcement capacity against nuclear terrorism.
2. There were impediments to the enforcement capacity of the Nuclear Non-Proliferation Treaty (NPT) to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology.
3. The statutory limitations of both the IAEA and the NPT regulatory mechanisms constitute a threat to global security.

The study adopted the ex-post-facto research design. Secondary data were many, diverse, and readily available from books, journals, newspapers, and official documents, especially those from such bodies as the United Nations Organization (UN) itself, the Nigerian Institute of International Affairs (NIIA), the International Atomic Energy Agency (IAEA), and the Nuclear Threat Initiative (NTI) based in the United States of America. The logical induction was also helpful in the analysis of the generated data.

The theories adopted and used as framework for understanding the intricacies involved in the strategic issues of international regulatory mechanisms and the challenge of nuclear terrorism especially between 1998 and 2012 were the theory of power politics and the theory of discontent and frustration. Using qualitative explanation and logical induction, data gathered were analysed and presented with a well constructed logical data framework guiding the study.

7.2 Conclusion

Many strategic experts believe and aver that in the contemporary era, the two most threatening phenomena to the march of civilization are nuclear proliferation and international terrorism. Both issues appear to be snowballing to the hilt as if in tandem. William E. Burrows and Robert Windrem as cited in *Awake* (August 22, 1999:4) assert that ñThe proliferation of superweapons is now the most dangerous specter facing this planet.ò Kissinger (2004) admits that militant Islam (terrorism) and nuclear proliferation are the most immediate and long-range and insidious threats to global survival respectively. Nuclear proliferation has attained its zenith in a global nuclear renaissance with attendant strategic implications. International terrorism has also made it to its summit of megaterrorism of mass-casualty tilt, cadred mainly by religious fundamentatlists of apocalyptic bent and nihilistic disposition. Thus, some strategic experts are expressing concern to the effect that the globeôs contemporary terrorists are bound to apply nuclear weapons in the conduct of terrorism should they access them. This prospect is more worrisome given that contemporary nuclear renaissance has evidently by implication placed nuclear capability in more stable and unstable hands alike across the globe. In the same vein, myriad global problems, especially the economic ones, are creating a massive horde of frustrated and aggressive folks especially in the poor global South with justifiable and unjustifiable grudges ï the pivotal recipe for terrorism.

Nuclear proliferation has befitted a global nuclear renaissance which places nuclear-related know-how, materials and weapons in more stable and unstable hands across the globe. The IAEA organ of 1957 and the NPT convention of 1968 under the auspices of the UN have largely failed in terms of nuclear control. More actors now possess nukes while myriad civilian nuclear programmes are merely smokescreen for the diversion of nuclear materials and fabrication of nuclear weapons. There exist policy challenges to the interpretation and enforcement of international regulatory mechanisms against nuclear proliferation. These discernible challenges provide basis for many actors to perpetuate nuclear proliferation and sundry abuses capable of compromising global security.

In the light of the foregoing, ergo, the reliance on firm atomic control as the cure-all solution to the challenge of nuclear terrorism appear misplaced partly because of the contemporary global nuclear renaissance and the fact that terrorists have since made the global nuclear proliferation list of concern especially as appreciated in the global strategic circle. The foregoing trends naturally made the scrutinisation of the relevant international regulatory mechanisms primed to contain the challenge of nuclear terrorism through atomic control imperative and indispensable. This explains our subjecting of the IAEA organ and the NPT convention to empirical scrutiny and evaluation as international regulatory mechanisms and examining whether their statutory limitations constitute a threat to global security.

On evaluation, however, the IAEA organ of the UN appears hollow especially vis-à-vis its pivotal role of global atomic control. Under the IAEA watch nuclear technology constitutes just an item on an auction block at a bazaar waiting for the highest bidder with the IAEA implicitly ringing the auction bell. Since the IAEA charter, for example, gives states with nuclear programmes the latitude of deciding when to invite the IAEA, where to take it to, and what to show it on inspection, it means nuclear cheats can always hoodwink

the IAEA, thereby incapacitating it. The cases of Libya, Iran, North Korea and Iraq suffice for illustration. Thus, vis-à-vis its primary function of atomic control, it is evident that the statutory provisions of the International Atomic Energy Agency (IAEA) undermined its enforcement capacity against nuclear proliferation and terrorism.

Furthermore, on the issue of atomic control as related to the UNôs NPT regime, much is left to be desired. The globe is witnessing on unprecedented unapproved spread of nuclear technology-civilian and military. The strategic worry here remains that most of the mounted nuclear programmes are clandestinely mounted by nuclear cheats who in contravention of the NPT provisions are actually pursuing the acquisition of nuclear weapons and not civilian nuclear applications. Many entities bent on going nuclear abuse the provision of the NPT regime which permits unhindered civilian nuclear programmes to the exclusion of the military version. But knowledge of the fundamentals of the nuclear process makes it crystal clear that there is, substantially, no major distinguishing pattern discernible in both the military and civilian versions of nuclear technology. Thus, in the contemporary global nuclear renaissance many actors pursue nuclear weapons acquisition under the guise of pursuing the civilian version well within the acceptable latitude of the charter of the NPT regime. Also in relation to atomic control, it is thus discernible that indeed, there were impediments to the capacity of the Nuclear Non-Proliferation Treaty (NPT) to act as an effective international regulatory mechanism against the unapproved spread of nuclear technology.

From the foregoing appreciation of the statutory limitations of the IAEA and the NPT the threat to global security which both pose makes a revaluation of their charters imperative. Actors bent on going nuclear on their own terms over time have exhibited a unique and an uncommon negative ingenuity by taking undue advantage of the statutory limitations of the provisions of the charters of both the IAEA and the NPT; hence the

contemporary global nuclear renaissance whose pivotal fallout has demonstrated that something threatening to global security pervades the IAEA and the NPT as global international atomic-control mechanisms. It thus becomes obvious that something in the realm of an immediate and a comprehensive remediation must be done about the IAEA and the NPT charters. In the same vein as the age-long call for the restructuring of the UN on a more democratic and equitable basis, it appears that an immediate and simultaneous review by all the relevant parties is called for to enhance the efficiency and enforcement capacities of both the International Atomic Energy Agency (IAEA), and the Nuclear Non-Proliferation Treaty (NPT) as international regulatory mechanisms in the struggle against nuclear proliferation and terrorism.

7.3 Recommendations

Having exhaustively tried to unravel the problems of the two pivotal international regulatory mechanisms in the face of the challenge of nuclear terrorism between 1998 and 2012, we are of the informed view that:

1) Since the IAEA is anachronistic and thus does not demonstrate the capacity for enforcing the use of nuclear technology for only civilian purposes, the noble idea of placing global atomic energy under its control should be reviewed and strengthened in the light of current challenges. This ultimately will put to the test the sincerity of a world committed to non-proliferation of nuclear weapons. The strengthening of the IAEA, for example, should allow it the intrusive capability of UNSCOM to conduct impromptu special inspection of undeclared sites and facilities to take materials for evaluation, and undertake environmental sampling of air, water, and soil. This, to a very large extent, would deter nuclear cheats and curtail measurably reckless proliferation of especially military-related nuclear technology that could benefit terrorists and by implication highlight the threat of nuclear terrorism. Once more, a restructured UN could stand the best chances of restructuring the IAEA and

make it harder for nuclear cheats to manipulate and exploit its evident structural, statutory and operational limitations. The realization of the foregoing is arguably bound to deny terrorists access to nuclear materials, weapons and facilities, and by implication make nuclear terrorism unrealizable. The warning by the then IAEA chief, Mohammed Elbaradei, cited in (Smiley 2004:78) to the effect that ñThe present nuclear arms-control regime is looking batteredò suffices to warn a latent world vis-à-vis the imperative of reevaluating and empowering the IAEA organ for a more effective global atomic control.

2) Global concerted efforts should be made to adhere to the provisions of the treaties limiting arms in the international system. This is with a view to limiting the verifiably increasing waves of arms proliferation. The Nuclear Non-Proliferation Treaty (NPT-1968), Strategic Arms Limitation Talks 1 (1972), Strategic Arms Limitation Talk II (1973), Strategic Arms Limitation Talks III (1997), the US-Soviet INF Treaty of 1987, the Comprehensive Nuclear Test Treaty (CTBT-1996), and other related arms-reduction treaties seem to demonstrate that the world is determined to reduce the quantity and quality of arms on the globe. The NPT of 1968, for instance, is now arguably anachronistic especially under globalization. Thus, in reference to the NPT regime of 1968, Farah and Karls (1985:772) observe that:

> The 1968 treaty has major weakness. It does not ban nations from buying or selling nuclear technology or nuclear reactors, that is devices for generating power through the release of atomic energy by a controlled chain reaction. Thus, many nations who want to develop their own weapons are able to acquire the necessary technology from nuclear nations, many of which are signers of the treaty.

The NPT is anachronistic and thus overdue for a comprehensive statutory review in the light of evolving trends evidently not factored into its initial drafting. It can no longer, especially under our global nuclear renaissance, demonstrate effective relevance vis-à-vis its raison dêtre ï countering nuclear proliferation. However, only a UN restructured on the

premise of equity and equality can accomplish such task. The urgency in the foregoing is premised on the verifiable fact that the globe is today arguably witnessing a highly deregulated arms market.

3) Having discovered that both international regulatory mechanisms of the UN-the IAEA and NPT- primed against nuclear terrorism have statutory limitations that pose a threat to global security we call for a radical remediation of the statutory limitations discovered. This is especially with reference to the 1957 IAEA organ and the 1968 NPT regime. A radical restructuring of the statutes of both the IAEA and the NPT suffices in the onerous task of global atomic control which in the contemporary era appears to be on its head. The loopholes in the charters of both the IAEA and the NPT are very evident as well as the undue advantage taken of them by global nuclear cheats and terror magnates. The statutes of both the IAEA and the NPT should thus be simultaneously reviewed in the light of unfolding global challenges that were neither ostensibly known nor foreseen when the IAEA and NPT charters were drafted in 1957 and 1968, respectively. The charters of both regulatory mechanisms are today arguably anachronistic especially in the light of unfolding trends under globalization and the irrefutable fact that as long as those two regulatory mechanisms permit civilian nuclear technology, those abuses that can give terrorists nuclear technology to actualize nuclear terrorism remain real and too horrifying to contemplate (Barry, 2009).

(4) Supranational organizations such as the UN, EU, OAS, ASEAN, AU and the Arab League should as a matter of urgency adopt a universal definition of terrorism. This is so that the ambiguities related to terrorism could be eliminated for good. They should also define nuclear proliferation without discrimination. The foregoing prescribed two steps would go a long way in erasing the policy challenges to the interpretation and enforcement of international regulatory mechanisms against the nexus of nuclear proliferation and

contemporary international terrorism. It will do this by enhancing the efforts on adopting general principles against terrorism and nuclear proliferation, thereby facilitating the easier interpretation and application of extant and related international laws. Over time, the inability of arriving at a consensual conceptualization of terrorism and even nuclear proliferation has affected the rate and early ratification of their related multilateral conventions (Obrien, 1977; Ba-On and Goldstein, 2005).

(5) Global efforts should be made to reduce the causes of conflicts, which act as the harbinger to fear, frustration, despair, anger and aggression. Conflict also creates the quest for power, as nuclear proliferators seek to leverage in the international system. Conflict also breeds terrorism as most of its practitioners, such as al Qaeda, lack the resources to go conventional. Thus, without conflict or its potential, terrorism is bound to plummet and nuclear proliferators would see less reasons to channel scarce resources into nuclear acquisition. In this vein, nuclear terrorism could still belong to the realm of science fiction and not the established looming strategic threat it yet constitutes. Conflicts make actors to feel strategically inadequate; hence embrace nuclear proliferation as North Korea under alleged American siege did, or embrace terrorism as al Qaeda does factoring in its established terminal vulnerability to, say, US established superior fire power in a conventional military exchange.

(6) Religious fanaticism should be condemned by all in the international system. Here, I advocate a global inter-religious colloquium and conference to address the issue of religious fundamentalism. This is accepted as a given that virtually all international terrorists in the contemporary era are religious fundamentalists. Experts believe that terrorists in the aforementioned mould or category are more likely to apply weapons in the WMD category in their conduct of terrorism. Al Qaeda, for instance, has consistently voiced its resolve to

go nuclear over time. Experts logically believe that this resolve is not tilted to nuclear technology with civilian but military applications.

(7) Since both terrorism and nuclear proliferation are by tradition clandestine activities, the capacity of secret intelligence agencies should be brought to bear on keeping a lid on both phenomena. Such action is bound on success to automatically preempt nuclear terrorism. Such secret agencies as the USôs CIA, Israelôs MOSSAD, USSRôs KGB, UKôs M15, and Nigeriaôs NIA, to mention but a few, have in the past demonstrated the veracity of my foregoing suggestion. The secret agencies should cooperate and through their home governments report to the UN for practical actions. This will reduce the problem associated with fighting international terrorism as the US, among others, is currently doing in the exercise of its penchance for unilaterality in combating issues of collective global concern.

(8) Global effort should be made to convene a North-South Dialogue to address the issues of global inequality, poverty, common goods, and the protracted Middle East Arab-Israeli conflict. This conflict has spawned many terrorist activities and by extension explains in part the nuclear proliferation going on in that region as many such as Iran are attempting to leverage with ostensibly nuclear-armed Israel. As the Middle East conflict festers, it would constitute a naïve strategic blunder to put nuclear terrorism beyond the belligerents who all manifest terminal grudges. In the realm of the North-South Dialogue as proposed, Africa should be contained for it habours the pivotal requisite ingredients for nuclear terrorism-fundamentalist terrorists with grudges especially against contemporary lopsided globalization, and poorly-protected nuclear facilities.

(9) Finally, to contain nuclear terrorism the international community under the auspices of a restructured more democratic UN should advance the verifiable phased eradication of nuclear technologyôs military version now, and later its civilian version as well. The present structure of the UN based on what Morgenthau (2006: 483) calls ñgovernment by

Superpowersò remains a recipe for global instability. The above suggestion is based on the premise of not creating dire global energy vacuum by an outright eradication of nuclear technology. The US logically is supposed to lead toward a global nuclear disarmament and subsequent eradication just as it led in its entrance in 1945. The NPT regime of 1968 specified that the global nuclear powers should phase out nuclear weapons over time for the emergence of a world free of nuclear weapons. Against the statutory provisions of both the IAEA and the NPT charters, however, and as the nuclear powers continue to stock innovative and improved versions of nuclear weapons, it would be naïve to expect other frightened and cowed members of the international community to embrace pacifism. The foregoing line of submission is germane and urgent because as long as nuclear weapons and technology exist, their related abuses are bound to exist. Such state of affair could possibly and perilously benefit committed fundamentalist terrorists as the globe is blest with in the contemporary era of global nuclear renaissance and megaterrorism (Barnaby, 2007; Allison, 2004).

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