CHAPTER 4: THE DEVELOPMENT OF THE NON-PROLIFERATION NORM

4.1 Introduction

In this chapter the historical evolution of normative constraints related to both horizontal and vertical nuclear weapon proliferation is examined. After the successful testing of nuclear devices by the US (from 1945), USSR (from 1949), UK (from1952), France (from1960) and the People's Republic of China (from1964)[1] the implications of further uncontrolled nuclear weapon proliferation compelled the US, USSR and UK and many NNWS to consider the implications. When France and China became nuclear weapon powers it was widely assumed that the process of horizontal proliferation of nuclear weapons was gathering an inexorable momentum. It was stated that the process would only conclude when the "Nth" country acquired nuclear weapons.[2] Since then both India and Pakistan have demonstrated their nuclear weapon capability, while Israel is also known to have a nuclear weapon capability.

In general the proliferation of nuclear weapons, especially horizontal proliferation, has been widely regarded by some as inherently dangerous in creating conditions for possible mass destruction.[3] Anticipated consequences include the fuelling of regional arms races, the increased risk of the inadvertent use of nuclear weapons, the possibility of the spread of nuclear terrorism and serious international repercussions of domestic instability. Besides the problems posed by a fragmented system of sovereign states, the non-proliferation objective must also contend with the technical and institutional difficulties of disentangling the civil and military facets of nuclear power.[4] Many of the new proliferators lack the sophisticated command, control, and safety features of the traditional NWS. This increases the likelihood of accidental or unauthorised use.[5] If nuclear weapons are ever used again, this may lead to an unprecedented human catastrophe. In the case of these countries possessing nuclear weapons the risk of use thus remains relevant.[6] Although the probability of such use may remain fairly low, the consequences thereof would have global security, political, economic and social repercussions.

Despite the influence of these above international environmental factors which enhance the threat posed to global security by nuclear weapons, a non-proliferation norm, counter balancing proliferation, has

evolved since the inception of these weapons. The development of this norm is linked to divergent policies and actions on national, bilateral and multilateral levels. The global non-proliferation framework that has evolved against nuclear weapon proliferation includes many international and regional treaties, arrangements, policies and understandings against these weapons. This framework, which includes the NPT and related efforts as well as nuclear-weapons-free zones, has sought to establish the basic norms against the acquisition of nuclear weapons.[7] The rules and norms that have developed from these national, bilateral and multilateral efforts resulted in the creation of the non-proliferation regime which has evolved from 1945 in three periods. These will be described in more detail in this chapter. The developing non-proliferation norm was especially strengthened by multilateral measures to limit technology transfer, through export control measures and national as well as multilateral policy initiatives, in order to prevent non-proliferation. The aim of this chapter is to give a short description of the events that shaped the non-proliferation regime, established the norm, and to indicate the rationale for the major components of this regime.

4.2 Norm Creation

Before the evolution of the non-proliferation norm is discussed, the focus will briefly fall on the theoretical development of a norm and the resulting linkage to policies and actions. Normative concern (in making choices) focuses on certain kinds of consequences, specifically those that involve significant dimensions of human life. Once a preferred outcome (a world with nuclear weapons at least limited to the NWS, in the case of non-proliferation goals) has been identified that outcome still remains to be realised. A programme of action, a set of rules of action, must be created that will actually produce the preferred outcome. Those rules of action or action programmes will be referred to as policies. There is a difference between making a decision intellectually and implementing it. The decision can be reached on the basis of a priority structure, but implementation requires a policy based on valid theories. Usually, policies are developed out of the theories used to project the outcome from which choices are made. The theories must be practical, within the limits of present resources and technology and not merely valid in principle.[8] The multilateral nature of policy development for the non-proliferation norm, increases the level of difficulty in obtaining international consensus, which is related to many issues.

Generally the process of developing multilateral norms involves three successive phases. In the first phase, initiatives for creating new norms are usually proposed by governments in some regional, or more limited, organisational forum. Smaller organisational forums are initially used, seeing that it is easier to obtain consensus between fewer participants, while such forums could also be used to obtain feedback so as to enhance proposals further, as well as providing an opportunity to start a lobbying effort. In most cases the issue is then debated during the second phase in the appropriate forum, such as the UN, with a view to reaching consensus on the basic elements of the subject matter. Upon reaching general consensus, the third phase consists of a plenipotentiary conference where the final text of the treaty is drafted by the intending state parties for adoption by signature and subsequent ratification in conformity with traditional practice.[9] In general the basic treaties, arrangements and measures that support the non-proliferation norm have followed the mentioned path of development.

In the case of the non-proliferation norm the knowledge regarding the consequences of the use of such a weapon greatly assisted the development of this norm, especially after the end of the Cold War. The eventual development and implementation of practical measures supporting the non-proliferation norm came about mainly because of this political commitment to the norm. The development of multilateral export control and verification measures strengthen the norm, as the multilateral policy outcome of international cooperation. The evolution of the nuclear export policies of supplier nations has been moulded by the tension between concern over the dangers of nuclear proliferation and by the desire of supplier nations to secure economic returns by exporting nuclear related products and technologies.[10] These efforts thus eventually provide not only moral barriers against the unlimited spread of nuclear weapons, but also multilateral legal, political and technical barriers.[11]

Since the launch of efforts to limit the spread of nuclear weapons, a few basic requirements for non-proliferation have developed. These requirements form the basis of the nuclear weapon non-proliferation norm, as it has been developed since the start of the nuclear age. Jon Jennekens identified these requirements as:

> "1. Concerted efforts to lessen international tensions by general disarmament, and reduction and eventual elimination of all weapons of mass destruction are required if

a lasting, universal peace is to be achieved;

2. all nations should enjoy the manifold benefits of the peaceful uses of nuclear materials, equipment and facilities;

3. national and international control measures, including binding treaties, are needed to provide the world community with meaningful assurances regarding the peaceful objectives of national and multi-national nuclear programmes; and

4 a credible and therefore effective system of international safeguards is required to verify compliance with aforementioned control measures and continued fulfilment of the obligations undertaken by sovereign governments pursuant to the provisions of formal treaties."[12]

Although these requirements have not been reached in more than fifty years since the start of the evolution of the non-proliferation norm, progress has been made, as will be illustrated in the following history of the non-proliferation regime.

4.3 Historic Development of the Non-Proliferation Regime

Three general periods during which this norm evolved can be identified. During the period from the middle forties to the beginning of the seventies, the basic foundation for the non-proliferation norm was laid by the negotiation of the NPT especially. While most of this period was steeped in intense East-West hostility, there gradually developed, on the part of the two opposing blocs, a sense of the futility of major wars in the nuclear age and the possibility of implementing measures to control nuclear weapons.[13] A second period extends from the early seventies to the early nineties when many formal treaties and organisations were negotiated resulting not only in the further enhancement of the norm but also the implementation of the safeguards, verification and export control measures. The third period (from the early nineties to the present) is marked by a significant growth in global commitment to this norm, as illustrated by the 1995 indefinite extension of the NPT, the joining of the non-proliferation

norm by some threshold states and general strengthening of measures enforcing the norm. After 1995 a lull in progress on this field has been noticed, although it still remains unlikely that successes achieved would easily be reversed.

4.3.1 The First Period (1945 - 1970): Foundation of the Norm

4.3.1.1 Deterrence as Basis for the Arms Race

The first nuclear weapon test in the USA in 1945 had profound political and strategic implications for global security. The sheer destructive power of these weapons ensured that they were destined to fulfill a special political/strategic role based on these weapons' military capability. The fear of nuclear weapons' destructive power made nuclear deterrence an integral part of nuclear strategy, as previously explained in the discussion of the realist tradition.

The chief purpose of military forces possessing nuclear weapons and the means to deliver them changed from winning wars to avoiding them by deterrence. This change in the purpose of military forces required a much closer co-operation between the political and the military leadership, seeing that the possession of nuclear weapons became a crucial diplomatic and military matter. Their use, and therefore their control and efforts to prevent their further spread, would be likely to signify an important political judgement about strategic security issues; the concept of a nuclear war fighting capability thus transcended purely military considerations.[14] In an effort to keep the deterrent value believable , the two superpowers became caught in a nuclear weapon arms race during the Cold War.

4.3.1.2 Early Non-Proliferation Efforts

The need to limit the spread of nuclear weapons was, however, realised soon after the destruction of Hiroshima and Nagasaki. As long as the US had a nuclear weapon monopoly, her strategic allies, as well as her opponents, were not interested in legitimising the status quo in an international agreement limiting the further spread of nuclear weapons. The United Nations Charter, that came into effect on 25 October 1945, establishes a key provision that accords primary responsibility for maintaining

international peace and providing collective security to the Security Council, particularly its five permanent members.[15] These five members eventually became the only five states to officially own nuclear weapons, ensuring an official monopoly on these weapons that will probably last for the foreseeable future. The first nuclear non-proliferation initiative of consequence was the 15 November 1945 declaration by the US, UK and Canada, formally known as "The Agreed Declaration of 1945".[16] This declaration proposed the setting up of a commission under the United Nations that would prepare recommendations for "...entirely eliminating the use of atomic energy for destructive purposes and promoting its widest use for industrial and humanitarian purposes."[17]

The very first United Nations General Assembly resolution in January 1949 envisaged the elimination of such weapons from national arsenals. The General Assembly also created the United Nations Atomic Energy Commission in January 1946, composed of representatives of all countries on the Security Council and Canada. Shortly after the creation of this Commission, the United States government tabled proposals before the body. Referred to as the Baruch Plan (after Bernard Baruch, its primary sponsor), the United States government offered to transfer to a supranational authority (The International Atomic Development Authority) full information about nuclear technology, full control over sources of raw materials, reactors and nuclear research.[18] The USSR rejected the plan, and suggested the total elimination of nuclear weapons, seeing that the US still had a monopoly regarding nuclear weapons.[19] Initiatives such as the Baruch Plan represented the initial failures at nuclear disarmament, but resulted in the two superpowers cautiously moving to explore the feasibility of more limited measures, over the next two decades.[20]

With the rejection of the Baruch proposals by the USSR, the US policy turned temporarily to a posture of seeking to protect its nuclear weapon monopoly by severely restricting the export of any technology. But this did not prevent the USSR and UK from obtaining a nuclear weapon capability.[21] It was still unknown whether the worldwide dissemination of nuclear technology could proceed without unleashing the destructive potential of nuclear fission. Ever since 1945, policy makers had realised that the distinction between peaceful and military use of the atom was primarily a question of politics rather than physics. Nuclear supplier policies in the fifties were increasingly marked by a strong desire to share the peaceful use of nuclear energy under generalised commitments by recipient governments to use the

supplied material, nuclear material, equipment and technology for "peaceful purposes" only.[22]

One of the significant initiatives in this regard was the 1953 "Atoms for Peace Plan" of US President Eisenhower. The idea of the Atoms for Peace approach was to assist countries in their development of civilian nuclear energy, in return for their guarantees that they would use such assistance for peaceful purposes only. Realising that the technology was developing rapidly, the US offered to share its technological lead at an accelerated pace, in return for the acceptance by other countries of conditions designed to control proliferation and the destabilising effects of such sharing. Many technical capabilities could support both purposes, some more than others. At that stage the opportunities and dangers of deliberating the transference of nuclear technology were questions of timing and degree, not absolutes. The Atoms for Peace Programme has been criticized for promoting nuclear energy in instances before it was economically justified. In addition, guarantees of "peaceful use" were sometimes too loosely written and gave rise to subsequent misunderstandings and recriminations. Nonetheless, the basic philosophy of the Atoms for Peace Programme provided the foundation for the eventual establishment of the non-proliferation regime.[23]

These early efforts in controlling nuclear technology, especially the Atoms for Peace Programme, culminated in the drafting of the statute for the International Atomic Energy Agency (IAEA).[24] This statute was approved on 23 October 1956 by the Conference on the Statute of the IAEA at the headquarters of the United Nations. It entered into force on 29 July 1957.[25] The IAEA aimed, inter alia, to replace or at least reinforce the bilateral agreements which had, until then, governed transfers of nuclear materials and equipment. One of the main tasks of the IAEA has been to "... administer safeguards designed to ensure that special fissionable and other materials, services, equipment, facilities and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose."[26] The aim of safeguards is thus to deter the diversion of nuclear material from peaceful use by the risk of early detection, and to provide assurance to the international community that countries are honouring their commitments to use nuclear materials and facilities exclusively for peaceful purposes.[27] Initially, IAEA safeguards, which consisted of voluntary agreements by member states, were conceived only for research facilities and prototype plants. They were subsequently extended to reactors of greater power and later still to reprocessing

plants and nuclear material in conversion and fuel fabrication plants.[28]

4.3.1.3 Agents for the Development of the Non-Proliferation Norm

The chief organisational vehicles for the establishment of non-proliferation and arms control related norms in the multilateral field are the United Nations and related organisations. The main players are the Committee on Disarmament, with its formal and informal working groups; the Disarmament Commission; the First Committee; and the General Assembly. Within the United Nations Secretariat there is the Centre for Disarmament and its offshoot the UN Institute for Disarmament Research (UNIDR). Legal problems may be referred to the International Law Commission.[29] These forums provide the infrastructure for continued interaction by states on issues related to nuclear security and non-proliferation, laying the foundation of many agreements in later years.

Several private groups began work related to arms control and non-proliferation issues, building on the tentative starts in these fields, by the end of the 1950s. These deliberations proved to be testing grounds for new ideas and have played a supplementary diplomacy role since then. The first to form, and probably the most significant regarding non-proliferation and arms control issues, was the Pugwash Group. Initially the group brought together Soviet and American scientists, but the meetings soon attracted government attention. The conference held in December 1960 in Moscow, was a breakthrough in opening up informal dialogues between leading figures on both sides. Pugwash Conferences are still held annually and provide a non-governmental forum for many national representatives.[30]

Despite the role of private groups as well as multilateral forums such as the UN, the basis of the non-proliferation norm was initially laid by the interaction of sovereign states, especially the so-called superpowers. While negotiations focussed on disarmament and arms control created the basis for the many treaties and agreements to follow, it should be noted that all efforts dominated by the US and USSR were carefully crafted so as not to upset the “balance of terror” deterrence between the two superpowers.[31]

4.3.1.4 Early Arms Control Efforts

During the 1950s the search for a basis for confidence building centred on tension reduction, communication and transparency related measures as well as on continued nuclear weapon testing. US president Eisenhower proposed the "Open Skies" initiative in 1955. This would have required the US and the USSR to exchange the location of their military bases and then allow overflights to check these, thereby allaying fears of a surprise attack. The USSR was not interested in this proposal but as a consequence, the USSR started to discuss verification requirements prior to reaching agreement on reduction schedules.[32] Two years after Eisenhower's Open Skies proposal the (then) Polish Minister of Foreign Affairs, Adam Rapacki, in 1957 proposed a nuclear-weapon free zone in Central Europe. According to the Rapacki Plan no nuclear weapons would be deployed or stored in Poland, Czechoslovakia, East Germany and West Germany.[33] This plan was rejected by the Western Powers, seeing that it would only be to the advantage of the USSR.[34] Although this plan failed it assisted in focussing actions on the idea of nuclear-weapon free zones as a measure to limit nuclear weapons. Later these zones became an integral part of non-proliferation efforts.

The Berlin crisis of 1961 and the Cuban missile crisis of 1962 also played a role to make the US and USSR realize "... that the time had come to attempt to reduce the tension between them and take steps toward arms control and disarmament."[35] Most of the resulting agreements were related to the prevention of nuclear war. During the Cuban missile crisis, the leaders of the US and the USSR found they could not communicate with each other without serious delay. On 20 June 1963, the "Memorandum of Understanding Between the US and the USSR Regarding the Establishment of a Direct Communications List" was signed and entered into force. The memorandum, commonly known as the "Hot Line" agreement, was designed to allow the superpowers to clarify their intentions in case of an accident or a misunderstanding, and thus to prevent an unintended war.[36]

The fear of toxic radioactive fallout that could contaminate international society was also regarded as a priority by the US and USSR leaders during this period, and led them to conclude a treaty in 1963 that prohibited testing in the atmosphere, in outer space and beneath the oceans, known as the Limited Test Ban Treaty.[37] This treaty did not ban nuclear tests but only limited the way in which the tests could

be conducted. Several other postwar arms control measures were designed to prevent the nuclearisation or militarisation of an area, on the theory that it is much easier to forestall deployment than to remove nuclear or other weapons once they are in place. It was argued that it would benefit countries to keep the arms race out of regions such as Antarctica, outer space and the seabed.[38]

The Antarctic Treaty was signed by twelve countries: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the UK, the USSR and the US. The agreement entered into force on 23 June 1961. The treaty sought both to ban arms and to promote scientific goals. The treaty states that Antarctica is to be used for peaceful purposes only, and forbids the establishment of fortifications or military bases. The treaty also prohibits the testing of any type of weapon, and in particular the explosion of nuclear weapons or the disposal of radioactive waste in Antarctica. Because the area is uninhabited and has no military installations, the signatories to the treaty were able to agree on an inspection system, which gives each party the right to visit and overfly the others' research facilities.[39]

Although it was proposed as early as 1957 that weapons be prohibited in space, the UN General Assembly resolution stating that outer space should only be used for peaceful purposes, adopted on 17 October 1963, formed the basis for a treaty on this issue. The "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies" was signed in 1967 and entered into force the same year. The Outer Space treaty establishes freedom of scientific investigation in outer space. Parties to the treaty undertook not to place in orbit around the earth any objects carrying nuclear weapons, not to install such weapons on celestial bodies, and not to station them in outer space in any manner. No military bases or installations and no weapons testing are allowed on any celestial bodies.[40]

4.3.1.5 Creation of the NPT

Reflecting shared and growing concern about the danger of nuclear proliferation, the government of Ireland recommended before the UN in 1961 that an international agreement be fashioned to halt the

spread of nuclear weapons. This suggestion eventually evolved into the forming of the NPT.[41]

The Irish resolution called on all states, particularly the NWS:

> "...to use their best endeavours to secure the conclusion of an international agreement containing provisions under which the nuclear States would undertake to refrain from relinquishing control of nuclear weapons and from transmitting the information necessary for their manufacture to states not possessing such weapons, and provisions under which States not possessing nuclear weapons would undertake not to manufacture or otherwise acquire control of such weapons."[42]

In June 1965 the United Nations Disarmament Commission adopted a resolution (DC/225), which called on the Eighteen Nation Committee on Disarmament (ENDC) to "...accord special priority to the consideration of the question of a treaty or convention to prevent the proliferation of nuclear weapons." Intense negotiations began in the ENDC in 1965. In November 1965 the General Assembly adopted resolution 2028 (XX), which stated the principles which should guide non-proliferation negotiations. One of these principles stipulated that: "The treaty should embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear powers."[43]

The negotiations to achieve the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) ended on 12 June 1968 when the UN General Assembly commended the joint US-USSR draft treaty. The NPT entered into force on 5 March 1970 after it had been ratified by the three depository states - the US, the USSR and the UK - and forty other states.[44] It was the first global treaty limiting the spread of nuclear weapons. The NPT established a set of mutually reinforcing obligations on the nuclear-and non-nuclear-weapon states. Under this treaty:

- ❑ Non-nuclear-weapon states ratifying the Treaty pledge not to manufacture or receive nuclear explosives, including "peaceful nuclear explosives".
- ❑ These states also agree to accept IAEA safeguards on all their peaceful nuclear activities, in order to verify that they meet this obligation.
- ❑ Parties to the Treaty agree not to export nuclear equipment or material to non-nuclear-

weapon states except under IAEA safeguards, and nuclear-weapon states agree not to assist non-nuclear-weapon states in obtaining nuclear weapons.

- ❑ Parties to the Treaty agree to facilitate the fullest possible sharing of nuclear technology for peaceful purposes.
- ❑ Parties to the Treaty agree to pursue negotiations in good faith to end the nuclear-arms race and to achieve nuclear disarmament under international control. (In practice, this applies to the nuclear-weapon states.)
- ❑ Parties may withdraw from the Treaty on ninety days' notice if "extraordinary events related to the subject matter of the treaty" have "jeopardized its supreme interests".[45]

This treaty manifests some weak points. According to Jozef Goldblat, "Treaties, especially those dealing with arms control, are usually achieved through mutual concessions of the negotiating parties. In the case of the NPT, however, the concessions made were clearly unbalanced: an overwhelming majority of states undertook to forgo acquisition of the most destructive weapons yet invented - forever, while tolerating possession of the same weapons by a handful of states - for an undefined period of time. In addition to retaining their nuclear arsenals, the nuclear weapon powers have kept the freedom to increase these arsenals, to assist each other in developing nuclear warheads and in testing them, to receive from any state the material necessary to pursue their nuclear weapons programs, to deploy nuclear weapons on the territories of other states, and to decide by themselves whether, and to what extent, to accept international controls over their peaceful nuclear activities. With the exception of China, the nuclear weapon states have not even excluded the possibility of using nuclear weapons, under certain circumstances, against non-nuclear weapon parties to the NPT."[46]

The NPT is thus unique in the sense that it prohibits the acquisition by most states of strategic weapons, while tolerating the retention of the same weapons by a few.[47] Despite its discriminatory nature and other weak points, the NPT remains the cornerstone of the global non-proliferation regime, with near universal membership.[48] It was clear from the outset that the NPT could not absolutely prevent proliferation, but could only discourage it by international pressure and nuclear safeguard measures. Despite arguments in favour of non-proliferation controls, it was soon realized that in the final analysis the drive for national prestige and the sense of independence that the possession of nuclear weapons

was thought to bestow, might prove irresistible to some countries.[49] Faced by overwhelming security concerns, some states could also perceive that nuclear weapons might be an essential part of their security, as has been described in Chapter 3. The US and USSR and the other nuclear-weapon states, could at most endeavour to discourage proliferation by pursuing policies that would affect the incentives and disincentives of "threshold" countries to go nuclear.[50]

It can be assumed that as long as the US and Russia maintain their capacity for mutual destruction and whereas neither can be sure of preventing the other from exercising it, then neither government will rationally and deliberately choose to fight a total war, except as an act of desperation.[51] In October 1969 the US and USSR announced that they would soon begin to negotiate limitations to their strategic arsenals,[52] thereby laying the foundation for the second period during which some of the earlier non-proliferation, but also arms control, initiatives were consolidated.

4.3.1.6 Summary

During this period the first tentative steps in establishing the multilateral measures to limit the spread of nuclear weapons were taken. This was, however, also the period during which the five nuclear weapon states created their capabilities and significant stockpiles of nuclear weapons were built up. The tone for future non-proliferation efforts was set especially by the creation of the NPT.

4.3.2 The Second Period (1971 - 1990): Strengthening of the Norm and Creation of International Compliance Measures

4.3.2.1 Growing Support for the NPT

The early 1970s was a period of relative complacency. After the NPT entered into force, the number of NPT State Parties steadily increased and ultimately included the membership of the most advanced NNWS.[53] This was done primarily by the NWS that accepted the NPT (the US, USSR and the UK),

which used their influence to persuade sometimes hesitant allies and other states to join the NPT.[54] Some NWS (France and China) and states with significant nuclear capability (such as South Africa, Brazil, India, Pakistan and Israel) refused to sign the NPT during this period.

4.3.2.2 Security Assurances

The issue of nuclear weapons is, in the first place, a matter of security, namely the security of the NWS, which view them as needed for deterrence purposes, and the NNWS, which wish to be spared from falling victim to their use.[55] Strengthening the security of NNWS which have renounced their claims to nuclear weapons is thus an intrinsic part of an effective non-proliferation regime.[56] Declarations that the NWS will come to the assistance of any NNWS threatened with nuclear weapons are known as "positive assurances".[57]

The UN Security Council in 1968 endorsed positive security assurances (of assistance to victims of nuclear aggression) given by the UK, the USA and the USSR in connection with the signing of the NPT.[58] During the Cold War the NWS only provided a nuclear umbrella to their closest allies through positive security guarantees, but states on the periphery of the spheres of influence of both superpowers, as well as certain states excluded from security arrangements, started nuclear weapon development programmes in the sixties, seventies and eighties. Countries following this route included Israel, India, Pakistan, Brazil, Argentina and also South Africa.[59]

The consolidation of the non-proliferation regime is viewed by many as possible if "negative" security assurances are provided by the nuclear weapon states. A negative security assurance is the assurance of the non-use of nuclear weapons against non-nuclear weapon states by nuclear powers. Although qualified negative security assurances are already provided by some NWS, it remains highly unlikely that these would be generally accepted by all NWS in the short to medium term.[60]

4.3.2.3 Regional Non-Proliferation Measures

The proposed negative assurances have a direct relationship to the nuclear weapon-free zone concept,

of which they constitute an essential part. Indeed, the first assurances of this type were given in connection with the Treaty of Tlatelolco, which established a nuclear weapon-free zone in South America in 1967. During this period the South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga) was also concluded in 1986. The nuclear weapon-free zone arrangements all prohibit the manufacture and acquisition by their member states of nuclear weapons and the development of such weapons on their territories, and demand safeguards that are applied by the IAEA.[61] The significance of nuclear weapon-free zones in the context of non-proliferation is mainly that they provide additional mechanisms for mutual reassurance among states of a given geographical region.[62]

4.3.2.4 Arms Limitation and Disarmament

In the long term the fate of the non-proliferation regime will also be significantly influenced by the extent to which, and manner in which, the NWS fulfil their NPT commitments to reverse the nuclear arms race. This commitment balances the nuclear abstinence of the NNWS. It is generally agreed that only by fulfilling it can the NWS demonstrate that nuclear weapons are not essential for any state's military and political security.[63] While the various mechanisms of the nuclear non-proliferation regime have success in limiting the horizontal proliferation of nuclear weapons, the vast stockpiles of nuclear weapons held by the NWS create a global security threat. Because of this the NWS parties to the NPT have agreed to pursue negotiations in good faith to cease the nuclear arms race and to commence nuclear disarmament. Several agreements have established important confidence-building measures that were implicitly, to a certain extent, effective in slowing the pace of vertical proliferation.[64]

In May 1971, the US and USSR announced that they would pursue two agreements during the first round of the Strategic Arms Limitation Talks (SALT). The first would be a treaty to limit severely the deployment of ABM systems. The second would be an accord to impose certain constraints on the further growth and development of offensive forces.[65] On 26 May 1972 the two countries signed the "US-USSR Treaty on the Limitation of Anti-Ballistic Missile Systems" (ABM Treaty) which was ratified on 3 October 1972. This treaty limits permissible ABM systems to the defence of the capital of each Party and one other site housing an ICBM. It also limits the numbers of launchers, interceptor missiles and ABM radars, as well as radar performance. A Protocol was negotiated and entered into

force on 25 May 1976, which reduced the two permissible sites for deployment of ABM systems to one site for each Party.[66] The US in December 2001 notified Russia of its intention to withdraw from the ABM Treaty to pursue missile defence against "terrorists or rogue missile attacks."[67]

The SALT between the US and USSR in the 1970s addressed the creation of the strategic weapon ceilings these states wanted to achieve.[68] The SALT I interim five-year agreement froze the number of strategic offensive missiles at 1710 for the US and 2848 for the USSR.[69] While these agreements accomplished no disarmament, they assisted in stabilising the arms race by setting ceilings on the deployment of certain critical strategic weapons. Most importantly, they contained some common understandings about some of the most basic issues in the arms race.[70] The SALT agreement have been a diplomatic success in that they tend to stabilise mutual deterrence between the two superpowers on the basis of each side's retaining a second-strike capability, but they have not served to achieve a cessation or any real limitation of the nuclear- arms race. Some critics of SALT's lack of achievement say that these negotiations have only served to replace the quantitative arms race with an even more dangerous qualitative one. Agreements at that stage were designed not to halt or reverse the arms race but rather to institutionalise and regulate it.[71]

On 16 June 1979, the US and USSR concluded a SALT II agreement that imposed even more stringent limits on certain types of weapon systems.[72] The SALT II Treaty provided for a limit of 2250 on the total number of strategic nuclear delivery vehicles to be deployed by both sides with many other limitations.[73] While SALT II was signed by the US it was never ratified because of deteriorating relations between the US and USSR. At the end of the seventies progress in arms control thus came to a standstill because of the conviction held by both the US and USSR that the other was bent on achieving military superiority.[74] While SALT II was being negotiated (1972-1979) each side nearly doubled the size of its strategic arsenal. According to Bruce Russet and Fred Chernoff, despite "...the fact that it would take only 200 one-megaton weapons to destroy promptly approximately 20 percent of the Soviet population (about 54 million people) and 70 percent of Soviet industrial capacity, the United States possessed over 3 600 such weapons (these estimates do not include fatalities from fallout nor do they include long-term human and environmental effects). It would take only about 140 of these weapons to inflict like damage upon, the United States, yet the Soviet Union had over 5 800 of them."[75]

Under Ronald Reagan's presidency SALT was changed to the Strategic Arms Reduction Talks (START) in June 1982. The change in name came as a result of the Reagan administration's desire to emphasise reductions rather than mere limitations in nuclear weapons.[76] While the SALT Treaty put ceilings on the number of weapon delivery systems, the START treaties were planned to reduce the US and USSR nuclear arsenals by about 30 to 35 percent, with greater cuts in ballistic missiles. The START Treaty would include areas not included in the SALT Treaty - i.e., the limiting of nuclear warheads, rather than simply delivery systems, and limits on the number of warheads on ballistic missiles.[77]

The purpose of START was to reduce the risk of war, especially nuclear war, by strengthening stability in three dimensions: arms race stability, political stability and first-strike or crisis stability. Arms control agreements constrained and channelled the US-USSR arms race competition in predictable directions, by capping and reducing overall force size and banning some weapons deployments. At the same time as the conclusion of and complying with strategic arms limitation agreements, the US and USSR demonstrated that they could take advantage of their shared interests in limiting their arms competition and avoiding war. The political spillover of the ABM and SALT treaties has had, on balance, clear benefits in the broader East-West relationship. Finally, START was intended to help strengthen the retaliatory deterrence stalemate, under which both the US and USSR were dissuaded from using nuclear weapons because the cost and risks associated with such use would clearly outweigh any potential gains.[78] These negotiations played a significant part in creating a co-operative spirit between opposing states, resulting in compromises for the sake of greater global security. This is also an important phase for later cooperation between the two Cold War power blocks on non-proliferation issues.

Success was reached with the elimination of certain types of delivery systems in the eighties. The "Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Intermediate-Range and Shorter-Range Missiles" (also known as the INF Treaty) represented a significant departure from previous practice. The INF Treaty, which was signed at Washington on 8 December 1987 and entered into force on 1 June 1988, eliminates the two parties' ground launched ballistic and cruise missiles with ranges between 500 and 5 500 kilometres. More than 2 500 missiles with nuclear warheads, together with their launching systems, were destroyed within the

designated three-year period. The Treaty established a Special Verification Commission that continues to carry out its functions successfully.[79]

4.3.2.4 Verification and Compliance

There is little point to any non-proliferation, and especially arms control or disarmament, agreements unless the parties comply with them. Consequently each party to a treaty wants to know that the other party or parties are keeping their side of the agreement. Verification is the means by which to find out if parties are keeping or breaking their commitments. Verification is defined as the action of demonstrating or proving to be true by means of evidence or testimony. In non-proliferation and arms control this is translated as the action of demonstrating compliance.[80]

Verification consists of a number of activities including monitoring, the gathering of data either on a systematic basis or on a "one-off" dedicated mission, information processing, when the data is then assembled in a readable form, and analysis, the stage at which the data is interpreted. Identification of the interpreted data is the point at which a decision is taken as to whether there is a violation. It is very difficult to state categorically that there has been a violation of a treaty unless there is corroborative evidence from various sources of information and so at this juncture intelligence from a range of avenues is collected and compared. If at this stage there is agreement that a violation has occurred, the reaction depends on the significance of the violation, the state of relations between the accused and accuser, the internal politics of the accusing country and the global political climate.[81] Verification and compliance became a vital part of non-proliferation, especially after the end of the Cold War.

4.3.2.5 Export Control

Shortly after the NPT came into force in 1970 a number of nuclear supplier countries began consultations on the standards that should be applied when exporting nuclear fuel and equipment to non-nuclear-weapon states. These consultations were necessary to implement the NPT requirement that exports of nuclear equipment and any special nuclear materials (i.e. enriched uranium or plutonium) produced through their use must be subject to IAEA safeguards in the recipient state. From these

consultations followed the compilation of a so-called "trigger list of special nuclear materials and items of nuclear equipment that were especially designed or prepared for the production of these materials" by the Zangger Committee. This Committee has encompassed nuclear suppliers from both the Eastern and Western power blocs since its inception.[82]

The Zangger Committee collaboration had great significance for several reasons. It was the first attempt to strictly and uniformly enforce the obligations of Article III(2) of the NPT, requiring safeguards on nuclear exports. It was a cooperative means of dissuading supplier states from allowing their industrial firms to cut corners on safeguards requirements because of competition in the sale of nuclear equipment and nuclear-fuel-cycle services. It established the principle that nuclear-supplier nations should consult and agree among themselves on procedures to regulate the international market for nuclear materials and equipment, in order to prevent nuclear proliferation.[83]

These efforts to control nuclear related exports increased in importance after the explosion of a nuclear device by India in 1974. The nuclear tests illustrated that the non-proliferation efforts pursued at that stage were not enough to prevent further horizontal proliferation especially with developing states increasingly obtaining the industrial base and technology necessary to develop nuclear weapons and their delivery systems. The explosion demonstrated that any country having unsafeguarded spent fuel, and capable of constructing a small reprocessing plant to recover plutonium, could probably develop a nuclear explosive.[84] At the same time there was mounting evidence that the pricing actions of the Organisation of Petroleum Exporting Countries (OPEC) were stimulating the developing countries to invest in nuclear power, while France and West Germany increased efforts to market their enrichment and reprocessing facilities to developing states.[85]

These triggering factors caused the major Western suppliers of nuclear materials to focus on the management of nuclear related exports.[86] Virtually all non-proliferation efforts up to then were focussed on preventing even one additional nation from joining the NWS. This definition of the proliferation policy agenda was clearly no longer adequate. The emergence of new nuclear powers or potential powers then seemed nearly inevitable. But it was recognized that it might be possible to restrict the threat posed by nuclear weapons by simultaneously adopting measures to slow the pace of

proliferation and check its scope, to minimise the adverse repercussions of the initial manifestation of proliferation, and to mitigate the local and global consequences of the nuclearisation of conflict-prone regions.[87] Together with this changing agenda to cope with the potential security threat emanating from potential new nuclear weapon capable states, the development of export controls became the primary instrument to limit the flow of technologies related to nuclear weapons and the means to deliver them.[88]

The nuclear supplier states were able to gain in 1975 an additional informal agreement for the application of certain guidelines in the conduct of international nuclear trade. The seven countries which participated in these discussions, the US, the USSR, UK, Canada, West Germany, France and Japan formed the then London Club (later to become the Nuclear Suppliers Group - NSG) with the aim of closely controlling the export and supply of nuclear technology, material and equipment. [89] Guidelines agreed to included the undertaking to exercise self-restraint in the transfer of nuclear technology and know-how, particularly in the sensitive areas of fuel enrichment, reprocessing and heavy water production. Other principles enshrined in the guidelines included: prohibitions against providing assistance for any explosions programmes, including those for "peaceful purposes"; application of IAEA safeguards on exported material, equipment and technology; and requirements for physical security measures on nuclear equipment and materials. In addition, know-how derived through use of supplied technology and equipment was to be subjected to controls, as was the subsequent generation of fissile materials and any plant or equipment "contaminated" by supplied material. Finally, no material or equipment could be transferred to a third country without the prior approval of the supplier nation, and supplied technology could not be used to duplicate facilities without these too being subjected to IAEA safeguards.[90]

The establishment of the NSG was significant in that it went beyond the confines of the NPT system and made the major suppliers primarily responsible for limiting the risks inherent in unfettered commercial nuclear competition. On the other hand, the agreement was limited in substance, allowing only for partial restrictions on national export policy at first. At that stage there was no obligation on suppliers to require NPT adherence as a precondition to the supply of nuclear materials and equipment. Nor were the recipient nations expected to submit their entire civil industry to IAEA inspection.[91] Despite these

limits to the nuclear export controls of the NSG, strong criticism was voiced by the developing states especially in several international forums, including particularly, the International Nuclear Fuel Cycle Evaluation (INFCE), and the Second NPT Review Conference in 1980.

The INFCE was undertaken during 1978-80 by 46 supplier and consumer states of nuclear materials and technology. It was an attempt to reconcile the perceived economic benefits of nuclear energy with the belatedly acknowledged propensity of such use to spread the ability to manufacture nuclear weapons.[92] The INFCE provided a period in which states could reexamine assumptions and search for ways to reconcile their different assessments of the energy and non-proliferation risks involved in various aspects of the nuclear fuel cycle. As a diplomatic instrument, INFCE helped to reestablish a basis for consensus on international cooperation regarding the international nuclear fuel cycle. The process of engaging in international technology assessment helped to heighten awareness of non-proliferation problems. In particular, a general basis was laid for more caution in introducing weapon-usable fuels.[93] This led to the initiation of efforts to seek a global consensus on nuclear trade and resulted in the creation of an IAEA Committee on Assurances of Supply (CAS). This committee tried to establish agreed rules for nuclear trade that would both enhance peaceful nuclear co-operation and strengthen nuclear non-proliferation.[94]

Several individual supplier countries have adopted nuclear export control policies that go beyond those adopted by an export control mechanism such as the Zangger Committee and the NSG. The 1978 US Nuclear Non-Proliferation Act, for example, prohibits sales of nuclear reactors and fuel to countries that have not placed all of their nuclear installations under IAEA safeguards.[95] Canada also embargoed the export of uranium even to its allies.[96]

Export controls were first used as a non-proliferation tool in the nuclear arena. Such controls are fairly successful for a number of reasons. Nuclear-related technology tends to be non-dual-use; it usually involves large equipment that can be provided by only a limited number of companies, most of which are large corporations that understand export control objectives and practices. Furthermore, nuclear power programmes, the starting point of most nascent nuclear weapon programmes, are high-cost ventures that are fairly visible. They can easily be targeted for technology denial. Once facilities are

built, they are physically identifiable not only because of their appearance, but also by their emissions.[97] Thus generally speaking, it is difficult to have a clandestine nuclear programme, although the later experience in Iraq brought about a renewed effort with regard to specifically nuclear related export control.

4.3.2.6 Terrorism

Another factor surfacing in the 1970s which impacted on the non-proliferation issue was the concern over the risk of terrorism. The international safeguards system was directed principally toward the possibility of national diversion or the abrogation of non-proliferation undertakings. Concern that nuclear materials might be stolen by individuals for profit or other motivations was not new. However, the rise of terrorism in the early 1970s led to suggestions that nuclear material or facilities might become the target for terrorist attacks. In particular, the proposition was advanced by some academics and activists that a technically competent individual or small group, relying only on information already available in the public domain, could successfully convert seized plutonium to crude atomic explosives.[98] Because of the technical sophistication necessary to actually produce a nuclear weapon it remains unlikely that any terrorist group would ever produce such a weapon.[99] The risks of terrorists illegally obtaining a nuclear weapon and or fissile material (which could be used in a radiological weapon) are recognized and necessitate government and multilateral responses.

4.3.2.7 Physical Protection of Nuclear Material

The first international effort to give protection against theft or other unauthorised diversion of nuclear material, and against sabotage of nuclear facilities, was made in 1972 under the auspices of the IAEA. The IAEA later convened a Standing Advisory Group on Physical Protection of Nuclear Material to coordinate efforts in this regard. Following several years of negotiations the Convention on the Physical Protection of Nuclear Material was opened for signature on 3 March 1980.The chief aim of this Convention is to prevent the diversion of nuclear materials for weapon purposes, although the prevention of other kinds of misuse is also contemplated, whether in the course of domestic use, storage or transport. The Convention refers to any illegal manner of appropriating nuclear material, including

illegal receipt, possession, use or alteration of materials.[100]

4.3.2.8 Delivery Systems

The threat associated with the development of nuclear weapons was further enhanced by threshold countries in particular obtaining the means to deliver these weapons over long distances. Missile and nuclear warheads are increasingly being regarded as interdependent entities. The warhead of a ballistic missile that cannot more accurately hit its target, will have to be a nuclear weapon with a larger destructive radius, and in order for the nuclear weapon to have a potent political and strategic effect, the vehicle has to be a ballistic missile, for which there is currently no effective means of prevention.[101] Resulting from these concerns regarding the threat posed by the spread of missiles and missile technology, the Missile Technology Control Regime (MTCR) an informal, non-treaty association of states that have an established policy or interest in limiting the spread of missiles and missile technology, released its export guidelines in 1987.[102]

4.3.2.9 Summary

The Cold War provided a structure of international relations in which non-proliferation was pursued largely as a subsidiary goal. The West's strategy of containment, the engagement of both superpowers in the security affairs of regional allies, and the joint fear of cataclysmic nuclear war arising from uncontrollable regional conflicts, all served to narrowly constrain the tendencies towards proliferation except where superpower security assurances were not taken as credible or sufficient, as in the case of Israel, or where the international community had little leverage, as in the case of India. In this context, the NPT entailed a political bargain not easily abrogated by developing countries with client relations to the North, and the IAEA was tasked simply with monitoring the declared activities of states. Non-proliferation outcomes in the international system thus depended heavily on the nature of the system. Specific non-proliferation policy tools were employed only at the margins, where the major powers had no sharply conflicting interests, as in South Africa (and there ineffectually).[103] This was the period during which most of the nuclear weapon threshold countries created their first nuclear weapons, including India and Pakistan.

4.3.3 The Third Period (Since 1991) Consolidation of Non-Proliferation Norm and Rules, Start of New Challenges

4.3.3.1 Changed Global Strategic Security Outlook

At the end of the Cold War, non-proliferation policy was based on two major systems. Firstly the NPT, according to which the NWS work towards nuclear disarmament and offer technical assistance in peaceful nuclear technology, in return for a pledge by the NNWS to forswear nuclear weapons. Secondly a system of unilateral and multilateral controls by supplier nations on the export of nuclear weapons-related technologies.[104] The transgressions by Iraq and the DPRK soon showed that these non-proliferation measures had some serious flaws.

The end of the Cold War brought a time of transition with a new global security situation taking precedence over and a dramatic decrease of the threat from, conflict between the two power blocs. This situation, however did not signal the end of conflict between states, as was soon illustrated by the Gulf War in 1991. The disappearance of the bipolar, superpower dominated, security system underpinned a much more unruly international order: a world in which regional instability continued sometimes based on Cold War - like ideological issues.[105] These regional conflict situations, notably ones that involved nuclear proliferation risks, increasingly came to the fore as possible areas of future wars. The regions generally identified as posing nuclear as well as missile proliferation concerns are the Middle East/North Africa, South Asia and North East Asia.[106]

These anarchic qualities of the international system have been aggravated by, inter alia, the global dispersion of weapons (including weapons of mass destruction), the availability of sophisticated and lethal military technology through licensing arrangements, and the development of indigenous arms production capabilities, all of which serve to spread military power throughout the international system.[107] The exposure of the Iraqi nuclear weapon programme highlighted shortcomings in the nuclear export control efforts of that time. Some of the major gaps identified at that stage include:

- deficiencies in safeguards;

- limited membership of international control bodies;
- limited policy consensus on essential controls;
- incomplete lists of sensitive or dual-use items;
- ineffective enforcement of international agreed controls;
- inadequate international information exchange; and
- lack or collapse of central authority.[108]

The collapse of the USSR also raised the proliferation issue to a more threatening level as the control of that country's vast arsenal, nuclear materials, and its expertise to build more weapons became less certain.[109] The proliferation concern stemming from this problem was further strengthened by the increase in incidents regarding, and potential for the smuggling of, nuclear weapons related material from the former USSR.[110] Numerous incidents since 1993 involving the potential sale of nuclear material and other radio-active sources outside state authorised channels show that these types of material are accessible, and possible markets for them exist.[111] This situation presented an attractive target for determined proliferants, including terrorist and criminal groups.[112] But not only material stemming from the former USSR posed a proliferation threat; possibly more significant and more difficult to control is the spread of knowledge and expertise associated with the vast nuclear weapon and nuclear energy complexes in the former USSR.[113]

One radically new aspect of the post-Cold War non-proliferation environment is proliferation arising from the fragmentation of a NWS. The example of the USSR, and the subsequent process of attempting to transfer all its nuclear weapons to the new Russian Federation, has alerted the international community to the fact that NWS may now constitute part of the overall proliferation threat and problem, rather than just acting as an obstacle to universalization of the regime and smoothly conducted reviews of the NPT. One consequence has been that the US - Russian - Commonwealth of Independent States

(CIS) nuclear arms control process has become an integral part of the nuclear non-proliferation regime.[114]

4.3.3.2 Disarmament Agreements Concluded

On 31 July 1991, the US and USSR successfully concluded their Strategic Arms Reduction Talks, which they had begun nine years earlier. The "Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms", subsequently known as START I, provided for a significant reduction of the two parties' nuclear stockpiles in three phases over a seven-year period. The Treaty also placed numerous restrictions on their strategic nuclear arsenals, including the number of warheads and delivery systems.[115]

The dissolution of the USSR in December 1991 complicated - but did not derail - the implementation of START I. The Russian Federation maintained full responsibility for the rights and obligations of the USSR under the Charter of the UN and continued to honour its commitments deriving from treaties concluded by the USSR. Subsequently, at Lisbon on 23 May 1992, Belarus, Kazakhstan, the Russian Federation and Ukraine - as "successor States" of the USSR in connection with START I - and the US signed the Lisbon Protocol to the Treaty. In accordance with its terms, Belarus, Kazakhstan and the Ukraine have acceded to the NPT as NNWS and have undertaken to implement the restrictions and limitations set out in START I with respect to the nuclear weapons that remain on their territories.[116]

Presidents Bush and Gorbachev also took parallel actions in the fall of 1991 to remove non-strategic nuclear weapons from deployment. These actions, taken without benefit of any formal negotiated agreement, resulted in all USSR short-range nuclear weapons being relocated to sites within Russia by June 1992, the removal to storage of all nuclear weapons from US and Russian surface ships and attack submarines, and the elimination of many of the warheads withdrawn from deployment.[117]

The US and Russia also took significant steps to reduce the combat readiness of thousands of nuclear weapons. In the wake of the August 1991 Moscow coup, the US Strategic Command, in order to encourage further de-alerting of nuclear forces by Russia, took all strategic bombers off alert and

unloaded their warheads for storage in nearby depots. The Command also took 450 Minuteman II missiles off alert by removing the launch keys from their underground control posts and installing safety pins in each missile to physically block the possibility of rocket motor ignition. Russia took similar steps, deactivating a substantial portion of its strategic land-based missile force and pledging to keep its bomber force at a low level of readiness. The two governments implemented these measures in a matter of days.[118]

A second accord, the "Treaty between the United States of America and the Union of Soviet Socialist Republics on the Further Reduction and Limitation of Strategic Offensive Arms" (known as START II), was signed on 3 January 1993. It calls for significant reductions beyond those envisaged under START I, requiring each of the parties to reduce their deployed strategic nuclear warheads to 3 000 for Russia and 3 500 for the US by the year 2007.[119] It also mandates the elimination of all multiple independently targetable re-entry vehicles (MIRVs) and heavy ICBMs and caps the number of warheads that may be deployed on submarine launched ballistic missiles (SLBMs) at 1750.[120]

Both the US and Russia have agreed to further cuts as a part of a new START III accord. President Bill Clinton and former Russian President Boris Yeltsin agreed to a START III framework at the Helsinki summit in March 1997 that would reduce each side's arsenal by a further 1000 warheads to between 2000 and 2500 warheads.[121] The negotiations on START III are continuing.

4.3.3.3 Challenges to Nuclear Safeguards

Confidence in the IAEA's safeguard system was severely shaken once the vast scope of Iraq's nuclear weapon programme became clear after the Gulf War. As a result of increased awareness of the safeguard system's shortcomings and a renewed political commitment to strengthen the non-proliferation regime, efforts to revitalise and invigorate the IAEA have been launched. These measures include reaffirming the agency's right to undertake special inspections in member states with comprehensive safeguard agreements, efforts to enhance access to member states' intelligence on suspected violations of safeguards, and requirements for advance design information on future nuclear facilities.[122]

Shortly after the exposure of Iraq's nuclear weapon programme, the second serious challenge to the non-proliferation regime occurred. By early 1992, on the basis of evidence derived from the initial on-site inspections of the Democratic Peoples' Republic of Korea's (DPRK's) nuclear facilities at Yongbyon, the IAEA began to suspect that the DPRK had earlier reprocessed plutonium from fuel rods for a nuclear weapon programme. The US, reacting to this finding, began an intensive diplomatic initiative both in the region and within the UN, to bring the DPRK back into compliance with the NPT.[123]

On 15 May 1997, the IAEA adopted a new safeguards agreement in the form of a model protocol that, after conclusion by its member states, requires states to provide additional information on nuclear and nuclear-related activities and gives the IAEA greater access to activities and locations to uncover clandestine nuclear programmes.[124] The aim of these new measures is to strengthen the capability for detecting undeclared nuclear material, facilities and activities.[125] Another important consequence of the safeguard verification system is that in many cases it helps to build confidence about the absence of nuclear weapons.[126]

4.3.3.4 Export Controls Enhanced

The members of the NSG, which first met following India's explosion of a nuclear device in 1974, began to meet again in 1990 for the first time in over 15 years.[127] One of the principal problems identified relating to export controls is the dual-use character of most of the technologies involved. This applies also to technologies relevant to nuclear weapons. Almost all sub-components of a nuclear weapon have other civilian or conventional military applications. Many of other civilian technologies can also be used as tools for the production of nuclear weapon components, or can be used as tools for the production of other, more directly usable equipment.[128] This was clearly illustrated in evaluations of the Iraqi nuclear weapon programme.

In reaction to the failures of the global nuclear export system, the NSG at the conclusion of a Plenary meeting in Poland in April 1992, adopted additional measures that extended the scope of the existing export guidelines. The NSG formally created a list of dual-use equipment, material and related

technology - subsequently known as the Dual-Use Regime (DUR) - whose transfer its members would restrict through national export legislation.[129] In addition members of the NSG agreed not to transfer any equipment, material or technology which was denied by another member because of the proliferation risk associated with such a transfer.[130]

An important contribution by the NSG to the establishment of the non-proliferation norm is the inclusion of the so-called "Non-Proliferation Principle" in its Guidelines for Nuclear Transfers. This principle states: "notwithstanding other provisions of these Guidelines, suppliers should authorise transfer of items or related technology identified in the trigger list only when they are satisfied that the transfer would not contribute to the proliferation of nuclear weapons or other nuclear devices."[131] The Non-Proliferation Principle seeks to cover the cases where adherence to the NPT or to a nuclear weapon free-zone treaty may not be itself be a guarantee that a state will consistently share the objective of the treaty, or that it will remain in compliance with its treaty obligations.[132]

Export controls on potential nuclear delivery systems have also been tightened since the end of the Cold War. The possibility of using especially ballistic missiles as delivery systems remains a proliferation concern. Intelligence sources estimated in 1998 that there are some 13 500 ballistic missiles in service in at least 27 countries.[133] The Missile Technology Control Regime (MTCR) remains the main instrument in efforts to limit the spread of these delivery systems on a global level. Since it was founded in 1987 the MTCR has been moving beyond its role as an export control regime to a true non-proliferation regime, where states coordinate policies on stopping the spread of delivery systems capable of handling weapons of mass destruction. Ensuring cooperation amongst members to control dual-use goods remains one of the major objectives of the MTCR.[134] Efforts to create confidence building measures to strengthen the norm against weapons of mass destruction capable relevant delivery systems continue.[135]

4.3.3.5 NPT Indefinitely Extended

In May 1995 the NPT Review and Extension Conference indefinitely extended the treaty. The conference had also agreed to two collateral "Decision" documents, one on "Strengthening the Review

Process for the Treaty" and the other on "Principles and Objectives for the Non-Proliferation and Disarmament".[136] The decision on "Strengthening the Review Process for the Treaty" states that NPT Review Conferences will be held every five years and that the next NPT Review Conference will take place in the year 2000. The "Principles and Objectives for the Non-Proliferation and Disarmament" decision outlines a set of principles and objectives "...in accordance with which nuclear non-proliferation, nuclear disarmament and international cooperation in peaceful uses of nuclear energy should be vigorously pursued and progress, achievements, and shortcomings evaluated periodically within the review process provided for in Article VIII (3) of the Treaty."[137]

Although some opposition to this outcome existed, especially among developing states, not one of the Treaty's then 178 parties formally objected to the extension.[138] Despite the somewhat muted opposition to this extension the basic norm against nuclear weapons was significantly strengthened by the indefinite extension of the NPT. It will be impossible to expand the number of *de jure* NWS from the five acknowledged as such by the treaty. The lack of more committed disarmament by the NWS remains the most significant point of criticism against the NPT.[139]

4.3.3.6 Nuclear Tests Bans

Meetings between the nuclear powers aimed at reaching a treaty to ban all nuclear explosive tests began in the 1960s, though they did not achieve any results until 1992. In that year the US Congress, following the example of Russia and France, announced a moratorium on tests, after having carried out tests it regarded as essential to improve the reliability and safety of its nuclear weapons.[140]

An ad hoc committee of the Conference on Disarmament in Geneva started to negotiate the text for the Comprehensive Test Ban Treaty (CTBT) in January 1992. After no consensus could be reached in the Conference on Disarmament, a revised text prepared by the committee chairman was acceptable to an overwhelming majority of delegations, and Australia tabled it at the UN General Assembly where it was adopted on 10 September 1996.[141]

Under Article 1 of the CTBT, each State Party "... undertakes not to carry out any nuclear-weapon

test explosion or any other nuclear explosion, and to prohibit and prevent, such nuclear explosion at any place under its jurisdiction or control".[142] There is no limitation on duration or place; the CTBT provisions extend the existing bans on nuclear test explosions to all environments namely underwater, in the atmosphere and in space.

4.3.3.7 International Law and Non-Proliferation

The World Court ruled in July 1996 that there is no specific law that declares nuclear weapons as illegal, although their use would be generally inconsistent with the rules of armed conflict and humanitarian laws.[143] In this non-binding, advisory opinion sought by the UN General Assembly, the court said that nuclear weapon use could be unlawful for any other reason other than self-defence for the survival of a state.[144] In terms of international law the use of nuclear weapons is restricted to very limited options for the NWS and the three states with nuclear weapons outside the ambit of the NPT (Israel, India and Pakistan).

4.3.3.8 Nuclear Proliferation Rollbacks

Despite these factors ensuring that proliferation remains a significant global security issue, the renunciation of nuclear arms by some of the potential proliferants is one of the most striking modern trends manifesting from the end of the Cold War. The list of states falling in this category includes:

- South Africa, which has acknowledged building an undeclared, and dismantled nuclear arsenal comprising six nuclear weapons;
- Brazil, which has acknowledged pursuing a nuclear weapons programme during the 1980s and had developed the essential technologies for this effort;
- Argentina, which apparently pursued a nuclear weapon programme in the late 1970s and early 1980s and had similarly developed the essential technologies;
- Romania, which apparently initiated such a programme in the 1980s under the Ceausescu Government but made considerably less technological progress;

- Algeria, which accepted IAEA full-scope safeguards and became a NPT member after the secret acquisition of a large research reactor from the People's Republic of China in the early 1980s, which was seen by some states as a first step towards development of a nuclear weapons infrastructure;
- Ukraine, Belarus and Kazakhstan, which joined the NPT as non-nuclear weapon states by returning all nuclear weapons to Russia; and [145]
- The DPRK nuclear programme was frozen under the US-DPRK Agreed Framework in 1994.[146]

The focus in Western thinking especially shifted to a more pro-active position against proliferation, not only relying on preventative measures as in the past. Instead of pursuing non-proliferation efforts by reacting (often belatedly) to a state's efforts to acquire a strategic weapons capability, more emphasis is being placed on actively opposing the phenomenon internationally. Such active opposition or measures to counter proliferation require devising national and multilateral strategies aimed at preventing the development of nuclear weapons.[147] This viewpoint informed US efforts related to non-proliferation issues especially. Specific measures could be deployed with greater efficiency to strengthen the non-proliferation norm and counter the proliferation of nuclear weapons.

4.3.3.9 Development of Non-Proliferation Measures

The strengthening of the non-proliferation regime, and developing export controls as well as physical control measures in terms of IAEA safeguards, are by no means the only unilateral or multilateral measures available to stem the further proliferation of nuclear weapons. Traditionally a whole spectrum of measures was available and used for this purpose. The end of the Cold War and the greater flexibility that resulted from this event in the UN Security Council provided some new opportunities to use a number of these measures with greater success. Some of these measures include:

- Termination of nuclear assistance, exports, and co-operation,
- complete or selective embargo on imports and exports,
- cutoff or reduction of bilateral economic assistance,

- ban on private investment and lending,
- freeze on financial assets abroad,
- refusal to refinance outstanding debt,
- termination of airline landing rights,
- expulsion of foreign students working toward technical, scientific, engineering, and similar degrees, as well as post-degree trainees,
- ban on provision of economic, technical, managerial, and other assistance,
- reassessment of alliance relationship,
- withdrawal of troops and other reductions of alliance commitments,
- termination of security ties,
- breaking of diplomatic relations and withdrawal of political support,
- embargo on arms sales or transfers, and
- expulsion from appropriate international agencies.[148]

These multilateral legal and political measures to combat nuclear proliferation have been refined and strengthened during this period. Although calls for the total elimination of nuclear weapons have been made since the first use of these weapons, the issue has also become more prominent on the global agenda since the end of the Cold War. In June 1998 a group of countries known as the New Agenda Coalition (NAC - comprising Brazil, Egypt, Ireland, Mexico, New Zealand, South Africa and Sweden) issued a joint ministerial statement urging the speedy, final and total elimination of all nuclear weapons. The statement's main points were included in the resolution adopted by the UN General Assembly in December 1998.[149] According to the NAC, central to the initiative are:

- "A refusal to accept the premise that nuclear weapons can be retained indefinitely and not used whether by accident or intentionally.
- A concern that the lack of decisiveness in proceeding to the elimination of these weapons will ultimately result in the erosion of the non-proliferation regime."[150]

The NAC regards the near universal adherence to the NPT as bringing the disarmament goal of the treaty within reach. This positive outcome is in stark contrast to the absence at that stage of any

substantive indications by the NWS that they intended to proceed with determination to achieve the goal, namely the early elimination of nuclear weapons.[151]

These efforts were further complemented by unilateral initiatives by the US, Russia, France and the UK.[152] In general the political commitment to non-proliferation grew during this period. A joint statement by the US and Russia issued on 2 September 1998, for example, highlights the importance of the issue of non-proliferation:

> "We understand that the most serious and pressing danger is the proliferation of nuclear, biological, chemical and other types of weapons of mass destruction, the technologies for their production, and their means of delivery. Given the increasing interdependence of the modern world, these threats are becoming transnational and global in scope."[153]

In response to the mounting criticism of the NWS's nuclear arsenals, the NWS pledged in a statement after the 2000 NPT Review Conference their "...unequivocal commitment to the ultimate goals of a complete elimination of nuclear weapons." Although the NWS used stronger language than in any previous joint statements, no specifics or timetables were given.[154] Despite the shortcomings of this statement, it was an important signal of the strength of the NPT that countries with widely varying views on nuclear disarmament and regional issues could find common ground.[155] Important progress was also made during the 2000 NPT Review Conference in recognising the need for greater transparency, accountability and irreversibility in nuclear disarmament.[156]

4.3.3.10 Summary

The diminishing role of the power play between the superpowers after the end of the Cold War resulted in the international community reacting differently to the choices made by leaders of military ambitious states in the developing world. The supposed will of the international community is still expressed in the spirit and body of the NPT.[157] The strength of this will has been tested by the nuclear weapon related crises experienced with Iraq and the DPRK. Although India and Pakistan are not parties to the NPT, the nuclear tests they conducted in 1998 were setbacks for the non-proliferation norm. These

tests did not directly result in any additional horizontal nuclear weapon proliferation occurring. While only one state (the DPRK) has ever pulled out of the NPT, insufficient time has passed to show that the strength of the norm will continue to grow.

4.4 Conclusion

From this historical overview of the growth of the non-proliferation norm it is possible to conclude that this norm had some effect on states' international behaviour related to the possible proliferation of nuclear weapons. The basic significance of the non-proliferation norm, as it has evolved since 1945, is that it is bad for any country to obtain such weapons.[158] This norm is supported by concrete measures that have been developed in terms of global multilateral politics, although it can only be enforced in most cases by the states' willingness to implement international non-proliferation commitments and obligations. Warnings against those who violate the norm include military strikes on nascent nuclear arsenals, and a whole spectrum of other multilateral and bilateral measures mentioned previously.[159] According to M.A Guhin: "... the overall picture of multinational approaches, technology controls, safeguards, and other protective measures resembles an unglamorous assemblage of less than 'half-loaves'; a challenge remains to devise enough so that, taken together in the broader context, they will form a sufficient structure of restraint and assurances."[160]

During the Cold War the strategic posturing of the superpowers in some cases undermined the non-proliferation norm. Despite this the norm is supported by many issues that could be regarded as measures having an effect on states, such as controlling the arms race, and reducing the symbolic value of nuclear weapons in international politics. It also exerts a prohibition effect, such as banning all nuclear explosions, as well as a reliability quotient such as more effective security guarantees, regional stability and physical protection of nuclear weapons and materials.[161]

Perspectives on the value of the norm continue to differ. Some scholars from the developing world argue that since the initiation of the Atoms for Peace proposal, nuclear powers have evolved certain

nuclear norms and beliefs. According to Poulose, "We were told that the Atoms for Peace programme was a great boon for the benefit of all mankind, the IAEA will accelerate and enlarge the contribution of atomic energy to peace, health and prosperity, the Plowshares programme will open up new vistas of economic abundance and the nuclear reactor technology
will soon solve the conventional energy shortage. Under these norms everything that the nuclear powers had been doing appeared perfectly legitimate. Only horizontal nuclear proliferation was wrong. And they had been, therefore, concentrating on a non-proliferation regime based on certain rules, norms and institutions to stop the horizontal proliferation."[162]

The issue of vertical proliferation remains problematic, influencing the effectiveness of the non-proliferation norm. This has been addressed to a certain extent by some of the later disarmament treaties and agreements concluded between the US and the USSR. However, only two of the five nuclear weapon states participate in these arrangements. In general the developing, as well as some of the developed, states agree that much more is needed to be achieved in this regard. Serious normative issues are still contentious with regard to the non-proliferation norm. It could be asked what right nuclear proliferators have to prescribe non-proliferation norms and lay down rules for the global nuclear market while their own industry is to greatly profit from export decisions.[163]

It is possible to identify some reasons why norms seem to have an influence on a state's behaviour. First, international regimes containing principles, norms, rules and procedures for a given area of foreign, economic, environmental or security policy lead to an overwhelming record of state compliance. As states comply with the rules they agreed to - maybe initially with some reluctance and concern - compliance becomes part of their habit and custom. Compliant behaviour does not result from ever repeated recalculations of pros and cons. The fact that a treaty is there, and that it has been complied with for the last five or ten years, leads states to regard compliance as normal and proper. Second, with changing habits, prevailing attitudes are influenced. Thirdly, and possibly the most important, even states' interests are affected. This is also true in the field of security. Closely related security regimes and arrangements have emerged in many regions, so that the security dilemma is mitigated if not completely overcome for some states.[164] Specifically, the interlocking web of multilateral treaties, initiatives and arrangements to address and redress proliferation problems is growing ever tighter.[165]

This is, however, not to say that some limitations of norms, especially the non-proliferation norm, do not continue to exist. Despite the clear commitment to work towards nuclear disarmament, the US and other NWS have for too long contributed to the inappropriately high political value attached to nuclear weapons. The more the NWS as well as Israel, India and Pakistan rely on nuclear weapons to solve security problems, the harder it will be to convince other states that they do not need nuclear weapons for the same reasons.[166]

The backbone of the non-proliferation norm namely export controls over goods and technology, remains difficult to implement. Such controls are costly and politically contentious. If political commitment to the development of a programme is significant they can at best only disrupt such a programme. Another danger is that their efficiency could erode over time. Scientific knowledge and technological competence have been spreading and they will continue to spread. Although controls over exports and technology transfers have had an impact, their political and economic costs, as well as their intrinsic limitations as an instrument for controlling arms, have promoted almost continuous calls from within control regimes for relaxations of controls, in exchange for pledges or positive actions among potential recipients.[167]

While the impact of the non-proliferation norm was still diluted in the period during which South Africa embarked on a nuclear weapon programme, while it was more developed but not decisive during the taking of the decision to abandon the nuclear weapon programme, it has had a more significant impact on the foreign policy of the new South African government since 1994, as explained in Chapter 5.

4.5 Notes

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