CHAPTER - I

Nuclear Weapons and South Asia
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NUCLEAR WEAPONS AND SOUTH ASIA

On the first Saturday of May and October, the bi-annual open-house day of the Trinity Site National Historic Landmark, thousands of people travel to the New Mexico desert in order to visit the site of the world’s first atomic explosion. When they get there, they discovered that there’s not much to see. A Scrubby patch of sand and weeds encircled by a chain-link fence, the Trinity Site is distinguished mainly by a stone obelisk and a few shards of the weaponised detonation tower, to some visitors, the obelisk stands in for a moment of national pride, and the end-point of a period of collaborative scientific genius. Others, however come to Trinity to mourn—or protest—the beginning of the atomic era and the arms race.

In the history of modern world the year 1932 was marked as one of the fateful ironies of the brutal 20th century. In Germany, the discoveries in Physics by James Chadwick, John Cockcroft and Ernest Walton, followed by the assumption of the Chancellorship of Germany by Hitler in 1933 and the Nazi persecution of the Jews disturbed the peace of German Universities where a large number of physicists happened to be of Jewish ancestry. In the meantime, French scientist were conducting research on nuclear fission technology, which was delicate to develop nuclear energy. Their research program ended abruptly with Hitler’s invasion in 1940. This resulted in the exodus of the scientists. About hundred Physicists found refuge in the United States between 1933-1941 and most of the French scientist fled to
Canada. The US President F. Roosevelt was impressed to see the nuclear power and decided to develop this technology as quick as possible. The United State started its first atomic bomb program in 1942 under the code name “Manhattam Project”. The remaining German scientists were busy in developing Atomic weapons program. This fear of German Atomic bomb became the driving force which eventually ushered the world into the Nuclear Age.

It was Hitler’s anti-Jewish policies that enriched the American scientific community and triggered the massive American effort which enlisted the best scientific talent gathered from all over Europe. The assembled scientist were engaged in a crusade against the odious regime of Hitler and they, therefore, pushed the very boundaries of scientific knowledge outward on a grand scale in the pursuit of a weapon of mass destruction.³

In fact it was the first Atomic bomb that marked the end of the second World War. The differential impact of the second World War on fortunes of the countries involved in the Nuclear enterprise influenced their ranking in the post war world order.

The first Nuclear test conducted by United States under the Manhattan Project at Alamagordo, New Mexico on 16th July 1945, unveiled the gigantic secret from the mysteries of nature to show that if it was used cautiously it could proved to be a blessing for mankind or else it could prove disastrous.

The USA got the lead position with its first nuclear test and proved its superiority to the world, with its first nuclear attack on Hiroshima and Nagasaki on 6th and 9th August 1945
USA remained the only super power for four years until the USSR developed a nuclear bomb in 1949. The Soviet nuclear technology was a result of passing-on of crucial data to the Soviet Union, by Klaus Fuches, a German emigre Scientist, living in Britain, who participated in the Manhattam Project as a member of the British team. He even passed on the design of the plutonium bomb tested in the New Mexico desert on July 16, 1945. Thus, the first Soviet nuclear test code-named “First Lightning” was conducted at Semiplatinsk in Kazakhstan on August 29, 1949. The second test in 1951 was based on a Soviet design.

The decision of Britain to develop nuclear weapons supports the realistic explanation of nuclear proliferation. Britain feared the possibility of US isolationism after the Second World War. The British decision to develop nuclear weapons was rooted in the fear of US isolationism in the face of the Soviet threat, and was the legacy of 1940 when Britain alone faced a great threat. There was a concern that America might lapse into a new isolationism from which it might emerge too late to benefit England.

Britain took the decision to produce a bomb in January 1947. Immediately after the World War II, the British Minister of Defense had ruled out any risk of a war for the next five years. Therefore, the British bomb was not viewed as a deterrent against the possible adversary, rather the decision emerged from an image of Britain as an imperial and self-sufficient power which should have the latest and the most powerful weapons.
The first British Atomic device was tested in the Monte Bello Island of Australia on October 3, 1952.\textsuperscript{7}

The French technocrats pushed the nuclear weapons programs along with a minimum political leadership during the Fourth Republic. The Gaullist France adopted a hedging strategy. The uncertainty about the reliability of American nuclear extended deterrence was a factor that impelled France under de Gaulle to adopt a hedging strategy by developing an independent arsenal in the early 1960’s. A similar consideration for other U.S. allies, such as Japan, is a definite possibility in the post-cold-war era. De Gaulle’s suspicion of the United States for the defense of France in the case of a Soviet attack on Western Europe is clear when he said to President Eisenhower in September 1959.

“I, de Gaulle, known that you, Eisenhower, would dare to risk the survival of your country in order to safeguard Europe: You have already proved your devotion. But what of your successors? Will they take the risk of devastating American cities so that Berlin, Brussels and Paris might remain free?”\textsuperscript{8}

Thus France had developed the nuclear device and even on UN General Assembly’s request to not to proceed with a forthcoming test, the French government stood firm in its decision to test the device. The French representative to the UN declared that in the absence of a general agreement on disarmament, France would resist any form of discrimination against her interests and would go ahead with her test program. The first French test was conducted on February 13\textsuperscript{th} 1960, nearly 1000 miles from Algiers.\textsuperscript{9}
The decision to build the Chinese bomb was driven largely by security considerations. Nie Ronngzhen pointed out that from a historical perspective, the possession of the atomic bomb helped China get rid of the heavy legacy of long being humiliated by foreign invasion and “imperialist bullying.” USA did consider using nuclear weapons against China on several occasions during and after the Korean War, the USA even deployed under armed B-29 bombers in Guam in 1951 for possible use against targets in China. The Korean War, events in Indochina, and the Taiwan Straits (Quemoy-Matsu) crises all demonstrated China's insecurity in the face of US nuclear weapons and bullying. Therefore, China has started its weapon program after the second World War. The Soviet Union assisted China in their nuclear weaponisation through their participation in uranium mining, training Chinese scientists and giving valuable nuclear equipment and machinery. In October 15, 1957, Sino-Soviet New defence Technical Accord was signed by which Chinese request for a prototype of a bomb was made. China exploded its first nuclear device in 1964 at Lop Nor.

The issue of nuclear weapons had been the central feature of the East–West competition during the 1950s. Nuclear deterrence, Arms control and disarmament were the major techniques adopted by the Unites States to contain Communism and restrain Soviet hegemonic designs throughout the early Cold war period. The issue of nuclear proliferation was a slowly developing force below the visible surface of the world politics.
Initially disarmament and arms control were the existing measures for nuclear proliferations. The abolition of existing nuclear weapons is a measure of disarmament and a check on the production of new nuclear weapons is a measure of arms control. Non proliferation is akin to disarmament in one respect and to arms control in another. It refers to:

i) Putting a stop to the nuclear arms race and

ii) Abolition of existing nuclear weapons.

Thus, non-proliferation means stopping the transfer of nuclear weapons by nuclear powers to non-nuclear powers. The term non-dissemination refers to a check on the sharing of nuclear secrets by nuclear powers with non-nuclear powers. In both cases emphasis is on the prevention of the expansion of the nuclear weapons. The expansion or spread of nuclear weapons is possible horizontally as well as vertically.

The horizontal dimension refers to the proliferation of weapons across the world; while vertical proliferation describes the progressive development of weapons of mass destruction. The dangers of horizontal proliferations are obvious these days. There are at least two dozen countries that have access to one of the technologies for enriching uranium, but apart from nuclear weapon states all but three are under safeguards and two are violating them. (Iraq and North Korea). But technical limitation will not safeguard us against the proliferation of biological and chemical weapons. Any country with chemical or biotech industry can develop these. Here, the issue of which of the
countries have pledged no-use and how this commitment is verified is of much greater concern.\textsuperscript{15}

Vertical proliferation was visible during the early 50's when the overkill capacity of the strategic weapon systems of the two super powers steadily increased. After the end of the US nuclear monopoly period, both USA and the Soviet Union were developing the second strike capability by a vigorous nuclear arms race never known in the history of the nations under the pretext of the Cold War rivalries. Then they moved on to the building up of a Mutual Assured Destruction (MAD) capacity in order to maintain the so called “delicate balance of terror”. Finally they succeeded in rationalizing the mad, run away nuclear arms race as an essential requirement of nuclear strategy to maintain the stability of the mutual deterrence. What was visible to all including, of course, the nuclear weapon states, was the uncontrolled vertical proliferation.\textsuperscript{16}

Hence the dangers of vertical proliferation are equally stark. Nuclear disarmament has progressed slowly. The reduction to less than 6,000 nuclear warheads in the US and the states of the former Soviet Union respectively, as prescribed by the START treaties, has been verified bilaterally. Nonetheless, it still allows both the US and Russia an “overkill” capacity many times over. Meanwhile, the concept of nuclear deterrence is not yet dead. Research and development programs for nuclear technologies progress unsupervised in the US, France, UK, Israel, India, Pakistan as well as China: either acknowledged nuclear weapon states or those not party to the NPT.
When it comes to the exporting countries for WMD usable technology, control mechanism, as for the importing countries are in effective. Export restrictions and effective monitoring of compliance, demanded again and again by NGOs, have been reported in the media, most noticeably after the first Gulf war in 1991 when western governments had to face the fact that the main export culprits were based in their countries. Methods to contain vertical proliferation simply lag far behind what is needed.\textsuperscript{17} Thus it is only through a two dimensional approach that a true non proliferation can be achieved. There is no end of horizontal proliferation without a stop to the vertical one. Some of the developing countries have repeatedly asked for an end to vertical proliferation in the nuclear weapon states in order to encourage horizontal non-proliferation. The argument from the nuclear powers, of course, is that vertical proliferation is needed to counter the effects of unwanted horizontal proliferation. Once this is effectively stopped, vertical proliferation would follow, they suggest.\textsuperscript{18}

A part from the vertical and horizontal proliferation, a number of new proliferation semantics have developed.

The macro-proliferation, refers to the proliferations among the states; micro-proliferation deals with individual terrorist groups terrorizing with nuclear weapons; latent and suppressed proliferation deals with nuclear options and nuclear capabilities which could be used when required; balanced proliferation is reconcile to a situation in which a limited number of countries going nuclear with out causing any imbalance; proliferation chain
deals with a mechanistic automatic action reaction phenomenon.\textsuperscript{19}

Efforts for arms control and disarmaments were made since the beginning of the Cold war. The partial test-ban treaty, concluded in 1963, was the first important step taken on the road to a comprehensive ban. Different approaches have been attempted since that time, among them, unilateral moratoriums, trilateral negotiations, multilateral deliberations, treaty amendments and nuclear-weapon-free zones.\textsuperscript{20}

The treaty on the non-proliferation of nuclear weapons signed on July 1, 1968 remains the bedrock of the post-second World War global non-proliferation regime. With 187 states parties, this Treaty is the most widely adhered to and the most successful multilateral arms control agreement in history. The successful conclusion, in 1968, of negotiations on the NPT was a landmark in the history of non-proliferation. After coming into force in 1970, its indefinite extension. The members states includes all five declared nuclear states i.e. China, France, the Russian Federation, The USA, and UK. To day, only four states remain non-parties; Cuba, India, Israel and Pakistan.\textsuperscript{21}

The NPTs main objectives are to stop the further spread of nuclear weapons, to provide security for non-nuclear weapons states which have given up the nuclear option, to encourage international co-operation in the peaceful uses of nuclear energy, and to pursue negotiations in good faith towards nuclear disarmament leading to the eventual elimination of nuclear weapons.
The NPT remains the only global legally binding instrument committing the NWS to disarm, and its indefinite extension in 1995 strengthened the global nuclear non-proliferation norm. Responding to the most significant challenge to the NPT to date i.e. the India nuclear detonations of May 1998, in contrast to the largely hypocritical statements emanating from the NWS, Canadian Foreign Minister Axworthy stressed that: nuclear non-proliferation regime is based on, and anchored in international law and norms, as well as incorporated into international mechanisms. The NPT is fundamental, but the broader regime is a complex system of multilateral and bilateral agreements, arrangements and mechanisms intended to promote and achieve a world without nuclear weapons, sooner rather than later. This was valid during the Cold War and remains valid today. At the same time, the regime is intended to provide a framework to enable the world to make effective use of nuclear capability for peaceful purposes.  

The International Atomic Energy Agency (IAEA) was set up by unanimous resolution of the United Nations in 1957 to help nation develop nuclear energy for peaceful purposes. Allied to this role is the administration safeguards arrangements. This provide assurance to the international community that individual countries are honoring their treaty commitments to use nuclear materials and facilities exclusively for peaceful purposes.  

The IAEA therefore undertakes regular inspections of civil nuclear facilities to verify the accuracy of documentation supplied to it. The agency checks inventories and undertakes sampling and analysis of materials. Safeguards are designed to
deter diversion of nuclear materials by increasing the risk of early detection. They are complemented by controls on the export of sensitive technology from countries such as UK and USA through voluntary bodies such as the Nuclear Suppliers' Group.23

Traditional safeguards are arrangements to account for and control the use of nuclear materials. This verification is a key element in the international system which ensures that uranium in particular is used only for peaceful purposes.

Parties to the NPT agree to accept technical safeguards measures applied by the IAEA. These require that operators of nuclear facilities maintain and declare detailed accounting records of all movements and transactions involving nuclear material. Over 550 facilities and several hundred other locations are subject to regular inspection, and their records and the nuclear material being audited. Inspections by the IAEA are complemented by other measures such as surveillance cameras and instrumentation.

The aim of traditional IAEA safeguards is to deter the diversion of nuclear material from peaceful use by maximizing the risk of early detection. At a broader level they provide assurance to the international community that countries are honoring their treaty commitments to use nuclear materials and facilities exclusively for peaceful purposes. In this way safeguards are a service both to the international community and to individual states, who recognize that it is in their own interest to demonstrate compliance with these commitments.
The inspections act as an alert system providing a warning of the possible diversion of nuclear material from peaceful activities. The system relies on:

- **Material Accountability** – tracking all inward and outward transfers and the flow of materials in any nuclear facility. This includes sampling and analysis of nuclear material, on-site inspections, review and verification of operating records.
- **Physical Security** – restricting access to nuclear materials at the site of use.
- **Containment and Surveillance** – use of seals, automatic cameras, and other instruments to detect unreported movement or tampering with nuclear materials, as well as spot checks on-site.

All NPT non-weapons states must accept these full-scope safeguards. In the five weapons states plus the non-NPT states (India, Pakistan, and Israel), facility-specific safeguards apply, IAEA inspectors regularly visit these facilities to verify completeness and accuracy of records.

The terms of the NPT cannot be enforced by the IAEA itself, nor can nations be forced to sign the treaty. In reality, as shown in Iraq and North Korea, safeguards can be backed up by diplomatic, political, and economic measures.²⁴

The greatest risk of nuclear weapons proliferation lies with countries which have not joined the NPT and which have significant unsafeguarded nuclear activities. India, Pakistan and...
Israel are in this category. While safeguards apply to some of their activities, others remain beyond scrutiny.

A further concern is that countries may develop various sensitive nuclear fuel cycle facilities and research reactors under full safeguards and then subsequently opt out of the NPT. Bilateral agreements such as insisted upon by Australia and Canada for sale of uranium address this by including fallback provisions, but many countries are outside the scope by these agreements. If a nuclear-capable country does leave the NPT it is likely to be reported by IAEA to the UN Security Council, just as if it were in breach of its safeguards agreement. Trade sanctions are then likely.

IAEA safeguards together with bilateral safeguards applied under the NPT can, and do, ensure that uranium supplied by countries such as Australia and Canada does not contribute to nuclear weapons proliferation. In fact the worldwide application of those safeguards and the substantial world trade in uranium for nuclear electricity make the proliferation of nuclear weapons much less likely.

The Additional Protocol, once it is widely in force will provide credible assurance that there are no undeclared nuclear materials or activities in the states concerned. This will be a major step forward in preventing nuclear proliferation.

By mid 2004 a total of 57 countries plus Taiwan had ratified the Additional Protocol. However, of 71 countries with significant nuclear activities, 25 have yet to bring it into force.
In May 1995, NPT parties reaffirmed their commitment to a Fissile Materials Cut-off Treaty to prohibit the production of any further fissile materials for weapons. This aims to complement the Comprehensive Test Ban Treaty agreed in 1996 and to codify commitments made by USA, UK, France and Russia to cease production of weapons materials, as well as putting a similar ban on China. This treaty will also put more pressure on Israel, India and Pakistan to agree to international verification.

Another initiative relates to plutonium (Pu) and spent fuel. For uranium, safeguards take account of its nature: natural, depleted, low-enriched or high-enriched (above 20% U-235) and the corresponding degree of concern regarding proliferation. A similarly differentiated approach is being considered for Pu. Two or three categories are possible: degraded Pu (eg in high-burnup fuel), low-grade Pu (eg separated from spent fuel of normal burnup) and high-grade Pu (eg from weapons or low-burnup fuel). The first two correspond to what is generally known as a reactor-grade Pu, sometimes defined as having more than 19% non-fissile isotopes.

There are also several other treaties and arrangements designed to reduce the risk of civil nuclear power’s contributing to weapons proliferation.

Implementation of IAEA safeguards in the 13 non-nuclear weapons states of the EU is governed by a Verification Agreement between the country concerned, EURATOM and the IAEA. Safeguards activities are carried out jointly by the IAEA and EURATOM. A revision to earlier arrangements, the New
Partnership Approach (NPA), was agreed in April 1992. The NPA enables the IAEA itself to deploy more of its resources in member states where independent regional safeguards systems are not in place.

 Shortly after entry into force of the NPT, multilateral consultations on nuclear export controls led to the establishment of two separate mechanisms for dealing with nuclear exports: the Zangger Committee in 1971 and the Nuclear Suppliers Group (NSG) in 1975.

 The Zangger Committee, also known as the Non Proliferation Treaty Exporters Committees, was set up to consider how procedures for exports of nuclear material and equipment related to NPT commitments. In August 1974 the committee produced a trigger list of items which would require the application of IAEA safeguards if exported to a non Nuclear Weapons State which was not party to the NPT. The trigger list is regularly updated. The Zangger Committee now has 31 member states.

 The NSG, also known as the London Group or London Supplier Group, was set up in 1974 after India exploded its first nuclear device. The main reason for the group's formation was to bring in France, a major nuclear supplier nation which was not then party to the NPT. It included both members and non-members of the Zangger Committee. The group communicated its guidelines, essentially a set of export rules, to the IAEA in 1978. These were to ensure that transfer of nuclear material or equipment would not be diverted to unsafe guard nuclear fuel
cycle or nuclear explosive activities, and formal government assurances to this effect were required from recipients. The guidelines also recognized the need for physical protection measures in the transfer of sensitive facilities, technology and weapons usable materials, and strengthen retransfer provision. The NSG began with seven members—the USA, the former USSR, the UK, France, Germany, Canada and Japan but now include 35 countries.  

In 1968, the States parties to the Nuclear Non-Proliferation Treaty (NPT), under article VI, undertook to pursue negotiations in good faith on effective measures relating to the cessation of the nuclear-arms race at an early date and to nuclear disarmament. Afterwards, and in many instances, including within the NPT review process, efforts were made to consider a comprehensive test ban as an essential element in the implementation of that article. The single multilateral negotiating body, the CD, has long been involved with the issue of a test ban. The Ad Hoc Group of Scientific Experts on seismic events was established in 1976, and in 1982 and Ad Hoc Working Group on a Nuclear Test Ban was established with a limited mandate. In 1990 and in the following few years discussions touched upon the major issues of a nuclear-test ban in considerable detail.

On 10 August 1993, the Conference took a landmark decision. On that day, the CD gave its Ad Hoc Committee on a Nuclear Test Ban a mandate to “negotiate intensively a universal and multilaterally and effectively verifiable comprehensive nuclear-test-ban treaty, which would contribute effectively to the
prevention of the proliferation of nuclear weapons in all its aspects, to the process of nuclear disarmament and therefore to the enhancement of international peace and security."

The Ad Hoc Committee began those negotiations in January 1994 and has conducted them with the highest degree of commitment to achieving an agreement as soon as possible.

In the document on "Principles and Objectives of Nuclear Non-Proliferation and Disarmament" adopted in New York in May 1995, 175 States parties to the NPT decided that the completion by the CD of the negotiations on a universal and internationally effectively verifiable CTBT no later than 1996 was a goal whose achievement was important to the full realization and effective implementation of article VI of the NPT Treaty.²

Steady and significant progress has been achieved recently in the negotiations in the CD both on the political and technical levels. The updated "rolling text" forms part of the CD’s report submitted to the fiftieth session of the General Assembly³.

Many difficulties still lie ahead for the Conference on Disarmament to resolve. Without entering into the substance of the negotiations, suffice it to say that some 1,200 brackets will have to be eliminated from the rolling text before the negotiations come to a successful conclusion. To finish the work by a target date in 1996, the CD will have to negotiate with much determination and a great sense of urgency. There seems to be a growing recognition that the Ad hoc Committee might have to adjust its methods of work to match the task at hand.

Events outside the Conference have also contributed to advances in the negotiations. On 20 October 1995, for instance, France, the United Kingdom and the United States announced their respective intentions to sign the relevant protocols to the South Pacific Nuclear Free Zone Treaty—the Treaty of Rarotonga—in the first half of 1996. Protocol 3 of that Treaty is an undertaking not to test any nuclear explosive device anywhere within the South Pacific Nuclear Free Zone. As China and the Russian Federation have already ratified the Protocol the announcement by France, the United Kingdom and the United States of their signature to it would mean that all the nuclear weapon States will have undertaken a commitment not to test in that geographical area. That represents yet another indication of the strong determination of the international community, nuclear and non-nuclear-weapons States alike, to reach agreement on a CTBT in 1996.27

Though the official policy goal of the United Nations is general and complete disarmament, it has never been seriously pursued because such an idea runs into tremendous problems of definition. From its inception commentators have tended to use “arms control” as a synonym for “disarmament” and then judged arms control by the degree of disarmament occurring at any particular time, there are crucial differences in the meaning and approach to the two terms.

Arms control came into being partly in response to the advent of the nuclear “balance of terror” and partly as a response to a perceived failure of the disarmament approach in the years immediately before and after World War II. In 1945, the whole
context about the debate about disarmament had changed when the issue of nuclear weapons came into the picture. Atom bombs had been used and this mass destruction weapon could not be disinvented. Nuclear weapons represented an awesome potential for catastrophe which increased the general desire for disarmament but, at the same time, major new obstacles were placed in the path of effective disarmament. Nuclear-armed states that successfully cheated could now mean literal annihilation for the state or states that were its victims. The first US plan for the elimination of all nuclear weapons was submitted in November 1946, known as the “Baruch Plan” after Bernard Baruch, one of its authors. Under this plan, the USA, who was the only nuclear power in the world, offered to dismantle them and make its civil nuclear knowledge available to all other countries. A new International Atomic Developmental Authority would supervise the weapons disposal and peaceful nuclear energy programs. Though the UN General Assembly adopted the plan on December 31, 1946, it was rejected by the Soviet Union and its allies. As the plan called for the establishment of the monitoring and supervision agency before disarmament began, the Soviets were suspicious of the pro-Western majority of the organization which they felt would enable the Authority to prevent Soviet research into nuclear weapons while US scientists had already acquired the knowledge needed to construct them. When the Soviet Union exploded its first atomic bomb in 1949, the Americans fell prey to a similar lack of confidence in the idea of international control of nuclear weapons and they abandoned the idea completely when the
Soviets tested the H-bomb in 1954. However, the Baruch Plan is important because it represented the first and probably the last chance to achieve a complete ban on nuclear weapons. The two powers, during the 1950s, continued to call for such a ban as also for the total abolition of all weapons of any magnitude and these calls were generally recognized as representing little more than propaganda posturing that were designed for public consumption rather than as a basis for negotiation.

It became clear in the 1950s that complete nuclear disarmament would not be possible as the question of the verification of compliance with a total ban became “the” crucial issue. The French argued publicly that a total ban was impossible as the amount of fissile material in existence had reached the point where no reliable verification system could be produced which would guarantee that none had been hidden. Since total nuclear disarmament would demand total trust of the other side, which did not exist to the level needed in the Cold War, it was an impossible objective to pursue. It was several years before the superpowers could bring themselves to admit that this was indeed the case.

Between 1957 and 1962, the strategic community brought out the differences between what they meant by the arms control approach and the ways it differed from disarmament as understood in the traditional way. According the Schelling and Halperin, “Arms control is essentially a means of supplementing unilateral military strategy thy some kind of collaboration with the countries that are potential enemies. The aims of arms control and the aims of a national military strategy should be
substantially the same. "They also included in arms control any kind of military cooperation between potential enemies with the aim of "reducing the likelihood of war; its scope and violence if it occurs and the political and economic costs of being prepared for it." 6

While disarmament was seen as an alternative to military strength, arms control was seen as a complement to it, since both enhance national and international security in different ways. While proponents of disarmament saw the existence of weapons as a cause of arms races and war, arms control was felt to represent a recognition of the continuing utility of military power in the modern world and the new arms controllers believed that there was no simple cause and effect relationship between the possession of weapons and the outbreak of war as armaments were ever present features in the landscape of international politics and they were as much a part of the peacetime as well as the war-time environment.

Some scholars argued that arms control was a generic term, covering any arrangement designed to reduce the likelihood of international military conflict and ranging from unilateral national force improvements at one end of the spectrum to possibilities of universal disarmament at the other.

The crucial distinguishing feature separating arms control from disarmament was that disarmament always involves arms reduction. These reductions could be total, involving the abolition of all arms or of one type of weapon; they could be partial, involving numerical reductions in some or all categories
of weapons; or they could be local, regional or global. In contrast, arms control may involve reductions but need not necessarily do so and in certain circumstances, the arms control approach produces a requirement for more, not fewer, weapons. While the disarmament approach assumes that weapons are a cause of war and to abolish weapons is to abolish wars, the arms control approach believes that wars begin in the minds of people. The objective then becomes the control of those factors which prompt states to go to war.

A key feature in arms control is the acceptance of nuclear deterrence. The arms controllers saw nuclear weapons as an innovation that would make war between the great powers impossible and to abolish nuclear weapons would thus be a retrograde step. Nuclear deterrence was to be the “keystone” of national security, something to be enhanced and refined through measures to make it less accident-prone and to safeguard each side’s retaliatory capability.\(^7\)

Today, the term arms control is often used interchangeably with arms regulations, arms limitation and disarmament. A wide range of measures have come to be included under the rubric of arms control, and according to Jozef Goldblat, it is intended to: (a) freeze, limit, reduce or abolish certain categories of weapons, (b) prevent certain military activities; (c) regulate the deployment of armed forces; (d) proscribe transfers of some militarily important terms; (e) reduce the risk of accidental war; (f) constrain or prohibit the use of certain weapons or methods of war; and (g) build up confidence among states through greater openness in military matters.\(^8\)
Besides the NPT a number of important multilateral arms control and disarmament agreements were signed in the nuclear sphere. They are: the Antarctic Treaty (signed 1959); the treaty banning nuclear weapon tests in the atmosphere, in outer space and under water or the Partial Test Ban Treaty (signed 1963), the treaty on principles governing the activities of states in the exploration and use of outer space, including the moon and other celestial bodies or the Outer Space Treaty (signed 1967); the treaty for the prohibition of nuclear weapons in Latin America and the Caribbean or the Treaty of Tlatelolco (signed 1967; modified 1991 and amended 1992); the treaty on the non proliferation of nuclear weapons or NPT (signed 1968); the treaty on the prohibition of emplacement of nuclear weapons and other weapons of mass destruction on the seabed and the ocean floor and in the subsoil thereof or the Seabed Treaty (signed 1971); the South Pacific Nuclear Free Zone Treaty or Treaty of Rarotonga (signed 1985); and the Convention on the Physical Protection of Nuclear Material (signed 1980).

Throughout the cold war period, the armament race between the Soviet Union and the United States was controlled by a number of bilateral agreements. The US-Soviet/Russian agreements are: the treaty on the limitation of anti-ballistic missile systems or ABM Treaty (signed 1972); the treaty on the limitation of underground nuclear weapon tests or Threshold Test Ban Treaty/TTBT (signed 1974); the treaty on underground nuclear explosions for peaceful purposes or the Peaceful Nuclear Explosions Treaty/PNET (signed 1976); the treaty on the elimination of intermediate range and shorter-range missiles
Apart from arms control and disarmament, there is alternative defence (AD), the primary goals of which are to work towards disarmament, war prevention, defensive strength, damage limitation, détente, entente and democracy. According to Bjorn Moller, founder and director of the Global Non-Offensive Defence Network and a proponent of Non-Offensive Defence (NOD), AD is broadly conceived in a dual sense. He says, "Alternatives" has been defined permissively to include proposals both for drastic transformations and for incremental reforms. Furthermore, the category includes both good and bad, viable and infeasible, offensive and defensive alternatives, albeit with a certain preference for the (presumably) good, feasible, and defensive alternatives. ‘Defense’ has been conceived of to encompass not only military defense and various forms of prophylactic security policies that might, it is hoped, largely eliminate the need for an actual defense. The focus, however, is placed on military alternatives."^{9}

Although AD and security have been debated for ages and attained prominence in the aftermath of the World Wars as well as in periods of high international tension and fear of war, the interest has peaked in the 1990s when many NOD conceptions have now been incorporated into the establishment strategic discourse and many of the goals set by NOD proponents have at least been partly achieved."^{29}
SOUTH ASIA:

South Asia comprises all the seven countries who formed the South Asian Association of Regional Cooperation (SAARC), namely, India, Pakistan, Bangladesh, Sri-Lanka, Nepal, Bhutan and Myanmar (formerly Burma). Among the South Asian countries, India and Pakistan have joined the nuclear club by conducting their nuclear tests in 1998. China, though a Central Asian country, and an official Nuclear Weapon State, plays an important role as far as the issue of nuclear proliferation in South Asia is concerned. North Korea, a newly emerged nuclear power can not be ignored altogether while discussing the South Asian nuclear proliferation.

In South Asia the issue of nuclear proliferation ahs two connotations

1. Strategic / military and
2. Political

Strategic / military connotation has been placed on number one due to the inherent fear of subjugation among the South Asian countries. After a long struggle and hard won freedom from the colonial rule, none of them can readily offer themselves to be sacrificed by the cold war players. After the liquidation of the Soviet Union and the so called, end of the cold war, the countries of the region felt insecure as they have lost the Soviet umbrella. This again resulted in a crisis of strong ‘balancer’ in the region. These factors made them conscious about their security and self defense which ultimately pushed them to develop in the direction of nuclear know how.
Political connotation is quite complicated, as the United States remained the only super power and trying her best to keep its hold in this region. For reasons of which US policy planners significantly emphasized its increasing interests in the area.

After the 1998 India Pakistan nuclear tests, 9/11 terrorist attack of World Trade center, counted terrorism, foreign trade and investment, and avoiding a fifth India Pakistan war apparently have replaced nuclear non-proliferation at the top of the US foreign policy agenda for South Asia.  

The barriers to arms control in 1980s and 1990s was the resentment and defiance that damaged relations among India, Pakistan and the United States. The lack of trust and understanding between India and Pakistan is well known: neither side is willing to initiate a relationship of reciprocated good gestures. The animosity created by differences over the nuclear issue between Washington, India and Pakistan also was destructive. US non proliferation pressure precluded open discussions between India and Pakistan on regional security. Pakistan resented the imposition of the Pressler amendment, which it saw as discriminatory, and India objected as strongly to US pressure for it to join the NPT and curve its space and missile activities. As a result more Indian and Pakistani diplomatic energy went to diverting US pressure then to devising arms control to promote regional security.

The Indian and Pakistani Prime Ministers realizing the delicacy of the strategic stability and arms control in South Asia, just after the 1998 nuclear tests, met in Lahore, Pakistan for greater
understanding and confidence building. But all hopes were dashed just weeks later when the two rivals fought the Kargil war. The September 11, 2001 terrorist attack against New York and Washington and the US campaign against the Al-Qaida terrorist network and the Taliban regime in Afghanistan created even more resentment between India and Pakistan. India's fear of similar terrorist attack was apparently realized when Indian Parliament was attacked on 13 Dec. 2001 by terrorist who were suspected to belong to two Pakistan based military groups: Lashkar-e Taiba and Jaish-e- Mohammad. Although the Kargil war had heightened tensions, but the conflict remained limited because both sides wished to avoid escalation to a general war, that could lead to the use of nuclear weapons. Therefore, even as Kargil underscored the risks involved in conflict, it also demonstrated that India and Pakistan appreciate the importance of caution and restraint in their strategic competition, which is an essential condition for arms control and deterrence stability. Jeoffery Larsen has summed up the strategic predicament India and Pakistan is facing today, as follows:

1. The rivals continue to have serious conflicts of interests, specially over Kashmir, and a deep mistrust of one another,

2. Each side is prepare to use military force, including nuclear weapons to protect its security interest, but

3. Neither wants war because of political considerations, because of the risk of escalation, and because neither side
have enough of an edge in conventional military forces to win any thing of political significance. Because South Asia is prone to all kinds of crises, the risk of conflict will be an indelible feature of India, Pakistan relations, even in a condition of mutual nuclear deterrence. 31

In countries like India and Pakistan scholars keep alluding to the U.S. tilts in different directions and keep feeling that the U.S. is or has been turning a blind eye towards other country’s nuclear activities. They try to see a pattern in the U.S. policies towards them and others and then react and at times over-react. The confusion is created because of the style and strategic pursued by the U.S to achieve its objective at the particular time and in a specific environment with different kinds of tools available to it. In terms of principles the polices may be turn out to be contradictory. The objectives remains constant, however, until all hope is lost like in case of the Soviet Union when it carried out its first test in 1949 and became a NWS, or when the U.K, France and China donated their first devices and joined the nuclear club. Henceforth it was the flexible approach meant to meet the best of the bargain. It was his adaptability of approach, compliant and amiable at times, and paradoxical, rigid and caustic on others, that bewildered and caused endless confusion regarding US. nuclear policies. That was during the cold war years. In the post-cold war environment also, flexibility of approach has also be maintained while pursuing non-proliferation goals in different regions. As to US. objectives after the end of the cold war, they are as constant as they were and have been clearly defined-broad means to achieve them also
having been stated off and on. But there is a difference. Along with the objective of non-proliferation, the objective of maintaining the status quo-monopoly has acquired an urgency hitherto unknown. While non-proliferation remains the prime objective, the hidden objective of maintaining US. supremacy is the engine that provides the driving force. In order to achieve its objectives, the US. had to operate within certain parameters related to ends it want to achieve and the means it uses to achieve those ends.32

Though China does not comprise a South-Asian country, but its significance in the politics of South-Asia can not be ignored. Her policy on Weapons of Mass Destruction (WMD) has been, and in many respects remains ambivalent. In 1992, China signed The Nuclear Non-proliferation Treaty (NPT). It has also showed its willingness to join a comprehensive Test Ban Treaty (CTBT), as well as its support for developing a multilateral convention banning the future production of fissile material for use in nuclear weapons. On the other hand, China continues to conduct underground nuclear test, although it has stated that it will stop the testing once the CTBT enters into force. China did not join the Nuclear Suppliers Group (NSG), and did not bother to meet the guidelines of NSG, while transferring its nuclear technology. China also agreed with the U.S. in 1992 to abide by the norms, guidelines and parameters of Missile Technology Control Regime (MTCR). But the U.S. concern about the Chinese proliferation activities in South-Asia and the Middle East is not meaning less as, export of Chinese missile systems and missile related technology, remained an important element of China’s
foreign military sales. U.S. allegation of transfer of M-11 missile system to Pakistan by China in 1993 resulted in the announcement of imposition of sanction against China for its export of missile related technology to Pakistan controlled under category II of the MTCR. Though the sanction were waived in Oct-1994 after Chinese commitment to abide by the 1987 version of the MTCR Annex, as well as its commitment not to export ballistic-missile system inherently capable of reaching a range of 300 km with space load of 500 kg, which are the basic MTCR control parameters. China’s inherent capability concept deals only with missile systems and not with missile-related technology, which according to U.S. is more important as it offers the proliferant state the possibility of developing an indigenous missile-production capability. China had also been reported to transfer C-808 ship based cruise missiles to Iran. Although these systems do not violate the basic MTCR parameters, they nevertheless potentially increase Iran’s capability to threaten commercial shipping in the Persian Gulf. President Clinton also accepted the importance of China as well as its relations with USA in his first important policy speech after the reelection, made on his trip to Australia, also reflected the US eagerness to mend fences with China and to improve their commercial ties. Even though both differ on many a vital issue, but both the nations want to continue with the dialogue. USA is concerned with China’s Human Rights records, approach to its ‘renegade’ province Taiwan, proliferation issue etc. China is equally sensitive to US relations and support to Taiwan, IPR and trade matters etc. Since the past few months China has
replaced Japan as the number one surplus trade balance partner of USA. On the other hand the heavy dependent of US commerce and industry on China trade and the large future market potential may be able to bail out Clinton. The US trade circles estimate that 200,000 American jobs are depending on its China trade and there is a huge potential in the Chinese market, specially in sectors like civil aviation, nuclear energy etc.

Apart from the above economic and business interests, US is being compelled to deal with China due to the present day world realities. She is a nuclear power with a credible deterrent and a second strike capability and further also enjoys veto power in the UN Security Council. These objective realities are further compounded with the Chinese state craft: the ancient Middle Kingdom is still, in spite of its Communist credentials, very nationalistic and at times arrogates itself with its self esteem. This gives rise to its basic philosophy of ‘keeping the initiatives in one’s own hands’ and the ability to ‘say no’. The second most sensitive area is the Korean Peninsula, with the increasing economic clout of South Korea and the worsening situation in North Korea, the USA is also worried about the nuclear questions and stability of North Korea itself. This issue is also entangled with the Sino-US relations, and nobody is sure about the leverage enjoyed by China vis-a-vis North Korea.\(^{34}\)

The Post cold War period witnessed the rising drama associated with North Korea’s nuclear weapon program. Under the Bush administration the US government showed its concerns of proliferation with Pakistan, because North Korea was believed to have traded its missile technology for access to
Pakistan’s nuclear secrets and the Ghauri III missile is doubted to be a North Korean design. Until recently, North Korea’s main missile customers were the usual suspects in the Middle East, foes of the West such as Libya which took a fresh delivery in 2001 and Iran, which on May 31, 2001, successfully tested a new small missile called Fateh. That may be a Chinese design but the bigger Shahab –3 which Tehran tested in 2000 whose 1300 km range could reach Israel, is thought to be based on North Korea’s medium – range Taepodong.35

North Korea has played a central role in missile proliferation for example, it has sold modified Scud missiles abroad and seeks international sales of its new 1000-1300 km range NoDong 1 missile, which is capable of carrying WMD war heads, and reportedly could be deployed by 1996. As the former director of the CIA, R. James Woolsey, has remarked North Korea “is willing to sell to any country with the cash to pay.” North Korea may already have concluded agreements to provide the NoDong 1 to Iran and to assist Iran in the construction of a missile production facility. Libya and Syria also have indicated and interest in the No-Dong 1, and Libya is reported already to have conducted an agreement to purchase either the missile, related technologies, or both. If North Korea, Iran and North African countries ultimately possess the No-Gong 1, cities in Japan, France, Italy, Greece and Turkey could be under the potential threat of missiles armed with WMD.

North Korea is in development of two new multi-stage missiles of considerably greater range. According to public accounts by US intelligence officials, these missiles could threatened “all of
the Northeast Asia, Southeast Asia much of the Pacific area and even most of Russia”, if transferred to North Africa and the Middle East, “all the capitals of Europe could be threatened”. North Korea’s new missiles, popularly referred to as the Taepo Dong1 and Taepo Dong2, have been identified in unofficial sources as having ranges of 2000 km and 3500 km to 9600 km respectively, and as becoming operational as early as 1996 and 2000 respectively.  

Japan is one of the most scientifically advanced among all the Asian countries. Till today Japan has refrained herself from going to be nuclear. The obvious reason for which Japan is famous is its nuclear allergy, as she is the only country ever attacked with nuclear weapons. Japan is also famous for its “three no’s policy: not to make, possess allow nuclear weapons on its soil. These attitudes remain a strong brake on Japan going nuclear. Japan’s acquiring of nuclear weapons is supposed to be a departure from its post-war policy of not possessing one. But a nuclear North Korea seems to put pressure on Japan going nuclear itself. In a confrontation with China, China needs five thermonuclear bombs, three on Tokyo and two in the Kausai region(Kobe, Osaka and Kyoto), to end Japan. But five nuclear bombs or even few more, devastating as they may be, would not spell the end for China, Japan, in short, cannot survive a first strike and retaliate. But China can. Even though Japan is a known ally and a strategic partner of USA, its increasing economic power, influence in the field of trade etc. compelled USA to take a positive but cautious view
towards Japan. In April 1996 USA signed a security pact with Japan mainly aimed at any future military hegemonistic designs of China.

The enhanced US diplomatic interest in Thailand may also be due to the impact of the overall post-cold war scenario. Keeping in view the July 1997 deadline the US has already shifted out all its mechanical intelligence gathering facilities out of Hongkong and relocated elsewhere, most of it in Australia and now may be seeking some more sophisticated facilities near China. Thailand suits most of these requirements. Geographically, Thailand is located at the crossroads of Indo-China and Myanmar. The Myanmar is also another sensitive target of USA which it does not want to be left isolated, as they fear such isolation may end her up as a camp follower of China.

In short the enhanced involvement of USA in the Asia Pacific can be summarized as the ongoing process of the US quest to ‘contain’ China through ‘engagement’: but how successful will this strategic be, a question to be answered by the future but the emerging scenarios in the global power game do not favor either very much. On the other hand we have to look for such answers in their own domestic, economic and political scenario.38

Among things long expected but not realized is the entry into force of the Comprehensive Nuclear-Test-Ban Treaty (CTBT); the conclusion of nuclear material cut-off treaty; the ratification of the second Strategic Arms Reduction Treaty between the Russian Federation and the United States (START II) and the
opening of negotiations on START III, the initiation of talks on a multilateral nuclear reduction treaty, and internationally binding instrument on negative security assurances, and the replacement of the UNSCOM verification regime in Iraq with a system backed by the United Nations Security Council.

Recent negative developments include the nuclear tests of India and Pakistan and their increasingly inflexible nuclear posture, American plans to develop national missile defence and depart from the 1972 Anti-Ballistic Missile Treaty to make this possible, plans for a ‘Theatre High Altitude Area Defence’ system which would eventually be deployed in East Asia, the Russian Federation’s increased reliance on nuclear weapons, including tactical weapons, the sustained use of force, without Security Council authorization, against target in Iraq, the use by NATO, also without United Nations sanction, of force to settle a regional conflict in the Former Republic of Yugoslavia, NATO’s new nuclear doctrine and its nuclear sharing policy.

There have been some ephemerally positive events also, of which the consequences are not yet apparent. The South Asian tests have increased world concern about nuclear proliferation but this has not yet led to concrete action and, as we have seen so often, worries tend to evaporate once the direct crisis is over. Concerted moves of governments in Northern and Eastern Asia have raised awareness of the risks of nuclear proliferation and increased interest in regional solutions such as the establishment of nuclear - weapon-free zone—-but the same governments threaten the regional balance by their plans to
deploy regional anti-missile defence. There has been progress in the creation of a Central Asian nuclear-weapon-free zone treaty, and in the acceptance of the concept of a single-state weapon-free area, as embodied by Mongolia.  

The past few years have witnessed a general relaxation of the international situation which made it possible to achieve substantial progress in international arms control and disarmament. Such progress in turn has helped to bring about further relaxation of the international situation. At the moment, the coexistence of two main trends in this regard are visible. One is the main trend against nuclear and missile proliferation and demand for accelerated nuclear disarmament, which gives expression to the general wish of the international community. The other trend is that the nuclear superpowers, while insisting on a strategy of offensive nuclear deterrence, have sped up development of hi-tech conventional weapons. The competition to scale “heights” of military science is also developing swiftly. The latter trend is to a certain extent hindering the former, confronting international arms control and disarmament with contradictions and conflicting interests, and making the struggle ever more complex. 

Some changes have occurred in international arms control and disarmament since the end of the Cold War. 

Firstly, the West is now pursuing different objectives. The priority in international arms control and disarmament has shifted from the prevention of a major nuclear war to forestalling proliferation of weapons of mass destruction (WMD), especially the
proliferation of nuclear, missile and other hi-tech conventional weapons to Third World countries.

During the Cold War period, the US and the Soviet Union were rivals. The emphasis in arms control was pursuit of military stability, i.e. stability through crisis management and stability in arms race, so as to prevent a nuclear conflagration. Today, the possibility of such a major nuclear war is practically nil. Under these circumstances, the Western nations, with the US at their head, see threats to their security coming mainly form the employment of nuclear, bio-chemical weapons by “irresponsible” Third World countries and terrorists. Consequently, the West has shifted its attention to preventing proliferation of weapons, deeming the prevention of emergence of new nuclear weapon state as the number one issue in world security after the Cold War. The US gives priority to prevention of nuclear proliferation in its security and foreign policy. For that reason, the US has designed a strategy against proliferation and works jointly with its allies to prevent the nuclear arsenals of the former Soviet Union from proliferation or running out of control. The US has also strengthened international nuclear non-proliferation mechanisms, emphasizes transparency in military armament, enhances the functions of supervision and verification of the International Atomic Energy Agency (IAEA), controls the export of sensitive technology and steps up intelligence surveillance vis-à-vis Third World countries in an effort to contain nuclear and missile proliferation. The US attempts to prevent proliferation of WMD by the following measures.

1. Conclusion of treaties, conventions and agreements.
2. Insistence on an effective strategic nuclear deterrence to maintain nuclear superiority.

3. Research and deployment of anti-ballistic missile (ABM) defence systems (including America's home and theatre missile defence (TMD) systems.

Secondly, changes in pattern. International arms control and disarmament have turned from East-West confrontation to South-North contradiction. East-West confrontation in the original sense of the word no longer existed when US-Soviet rivalry came to an end while there was an increase in South-North contradiction. After "COCOM" is dissolved, a new institution has been formed with the purpose of controlling transfers of hi-tech conventional weapons and dual-purpose technology for military and civilian use. This is for all practical purposes and intentions a coordinating institution of Western countries in their joint efforts to prevent proliferation of high-technology and advanced equipment to the Third World.

Thirdly, the United Nations is playing more prominent role in advancing international arms control and disarmament. The intra-UN negotiations over the Convention on the Prohibition of Chemical Weapons (CWC) and the Comprehensive Test Ban Treaty (CTBT) have been a success and the two instruments are open for signature.  

In 1997, international arms control and disarmament have reached a new crossroads. At the moment, the different parties have yet to reach a consensus as to what should be the next goal of arms control. Western nations led by the US continue to
underline their policy on prevention proliferation of WMD, missile and hi-tech conventional weapons and accelerating development and deployment of anti-ballistic missile defence systems. The developing countries are most concerned with further promotion of nuclear disarmament and they demand that the nuclear states formulae a program on “nuclear disarmament within a specified time.” The General Assembly of the United Nations (UNGA) passed a resolution in 1996 urging that the 4th special session of the UNGA on disarmament be convened in 1997. Time is still needed to reach agreement on a new arms control agenda. Such military powers as the United States which seek military superiority by means of arms control have created difficulties and problems in international arms control and disarmament. In short, the outstanding problems are as follows:

The coexistence of arms control and arms development poses new challenges in international arms control and disarmament. The US and Russia, among other countries have always deemed arms control and disarmament to be a crucial component of the national security strategy. For the sake further accommodation with the transformation from major war mechanisms to minor war mechanisms, they have indeed begun a drastic reduction of redundant nuclear and conventional weapons. These countries however, did not reduce truly sophisticated weapons and armaments and progress in disarmament did not stop them from engaging in a hi-tech arms race on a still higher plane. The current new arms race is manifested in the following:
Continued implementation of the modification of strategic nuclear weapons. American technology of nuclear warheads is almost perfect. Following the comprehensive ban on nuclear testing, the US consequently continues to strengthen its strategic nuclear force focusing on improving launch vehicles and means of command, control, communication and information (C 31) that nuclear warfare calls for. Its “triad” launch vehicles for strategic nuclear force will be overhauled in a bid to raise the accuracy, viability and striking capabilities against hard urgets of nuclear weapons systems to unprecedented levels and achieve breakthroughs in C31. Russia continues to emphasize better striking power, targeting accuracy and mobility and the strengthening of its submarine-based nuclear force. Britain and France are likewise committed to upgrading and augmenting their strategic submarine-based nuclear force.

A greater impetus to development of hi-tech conventional weapons and equipment, focusing on strengthening the naval and air forces: Nuclear disarmament stimulates the development of conventional hi-tech and new-tech weapons and arms and such a new trend has gained greater prominence this year. More and more nations have come to realize that future warfare will take the form of information war in the shadow of nuclear deterrence. Conventional hi-tech weapons, involving less risk and of greater value in martial practice, might well be the key in determining the outcome of future warfare. The US, Britain and France and other countries have all tilted towards hi-tech, high-performance conventional weapons in their defence expenditure. The US has formulated a military build-up program
for the 21st century and set the objectives of organizing "digitalized" armed forces and battlefields. The US believes that the core of information war lies in gaining the upper hand in the abilities to obtain, process and utilize information. For that matter, the US has defined 27 key technology areas to ensure its military preeminence. France, Germany, Britain, and other West European countries have decided to increase investment in defence-related science and technology and jointly develop selected projects which will play a key role in future warfare. France and Germany, for instance, are pooling their resources to conduct research and development of a new generation of military satellites. Japan has also decided to establish a compact hi-tech military force. Some developing nations also scramble to purchase AWACS aircraft, air tankers, reconnaissance satellites, anti-missile destroyers, anti-ballistic missile and other advanced arms and equipments.

A salient feature of hi-tech military building is emphasis on air and naval forces. Be it nuclear or conventional disarmament, the emphasis has been on land forces, with little reduction of air or naval forces which, on the contrary, are growing evidently. The US and Russia and both equipping there are and naval forces that are way ahead of other countries with new type submarines, giant battleships and various more advanced aircraft. The fourth-generation strategic bomber will come into being shortly. For a variety of reasons, the many littoral states have also given priority to building up their naval and air forces. Japan has started working on a new missile destroyer and is preparing for the construction of aircraft carriers and submarines. India has
also laid down plans to import missile destroyers and Mirage-2000 fighter jets. This symbiosis of quantitative reduction with qualitative improvement has posed new obstacles and challenges to international disarmament and arms control.

Efforts by the US to accelerate the development of anti-missile defence systems will have a direct impact on disarmament and spark off a fresh round of nuclear arms race. Contrary to the trend of disarmament and caution about proliferation, the US is quietly developing anti-missile defence systems and working on a new generation of anti-missile weapons capable of downing ballistic missiles. The US has emphasized time and again that the greatest threat it faces in the post-Cold War era is proliferation of nuclear, biological and chemical weapons and their delivery vehicles. After several years of debates, if formally decided in 1996 to develop and deploy multi-faceted anti-missile defence systems, mainly by these means: 1) Negotiation with Russia so as to modify the Anti-Ballistic Missile Treaty (ABM), signed between the US and the USSR in 1972, because that treaty is an obstacle to the development of anti-missile defence systems. 2) Phased deployment. The US Department of Defence has decided to deploy defence systems against short-range and medium-range missiles in the first place and suspend temporarily the deployment of higher level and nation-wide anti-missile defence systems. The US is most worried about the prospect of so-called “rogue states” attacking its overseas targets with short-range and medium-range missiles. The Pentagon has decided to complete the deployment of anti-short-range-missile defence systems by the end of the century. 3)
increased appropriations. The US Congress endorsed an increased appropriation of US$450 million in 1996 for the development of short-range-missile defence systems and manufacture of new types of PARTIOT PAC-3 missiles. The Pentagon estimates that a minimum of US$14 billion would be required to establish a nation-wide anti-missile defence system.

4) Working hand in hand with allies to enhance its theatre anti-missile defence capabilities by drawing on their capital and technology. Besides, 10 countries and regions including Israel, Turkey, Saudi-Arabia, the Netherlands and Taiwan are installing or purchasing American anti-missile defence systems. The US argues for stronger international anti-proliferation mechanisms on the one hand. On the other, it heavily proliferates various advanced weapons including anti-missile weapons. 42

Issues relating to treaty implementation. Since the early 1990s, about a dozen disarmament and arms control treaties has been reached, taken effect or about to be signed soon between the US and Russia and also internationally on a multilateral basis. Treaty implementation will become a major issue confronting the international arms control and disarmament process. Judging from the developments of 1996, the following major issues, at least, will be encountered in treaty implementation.

Since American ratification of the START II treaty in January 1996, divergences on the issues within the Russian Duma have become more acute. Albeit President Boris Yelt sin specifically ordered that the treaty be ratified in the first half of 1996, no definite date of ratification is within sight as of the moment. Many opponents of the treaty within the Russian military and political
circles criticize the treaty as being unequal, by which Washington attempts to fundamentally weaken Russia. They demand that the ratification of the treaty be linked to NATO's eastern expansion and America's development of anti-missile defence systems and have proposed amendments to certain articles of the treaty.

While effecting disarmament, the developed nations have sold huge quantities of arms and equipment and have added to instability of the regional military situation. Over the years, the US has been the No.1 arms dealer in the world. In 1995, the US exported US$22 billion worth of arms, accounting for 57 percent of the world's total arms sale. Britain and France, inter alia, feverishly tried to catch up and competed fiercely for a share of the arms market. The dumping of weapons world wide by developed counties is a hazard to the international community.  

Up to the late 1980s it was generally assumed that any undeclared nuclear activities would have to be based on the diversion of nuclear material from safeguards. States acknowledged the possibility of nuclear activities entirely separate form those covered by safeguards, but it was assumed they would be detected by national intelligence activities. There was no particular effort requiring the IAEA to attempt to detect them.

However, inspections in Iraq following the UN Gulf War cease-fire resolution showed the extent of Iraq's clandestine nuclear weapons program, it became clear that the IAEA would have to broaden the scope of its activities. Iraq was an NPT Party, and
had thus agreed to place all its nuclear material under IAEA safeguards. But the inspections revealed that it had been pursuing an extensive clandestine uranium enrichment program, as well as a nuclear weapons design program.

The main thrust of Iraq’s uranium enrichment program was the development of technology for electromagnetic isotope separation (EMIS) of indigenous uranium. The process used by regarding threading as used in the Manhattan Project to make the highly enriched uranium used in the Hiroshima bomb, but was abandoned soon afterwards.  

The DPRK acceded to the NPT in 1985 as a condition for the supply of a nuclear power station by the then USSR. However, it delayed concluding its NPT Safeguards Agreement with the IAEA, a process which should take only 18 months until April 1992.

During that period, in late 1985, it brought into operation a small gas-cooled, graphic-moderated, natural uranium (metal) fueled “Experimental Power Reactor” of about 25 MWt Yongbyon. It exhibited all the features of a plutonium production reactor for weapons purposes and produced only about 5 MWe. North Korea also made substantial progress in the construction of two larger reactors designed on the same principles, a prototype of about 200 MWt (50 MWe) at Yongbyon, and a full-scale version of about 800 MWt (200 MWe) at Taechon.

In addition it completed and commissioned a reprocessing plant for the extraction of plutonium from spent reactor fuel. That plutonium, if the fuel was only irradiated to very low burn-up,
would have been in a form very suitable for weapons. Although all these facilities at Yongbyon were to be under safeguards, there was always the risk that at some stage, the DPRK would withdraw from the NPT on some pretext and use the plutonium for weapons.

One of the first steps in applying NPT safeguards is for the IAEA to verify that initial stocks of uranium and plutonium to ensure that all the nuclear material in the country have been declared for safeguards purpose. While under taking this work in 1992, IAEA inspectors found discrepancies which indicated that the reprocessing plant had been used more often then the DPRK had declared. This suggested that the DPRK could have weapons-grade plutonium which it had not declared to the IAEA. Information passed to the IAEA by a Member State (as required under the IAEA’s Status) supported that suggestion by indicating that the DPRK had two undeclared waste or other storage sites.

In February, 1993 the IAEA called on the DPRK to allow special inspections of the two sites so that the initial stocks of nuclear material could be verified. The DPRK refused, and on 12 March announced its intention to withdraw from the NPT (three months notice is required). In April 1993 the IAEA Board concluded that the DPRK was in non-compliance with its safeguards obligations and reported the matter to the UN Security Council. In June 1993 the DPRK announced that it had “suspended” its withdrawal from the NPT, but subsequently claimed a “special status” with respect to its safeguards obligations. This was rejected by IAEA.
Once the DPRK’s non-compliance had been reported to the UN Security Council, the essential part of the IAEA’s mission had been completed. Inspections in the DPRK continued, although inspectors were increasingly hampered in what they were permitted to do by the DPRK’s claim of a “special status”. However, some 8,000 corroding fuel rods associated with the experimental reactor remained under close surveillance.\textsuperscript{45}

Following bilateral negotiations between DPRK and the USA and the conclusion of the agreed framework in October 1994, the IAEA has been given additional responsibilities. The agreement requires a freeze on the operation and construction of the DPRK’s plutonium production reactors and their related facilities, and the IAEA is responsible for monitoring the freeze until the facilities are eventually dismantled. The DPRK remained uncooperative with the IAEA verification work and did not comply with its safeguards agreement.

Ultimately, the DPRK was persuaded to stop what appeared to be its nuclear weapons program in exchange, under the agreed framework, for about $US5 billion in energy-related assistance. This included two 1000 MWe light water nuclear power reactors. There was also the prospect of diplomatic and economic relations with the USA.

In August 2002, with the project running several years behind schedule due to North Korea’s continued lack of cooperation with the IAEA in verifying the history of its nuclear program, first concrete for the two-unit nuclear power plant was poured at Kumho, on the northeast coast. This formal start of construction
was a milestone for KEDO, which planned to deliver the main components in 2005. The work would then stop unless North Korea was fully compliant with IAEA requirements regarding verification of past activities (specifically, that all nuclear material held by North Korea has been declared and placed under safeguards).  

However, in October 2002 it emerged that DPRK had been working clandestinely to enrich uranium for weapons use, using centrifuge equipment. These appeared to be some linkage to Pakistan’s centrifuge program and in 2005 Pakistan confirmed that it had supplied centrifuges to DPRK.

In December 2002 DPRK removed the IAEA seals on its facilities at Yongbyon and ordered the IAEA inspectors out of the country. It has since restarted its small reactor and claims to have reprocessed the 8000 irradiated fuel rods to recover weapon-grade plutonium. In April 2003 it withdrew from the NPT- the first country to do so.

Since 2003 negotiations have been intermittently under way to secure some agreement on curtailing North Korea’s nuclear weapons program. These have involved China, South Korea and the USA, which has insisted upon “Complete, verifiable, and irreversible dismantling of North Korea’s weapons programs” through “diplomatic dialogue in a multilateral framework involving those states with the most direct stakes in the outcome.”

Iran attracted world attention in 2002 when previously undeclared nuclear facilities became the subject of IAEA inquiry.
On investigation, the IAEA found inconsistencies in Iran’s declarations to the Agency and raised questions as to whether Iran was in violation of its safeguards agreement, as a signatory of the NPT.

Iran joint the NPT in 1974 and in 1975-76 construction started on two 1293 MWe nuclear reactors comprising the Bushehr power station on the Persian Gulf. Siemens KWU was the contractor. After the Islamic revolution, payment was withheld and work was abandoned early in 1979 with unit I substantially complete.

In 1994 Russia was brought in to complete unit 1 as a VVER-1000 reactor. This necessitated major changes, including fabrication of all the rector components in Russia under a construction contractor with Atomstroy export. The reactor is due to start up in 2007.

All fuel for the life of the reactor will be supplied from Russia, and it is intended that used fuel will be returned there, obviating the need for any fuel cycle facilities in Iran. All work has been under IAEA safeguards and operation will also be under safeguards. The Atomic Energy Organization of Iran has announced that construction of unit 2 is to proceed and that feasibility studies for a further 5000 MWe have been ordered.

The momentum in disarmament and arms control will continue to be maintained in spite of problems and challenges. But at the same time we note that the existing international anti-proliferation mechanisms cannot had nuclear proliferation altogether. A number of treaties and accords have been
concluded in recent years to curb nuclear proliferation. Such treaties and accords have their positive side but not entirely satisfactory with regard to certain articles because of its failure to give full expression to the just demands and reasonable positions of many developing countries including China. Some articles are clearly discriminatory. Moreover, these treaties and accords have failed to mention the conclusion of legal documentation on the non-first-use of nuclear weapons and so use or threaten to use nuclear weapons against non-nuclear states and nuclear-free zones. No mention is made either of the need to concluded a convention on the comprehensive prohibition of nuclear weapons. Hence, it will be a protracted and arduous task to attain the lofty goal of comprehensive prohibition and through destruction of nuclear weapons.
References


3. Ibid, p.5


8. Burman, Shibdas, op. cit. p.14


10. Burman, Shibdas, op. cit. p.15


14. Kumar Mahendra, op.cit, p.473

15. Rebehn Michael, Open Democracy,


17. Rebehn Michael, Open Democracy,

18. Ibid

19. Poulose, T.T. ,op.cit, p.223


21. Tariq Rauf, Towards Nuclear Disarmament, Strategic Digest, May 2000, pp.557-8

22. Ibid


24. Ibid

25. Ibid


28. Chittaranjan, Kalpana; Arms Control and Disarmament: Is an NWFW possible?" Strategic Analysis, March, 1997, pp.1699-1700

29. Ibid, pp.1700-1704

30. Larsen, Jeffrey A. op.cit. p.245

31. Ibid. p.248


34. Rappai, M.V; “Clinton’s Asia Policy, Strategic Analysis, Jan-Feb.1997, PP. 1576-1577


36. Payne Keith B; Post Cold war Deterrence and Missile Defence: Strategic Digest, April 1996, pp. 471-472


38. Rappai, M.V; op.cit.pp.1577-78

40. Ling, Wang; “Changes and challenges in International Arms control and Disarmament in the wake of the Cold War.” Strategic Digest, Oct. 1997, PP.1589-1593

41. Ibid

42. Ibid

43. Ibid


45. Ibid

46. Ibid

47. Ibid