

## 9. NUCLEAR PROLIFERATION

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### THE NUCLEAR ERA

The new types of weapons of mass destruction have divided human history in two periods - pre-nuclear and nuclear. Many ideas that were normal in the pre-nuclear age turn out to be absolutely unacceptable in the nuclear age. Many traditional categories of politics now do not make sense or have substantially changed their meaning. War and peace, victory and defeat, superiority and vulnerability, menace and security, strategy and force, balance and stability - these and many other concepts are acquiring new meaning today.

Moreover, the nuclear era is seriously changing the very notion of logic and rationality inherited from the past. The use of political ideas and concepts of the pre-nuclear era today become almost pseudorational. Formerly everything seemed logical, but today it is in essence absolutely senseless. The gap between technical and scientific development and the level of human thinking has created drastic changes in the world. These often force us to use ideas that are hopelessly outdated, even though we are already living under conditions where traditional political thinking becomes unavoidably contradictory. It becomes contradictory and irrational because it fails to come to grips with the new reality. Being rational only in form creates an illusory picture of the world and dictates solutions and actions which are dysfunctional.

### NUCLEAR REALITIES

So world is faced with the necessity of bringing our concepts and ideas in accord with the new realities of the nuclear age and the revolutionary change it has produced in the world. By mentioning revolutionary change we are not just making sensational exaggerations. We have all the reasons which qualify the nuclear revolution as a break with past traditions. The revolution demands a serious reestimation of many, if not all, our political concepts, first of all those related to the problems of war and peace.

The importance of problems of war and peace can be explained by the fact that the threat of war has acquired a qualitatively new dimension. Although the prevention of nuclear war is the primary aim of, -Soviet

and American national policy, it, of course, does not exclude other national goals. However, the problem of preventing nuclear doomsday has today a great significance of its own and is of the utmost importance in the list of national priorities. This issue has become the specific context for all other major problems of today.

The nuclear revolution has ended the limits of the destructive capacity of weapons of mass destruction and has ended the possibilities of traditional defense against them. For the first time in human history, war with the use of nuclear weapons threatens to become not genocide but omnicide - total extermination of humanity. For the first time, the potential of mutually assured destruction has been acquired. This eliminates any possibility for the aggressor to win, even in a hypothetical situation. The military arsenals are ready for immediate use, and no mobilization or restructuring of industry is needed to begin a war. And for the first time in history, the decision for total nuclear suicide can not only be made, but can be implemented by a relatively small group of people.

Previously the problems of war and peace generally concerned relations between particular states, nations, classes, or social groups. Today for the first time they have become a global problem for all of civilization.

History becomes world history little by little. In a positive sense, this global character consists of economic, political, and spiritual interdependence. But in the case of the nuclear threat, the global character of human history acquires a negative connotation in the sense that the possibility exists for the destruction of human history itself. In this same negative sense, the nuclear revolution and the threats it entails has united human civilization to a greater extent than even the internationalization of the economic process, the growth of interdependence, or the development of mass communications - all of which could perish in nuclear war.

In pre-nuclear times nations and peoples perished in wars, but this did not stop the natural thrust of historical development in general. Nuclear war,

however, poses a threat of a dramatically different kind - it brings into question the future of the linear development of human society, the vectoral direction of history. In apocalyptic stories of the past, "the end of the world" usually occurred simultaneously with the "beginning" of a transition into some higher quality. But nuclear apocalypse is not a beginning of anything else, it is just the "end" of history, the end of everything.

### **MILITARY FORCE AND POLITICS**

It has already been noted that nuclear revolution has totally changed the nature and character of war. Nuclear war or the threat of nuclear war can no longer serve as a means of resolving international, social, political, or ideological conflicts or contradictions. The traditional correlation between the objectives and the means of war becomes senseless. War with the use of nuclear weapons can no longer be considered a rational continuation of "politics by other means.

The task of reevaluating many concepts and ideas which have become outdated due to the nuclear revolution concerns a whole spectrum of key military and political categories. First of all is the question of the correlation between military force and politics. The change in character of war engendered by the nuclear revolution must be analyzed in its global context - the changing role of force and the threat of force in achieving political ends. 'The nuclear revolution brings into being a paradox of security by turning upside down the traditional correlation between a nation's military force and its security. Under these new conditions, an increase in military power "does not enhance security, but, on the contrary, undermines it. Moreover, the political influence of a country on the international scene is no longer directly related to its military potential. The military force of a nation cannot be equated with the quantity and quality of its nuclear potential because that potential cannot be implemented in practice - neither in a direct military sense nor for achieving political aims.

The determining factor of the above-mentioned shift in the relationship between military force and politics is the total vulnerability created by the nuclear revolution - the inability to defend oneself against the threat of nuclear destruction by the use of any technical or military device. This is why the concept of national security has so dramatically changed. In the first place,

security is relative since under the circumstances no nation, not even the strongest militarily or otherwise, can assure itself absolute security considering the total vulnerability brought about by the nuclear revolution. In the second place, one-way security is impossible. It is unachievable without substantial political cooperation and mutual understanding with the adversary.

### **THE SECURITY DILEMMA**

Before the nuclear revolution, nations were encouraged to deal with the so-called "security dilemma." In essence, the efforts of any state to increase its security, no matter what its subjective intentions, often objectively result in diminishing the security of others. In other words, the stronger a state became militarily - the more it strengthened its own security by one-way military measures - the more vulnerable and less secure were its potential adversaries. But the nuclear revolution has given this security dilemma a qualitatively new dimension.

The situation of total vulnerability, once created, is irreversible. It cannot be changed by any military efforts, defensive efforts included. The scientific and technical development of defensive weapons cannot eliminate the fundamental fact of the nuclear revolution - the vulnerability of the nation's territory and its civilian and industrial centers to the possible nuclear attack. Under the circumstances, the assurance of even relative security becomes militarily impossible.

Mutual vulnerability deters actions which could definitely lead to a military conflict. Moreover, vulnerability and constant potential menace to one's security deter not only direct nuclear attack but also actions which under other circumstances could lead to escalation of conflict. It is significant that in the past the uncertainty factor related to war often stimulated aggression. But under the nuclear revolution, that uncertainty, the unpredictability of possible escalation, becomes a deterring factor.

In this sense, the weapons created by the nuclear revolution are not strictly speaking military weapons, since under no hypothetical situation can they be used to achieve those aims which used to be achievable with the help of weapons. The concept of force acquires special ambiguity in relation to nuclear weapons: weapons are capable of destroying but are incapable

of assuring traditional political influence. In any event, with the “nuclear revolution” the interrelation between military force and political influence ceased to be simple and linear. After a certain point, any increase in the capability to destroy becomes excessive and cannot be used for political goals.

## **INDIA AND NUCLEAR ERA**

India tested its first fission device in May 1974, and now possesses full nuclear fuel cycle capabilities. It remains outside the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Comprehensive Nuclear Test Ban Treaty (CTBT). However, India has a facility-specific safeguards agreement in place with the International Atomic Energy Agency (IAEA) and a waiver from the Nuclear Suppliers Group (NSG) allowing it to participate in global civilian nuclear technology commerce. India has a sizable and growing nuclear arsenal, although it has not made an official claim as to its nuclear capabilities.

## **CAPABILITIES**

According to the 2012 SIPRI Yearbook, the Indian arsenal comprises 80 to 100 warheads. The ranges of such estimates are generally dependent on analyses of India’s stockpile of weapons-grade plutonium, estimated at  $0.54 \pm 0.18$  tons. Although India has also stockpiled roughly  $2.4 \pm 0.9$  tons of highly enriched uranium (HEU), some of this material is most intended for use in nuclear submarines and research reactors.

The plutonium for India’s nuclear arsenal is most likely obtained from two research reactors: the 40 MWt CIRUS and the 100 MWt Dhruva, which began operations in 1963 and 1988, respectively. Depending on the capacity factor and operating availability, the CIRUS reactor was estimated to produce 4 to 7 kg of weapons-grade plutonium annually; the corresponding figure for the Dhruva reactor is 11 to 18 kg. The CIRUS reactor was decommissioned in 2010 under the U.S.-India nuclear cooperation agreement’s separation plan of the U.S.-India nuclear cooperation agreement. The irradiated fuel from the reactors is reprocessed at the Plutonium Reprocessing Plant in Trombay, which has a capacity of roughly 50 tons of spent nuclear fuel per year. India is building six fast breeder reactors, which will increase plutonium production capacity available for weapons-use. Construction on the first prototype

fast-breeder reactor is nearing completion, and is expected to start commercial operation in 2014.

There is considerable controversy over the yield and reliability of India’s nuclear devices. When India tested its first fission device in May 1974, Indian scientists claimed the device had a yield of about 12 kilotons (kt); however, some Indian officials later stated that the figure was closer to 8 to 10 kt, while other independent analysts estimate that the yield was as low as between 4 and 6 kt.

Similar disputes surround India’s May 1998 tests. After the first round of tests on 11 May India’s Department of Atomic Energy (DAE) announced that it had simultaneously tested three nuclear devices: a thermonuclear device with a yield of 43 kt; a fission device with a yield of 12 kt; and a sub-kiloton device with a yield of 0.2 kt. However, analysts and scientists outside of India - citing evidence from geologic and seismic data - concluded that the cumulative yield of the Indian tests was much lower, implying that the second stage of the thermonuclear test had not detonated successfully. In subsequent years, the controversy was reignited following announcements in 2000 by P.K. Iyengar, former chief of the Department of Atomic Energy, and in 2009 by K. Santhanam, field director of the 1998 tests, that the tests did not achieve the desired results. These scientists argue that India should therefore refrain from signing the Comprehensive Nuclear Test Ban Treaty (CTBT) and conduct further tests. However, Anil Kakodkar and R. Chidambaram, present and former leaders of the Atomic Energy Commission (AEC), have consistently disputed these claims, maintaining that their original estimates were correct and that further testing is unnecessary.

## **DEVELOPING A PEACEFUL NUCLEAR PROGRAMME: 1947 TO 1974**

India’s nuclear program was conceived in the pre-independence era by a small group of influential scientists, notably Homi Bhabha, who grasped the significance of nuclear energy and persuaded political leaders to invest resources in the nuclear sector. In the aftermath of independence in August 1947, Prime Minister Jawaharlal Nehru launched an ambitious nuclear program meant to boost the country’s prestige and self-reliance in energy. The primary focus of the

program was the production of inexpensive electricity; however, the decision to develop the complete nuclear fuel cycle also gave India the technical capability to pursue nuclear weapons.

In the years that followed, the internal debate over whether India should develop a nuclear explosive device continued. On the one hand, the scientific establishment wanted to prove that it was technically capable of detonating a nuclear device, Parliament pointed to security developments in China and elsewhere as necessitating a nuclear deterrent. On the other hand, many politicians opposed nuclear weapons both for economic and moral reasons, arguing that nuclear weapons would not make India safer, and that the solution to nuclear proliferation was comprehensive global nuclear disarmament. A consensus emerged on both sides that India should not sign the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) when it was opened for signature in 1968 unless the nuclear weapon states agreed to a clear plan for nuclear disarmament.

Although averse to the idea of nuclear weapons, Prime Minister Lal Bahadur Shastri authorized theoretical work on the Subterranean Nuclear Explosion for Peaceful Purposes (SNEPP) project in November 1964. In the late 1960s nuclear scientists continued to develop the technical capacity for a nuclear explosion, although the political decision had not yet been made to carry out the test. Ultimately, on 18 May 1974, India tested a fission device which it described as a “peaceful nuclear explosion” (PNE). The decision was partly based on security considerations, but equally important were the scientific community’s desire to display its successes and the domestic political desire to win support. George Perkovich argues that, the final decision to conduct the test was the result of an ad hoc, intuitive process that lacked rigorous security analysis.

### **THE SLOW PATH TOWARD WEAPONIZATION : 1974 TO 1998**

India’s 1974 nuclear test was condemned by many countries as a violation of the peaceful-use agreements underlying U.S. and Canadian-supplied nuclear technology and material transfers, and was a major contributing factor to the formation of the Nuclear Suppliers Group (NSG). The United States responded

to the test by imposing a number of sanctions on India. However, despite international alarm about the military implications of its nuclear explosion, India did not follow the 1974 test with subsequent tests, nor did it immediately weaponize the device design that it had tested. It was not until roughly 1986 that India could be considered a “nuclear weapons-capable state. At that time, advances in Pakistan’s efforts to acquire nuclear weapons and the oblique nuclear threats issued by Islamabad in the wake of the 1986 to 1987 Brasstacks crisis appear to have persuaded Prime Minister Rajiv Gandhi to authorize weaponization of India’s nuclear capability.

At the same time, India continued to support efforts for nuclear disarmament. In 1988, Prime Minister Gandhi submitted an Action Plan for a Nuclear-Weapons-Free and Non-Violent World Order to the United Nations General Assembly. As negotiations on the CTBT rapidly progressed in the early 1990s, Indian elites came to regard the CTBT as an instrument of nonproliferation that sought to freeze countries’ nuclear capabilities. This, along with the indefinite extension of the NPT, reignited domestic political pressure for India to risk economic sanctions by conducting further tests.

In 1995 the Narasimha Rao government considered an accelerated program of nuclear tests. However, India’s test preparations were detected by U.S. intelligence agencies, and the resultant U.S. diplomatic pressure convinced the Rao government to postpone the tests. Plans for testing were renewed when the Hindu-nationalist Bharatiya Janata Party (BJP) led by Atal Bihari Vajpayee came to power for a brief period in 1996, but the BJP decided not to go through with the tests.[31] When it returned to power in 1998, the BJP authorized two rounds of nuclear tests on 11 and 13 May 1998, after which it formally declared India to be a nuclear-weapon state.

### **INDIA AS A DECLARED NUCLEAR POWER: 1998 TO THE PRESENT**

India’s nuclear tests were followed within a month by a similar set of tests by Pakistan, resulting in fears in the international community of an arms race escalation of conflict between the two openly declared nuclear powers in South Asia. The 1999 Kargil War and the 2001 to 2002 Twin Peaks Crisis heightened tensions between the two countries, although these low-level

conventional conflicts did not escalate to the nuclear level.

After the 1998 tests the Indian government established the National Security Advisory Board, which issued a Draft Report on Indian Nuclear Policy. It broadly outlined India's nuclear no-first-use policy and defensive posture of credible minimum nuclear deterrence. In January 2003, a Ministry of External Affairs press release maintained adherence to no-first-use, although with the condition that nuclear weapons could also be used in retaliation for a biological or chemical attack, or to protect Indian forces operating in Pakistan. Internal debate about the future role of nuclear weapons continued: a task force established by the Ministry of External Affairs to review India's nuclear posture recommended in 2007 "a comprehensive and integrated nuclear policy taking into account the persistent political instability in the region and China's continued nuclear cooperation with Pakistan."

In line with this posture, India does not maintain a constituted nuclear force on a heightened state of alert. The country's nuclear weapons remain under the control of the civilian Nuclear Command Authority (NCA), comprised of a Political Council, chaired by the Prime Minister, which is "the sole body which can authorize the use of nuclear weapons;" and an Executive Council, led by the National-Security Advisor, which "provides inputs for decision making... and executes the directives given to it by the Political Council." The Indian mission to the United Nations has submitted several draft recommendations on "reducing nuclear danger," which include "steps to reduce the risks of unintentional and accidental use of nuclear weapons, including through de-alerting and de-targeting nuclear weapons."

### **THE U.S.-INDIA NUCLEAR AGREEMENT AND INDIA'S PARTICIPATION IN NUCLEAR COMMERCE**

A key development in recent years has been the U.S.-India nuclear cooperation agreement, plans for which were first unveiled in July 2005. This agreement and the subsequent endorsement of India's case by the Nuclear Suppliers Group (NSG) enabled India to engage in international nuclear trade. In return, New Delhi agreed to allow safeguards on a select number of its nuclear facilities that are classified as "civilian" in

purpose. The remaining "military" facilities remain off-limits to international inspectors.

The agreement process required navigating a number of diplomatic and legal hurdles. The U.S. Congress passed the Hyde Act in January 2006 to exempt nuclear cooperation with India from provisions of the U.S. Atomic Energy Act, allowing for the adoption of a bilateral 123 nuclear cooperation agreement in August 2007. In September 2008, the NSG approved an exemption allowing the members of this export control regime to conduct nuclear trade with India. Finally, a safeguards agreement for select civilian nuclear facilities was concluded between India and the International Atomic Energy Agency (IAEA) in February 2009, after approval by the IAEA Board of Governors the previous year.

In October 2009 India submitted a separation plan, updated in 2010, to put 12 nuclear reactors and the Nuclear Fuel Complex at Hyderabad under IAEA safeguards by 2014. The first two nuclear power plants, units at the Rajasthan Atomic Power Station (RAPS), have been formally placed under the safeguards agreement. In late July 2010, India and the United States signed a bilateral agreement allowing India to reprocess U.S.-obligated nuclear material at two new reprocessing facilities, to be constructed and placed under IAEA safeguards.

Following the NSG waiver, India signed nuclear cooperation agreements with Russia, France, the United Kingdom, South Korea, Canada, Argentina, Kazakhstan, Mongolia, and Namibia. In October 2009, New Delhi identified two locations in the states of Gujarat and Andhra Pradesh that could host reactors constructed by GE Hitachi and Westinghouse. However, given the constraints on any agreement imposed by New Delhi's civil nuclear liability law, it is unclear whether U.S. companies will conclude any reactor supply deals with India.

### **RECENT DEVELOPMENTS AND CURRENT STATUS**

India continues to participate in international nuclear trade. In April 2013, Canada and India signed a bilateral safeguards agreement for trade in nuclear materials and technology used in IAEA safeguarded facilities." Negotiations are ongoing between India and

Japan for a bilateral civilian nuclear cooperation agreement. In late 2011, Australia's Labor Party approved a change to its policy position that would allow the country to export uranium to India; discussions on a bilateral safeguards agreement are ongoing.

India is tightening its export controls for dual-use technologies in an effort to get membership into the Nuclear Suppliers' Group and other export control regimes. New Delhi is seeking membership to the: NSG, MTCR, Wassenaar Arrangement and Australia Group. According to Foreign Secretary Ravi Shankar Menon, "In some respects, our controls are more stringent than those practiced by the NSG and MTCR."

In arguing for NSG membership, India has portrayed itself as a responsible nuclear power, pointing to its positive record on nonproliferation and consistent support for complete nuclear disarmament. It has maintained a unilateral moratorium on nuclear testing and supports negotiations of a Fissile Material Cut-off Treaty (FMCT) that is "universal, non-discriminatory, and internationally verifiable." At the same time, India has remained firmly outside of the NPT, arguing that "nuclear weapons are an integral part of our national security and will remain so pending the global elimination of all nuclear weapons." New Delhi has not signed the CTBT, and continues to produce fissile material for its nuclear weapons program. Although it has reiterated its commitment to no-first-use of nuclear weapons, India's nuclear posture of credible minimum deterrence is still evolving, and the country is developing a strategic triad of nuclear delivery systems.

#### **TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS [NPT] PROVISIONS**

The Treaty on the Non-Proliferation of Nuclear Weapons, also referred to as the Nuclear Non-Proliferation Treaty (NPT), obligates the five acknowledged nuclear-weapon states (the United States, Russian Federation, United Kingdom, France, and China) not to transfer nuclear weapons, other nuclear explosive devices, or their technology to any non-nuclear-weapon state. Its objective is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy and to further the goal of achieving nuclear disarmament and general and complete disarmament.

Nuclear weapon States Parties are also obligated, under Article VI, to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control." Non-nuclear-weapon States Parties undertake not to acquire or produce nuclear weapons or nuclear explosive devices. They are required also to accept safeguards to detect diversions of nuclear materials from peaceful activities, such as power generation, to the production of nuclear weapons or other nuclear explosive devices. This must be done in accordance with an individual safeguards agreement, concluded between each non-nuclear-weapon State Party and the International Atomic Energy Agency (IAEA). Under these agreements, all nuclear materials in peaceful civil facilities under the jurisdiction of the state must be declared to the IAEA, whose inspectors have routine access to the facilities for periodic monitoring and inspections. If information from routine inspections is not sufficient to fulfill its responsibilities, the IAEA may consult with the state regarding special inspections within or outside declared facilities. The NPT consists of a preamble and eleven articles. Although the concept of "pillars" is not expressed anywhere in the NPT, the treaty is nevertheless sometimes interpreted as a three-pillar system, with an implicit balance among them:

1. non-proliferation,
2. disarmament, and
3. the right to peacefully use nuclear technology.

#### **STATUS**

The Treaty was opened for signature on 01 July 1968, and signed on that date by the United States, the United Kingdom, the Soviet Union, and 59 other countries. The Treaty entered into force with the deposit of US ratification on 05 March 1970. China acceded to the NPT on 09 March 1992, and France acceded on 03 August 1992. In 1996, Belarus joined Ukraine and Kazakhstan in removing and transferring to the Russian Federation the last of the remaining former Soviet nuclear weapons located within their territories, and each of these nations has become a State Party to the NPT,

as a non-nuclear-weapon state. In June 1997 Brazil became a State Party to the NPT

The NPT is the most widely accepted arms control agreement; only Israel, India, and Pakistan have never been signatories of the Treaty, and North Korea withdrew from the Treaty in 2003.

In accordance with the terms of the NPT, on May 11, 1995 more than 170 countries attended the 1995 NPT Review and Extension Conference (NPTREC) in New York. Three decisions and one resolution emanated from NPTREC. First, the NPT was extended for an indefinite duration and without conditions. Second, Principles and Objectives for Nuclear Non-Proliferation and Disarmament were worked out to guide the parties to the treaty in the next phase of its implementation. Third, an enhanced review process was established for future review conferences. Finally, a resolution endorsed the establishment of a zone free of weapons of mass destruction in the Middle East.

There have been no confirmed instances of official states party transfers of nuclear weapon technology or unsafeguarded nuclear materials to any non-nuclear-weapon states party. However, some non-nuclear-weapon states, such as Iraq, were able to obtain sensitive technology and/or equipment from private parties in states that are signatories to the NPT. South Africa conducted an independent nuclear weapons production program prior to joining the NPT, however, it dismantled all of its nuclear weapons before signing the Treaty. In 1994, the United States and North Korea signed an "Agreed Framework" bringing North Korea into full compliance with its non-proliferation obligations under the NPT. In 2003 North Korea announced it was withdrawing from the Treaty effective immediately, and on October 9, 2006 became the eighth country to explode a nuclear device.

The states parties meet every five years at a Review Conference (or RevCon) to assess the implementation of the treaty. There is a Preparatory Committee (or PrepCom) conference that meets for two weeks in the three years leading up to the Review Conference. In preparation for the 2015 Review Conference, there are three PrepComs: in 2012 (Vienna), 2013 (Geneva), and 2014 (New York). The Review Conferences always take place in New York.

During the PrepComs, many working papers are tabled, and the Chairman drafts a Final Summary statement, but none of these documents are binding. Rather, these statements, working papers, summaries, and reports are to be used as assessment tools at the Review Conference. Only the Review Conferences produce a consensus document. NGOs have become significant, visible, and important players at these conferences, and we have included the materials that they have circulated at these conferences as well.

### **COMPREHENSIVE NUCLEAR-TEST-BAN TREATY (CTBT)**

The Conference on Disarmament (CD) began its substantive negotiations on a comprehensive nuclear-test-ban treaty in January 1994 within the framework of an Ad Hoc Committee established for that purpose. Although the CD had long been involved with the issue of a test-ban, only in 1982 did it establish a subsidiary body of the item. Disagreement over a mandate for that body blocked tangible progress for years.

#### **Status of the Treaty**

In accordance with Article XV of the Treaty, it will enter into force after all 44 States listed in Annex 2 to the Treaty have ratified it.

#### **The following Article XIV states have ratified the treaty:**

Algeria	Argentina	Australia
Austria	Bangladesh	Belgium
Brazil	Bulgaria	Canada
Chile	Colombia	Democratic Republic of the Congo
Finland	France	Germany
Hungary	Indonesia	Italy
Japan	Mexico	Netherlands

Norway	Peru	Poland
Romania	Republic of Korea	Russian Federation
Slovakia	South Africa	Spain
Sweden	Switzerland	Turkey
Ukraine	United Kingdom of Great Britain and Northern Ireland	

**The following Article XIV states have not yet ratified the treaty :**

China	Democratic People's Republic of Korea	Egypt
India	Iran (Islamic Republic of)	Israel
Pakistan	United States of America	

The Preparatory Commission for the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO) is an international organization established by the States Signatories to the Treaty on 19 November 1996 and has its headquarters in Vienna, Austria. The objective of the organization is to achieve the object and purpose of the Treaty, to ensure the implementation of its provisions, including those for international verification of compliance with the Treaty, and to provide a forum for consultation and cooperation among Member States. To this end, the Commission prepares for the entry-into-force of the Treaty and carries out the necessary preparations for the effective implementation of the Treaty, including the establishment of a global verification regime. The Preparatory Commission consists of a plenary body composed of all States signatories to the Treaty and a Provisional Technical Secretariat.

The relationship agreement between the United Nations and the CTBTO was adopted in 2000 by the General Assembly.

Article XIV of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) states that if the Treaty has not entered into force three years after the date of the anniversary of its opening for signature, a conference may be held upon the request of a majority of ratifying States. Such a conference is held to examine to what extent the requirements for entry into force have been met, and to decide on measures to accelerate the ratification process. Previous Conferences on Facilitating the Entry into Force of the Treaty were held

in 1999, 2003 and 2007 in Vienna, and 2001, 2005 2009, 2011 and 2013 in New York.

**Conferences on Facilitating the Entry into force of the CTBT:**

- October 1999
- November 2001
- September 2003
- September 2005
- September 2007
- September 2009
- September 2011
- September 2013

**INDIA'S DENIAL TO SIGN THE COMPREHENSIVE NUCLEAR - TEST - BAN TREATY (CTBT)**

The Comprehensive Nuclear - Test - Ban Treaty (CTBT), is essentially a legal mandate designed to globally forbid nuclear tests. Envisioned by the US President John F Kennedy, the international ban on nuclear tests' finally became a reality in 1996 when the CTBT was internationally declared open. However, as per the notions of the UN-Director General at Palais Des Nations in Geneva, Vladimir Petrovsky (Russia), the concept of nuclear test ban program was first conceived by Jawaharlal Nehru in 1954. The main functions of the CTBT are:

- Preventing and strongly discouraging research and development of nuclear weapon potentiality for

states that do not have the background or capacity to enhance their nuclear weapons developments

- Block permanently the states that have authorized considerable nuclear weapon arsenals from affirming elevated nuclear weapon designs that has not seen successful tests
- To bridle the arms race, that seems to go on unmitigated. This especially applies for the Asian countries that have developed a propensity to stockpile their nuclear arsenals

The net result of the CTBT is this that, countries engaged in serious pursuit of nuclear armament programs or in the process of amplifying the capacities of their existing nuclear weapons will either have to swallow the fact that the advanced nuclear weapons will perform as per predictions or conduct actual tests to reaffirm the capacities of these weapons. Undoubtedly, if latter is the case, after the introduction of CTBT, the country will have to face the consequences in the form of severe global retaliation which may even result in a global denouncement.

#### **INDIA'S STANCE REGARDING THE SIGNING OF CTBT:**

India, one of the eight countries, (five countries with declared nuclear powers and three 'threshold' countries) had firmly denied being a signatory of the CTBT. Even the nuclear power officials' effort of ratification of the treaty before it is actually implemented was also turned down by India. The negotiations and the participation procedure ended on 28th of June 2013. India neither participated nor approved the CTBT. However, the formal closure of the treaty is not going to close the opportunity of being a part of it forever (as per diplomatic sources). The treaty will obviously be opened for a willing country agreeing to the terms of CTBT. The Partial Test Ban Treaty signed by India prohibits our country from testing nuclear weapons in the air. Since then, all such tests have been carried out mostly under the desert adhering to the norms of 'peaceful nuclear explosion'. The US State Department is under the apprehension that India may conduct another nuclear test sometimes this year. As far as the nuclear arsenal of India is concerned, our country follows the ingenious method of keeping the several

components of a nuclear weapon separately, which can be assembled at a short notice in case of the necessity of a nuclear strike.

Any weapon needs to be tested from time to time and nuclear weapons are no exceptions either. The fission and fusion materials also need to be checked periodically to ensure that they are functional. However, India has almost eradicated the need for actual nuclear tests by enhancing its computer simulation program to a great extent.

#### **CTBT-O WORLD MONITORING STATIONS FOR UNAUTHORIZED NUCLEAR TESTS:**

The Comprehensive Test Ban Treaty Organization (CTBT-O) has been set up with a budget of 1 billion dollars sponsored by 183 countries with its headquarters in Vienna. The CTBT-O has a vast network covering almost the entire world. The extremely high technology listening and monitoring devices of CTBT-O can detect a nuclear explosion, whether it is conducted in air, underground or even under sea in a matter of minute's and pinpoint accurately the location of the explosion. CTBT-O's International Monitoring System (IMS) is unique and the precise detection can be said to be 100% perfect. This is the sole motive of setting up CTBT-O, to keep the world free from nuclear test hazards.'

If only one thousandth of the noble gas (emerging from an atomic explosion) is vented, they will see it. Of the proposed 337 stations planned all over the world (including the Arctic and the Antarctica), 87% are fully functional streaming huge quantities of real time data to the CTBT-O headquarters in Vienna/One of CTBT-O's recent achievement was when 96 stations detected the small nuclear weapons tests carried out by North Korea on February 12th, 2013. 71 stations spread over the globe are dedicated to the listening of sounds made on the earth and look specifically for nuclear detonations and about 12 of these stations specifically look for underwater nuclear detonations. US, Germany and UK are some of the countries that have ensured funding of this vast network. Since India did not accept the CTBT, nuclear activities in India are monitored from CTBT-O stations located in Pakistan, Sri Lanka and Nepal.

According to the estimates of the CTBT-O scientists, the net explosive power of the nuclear tests carried out all over the world till date equals 26,000 Hiroshima bombings. So it is about time to monitor such a prolific and dangerous activity. Out of 195 countries with declared nuclear powers, 183 have signed the CTBT and 159 countries have approved the treaty. While Japan continues negotiations with India regarding a civil nuclear agreement, India had issued a ‘unilateral moratorium’ on test of nuclear weapons. Other countries that have not accepted the CTBT are USA, Israel, China, North Korea, Pakistan, Iran and Egypt. I end this article with the number of nuclear bomb tests performed by some of the countries. While India has performed 2 tests, China has a score of 45 and USA of course over a 1000. NEW START

New START (Strategic Arms Reduction Treaty) is a nuclear arms reduction treaty between the United States of America and the Russian Federation with the formal name of Measures for the Further Reduction and Limitation of Strategic Offensive Arms. It was signed on 8 April 2010 in Prague, and, after ratification, entered into force on 5 February 2011. It is expected to last at least until 2021.

New START replaced the Treaty of Moscow (SORT), which was due to expire in December 2012. In terms of name, it is a follow-up-to the START I treaty, which expired in December 2009, the proposed START II treaty, which never entered into force, and the START III treaty, for which negotiations were never concluded. Under terms of the treaty, the number of strategic nuclear missile launchers will be reduced by half. A new inspection and verification regime will be established, replacing the SORT mechanism. It does not limit the number of operationally inactive stockpiled nuclear warheads that remain in the high thousands in both the Russian and American inventories.

Under the terms of the treaty, the number of strategic nuclear missile launchers will be reduced by half. The treaty limits the number of deployed strategic nuclear warheads to 1,550, which is down nearly two-thirds from the original START treaty, as well as 10% lower than the deployed strategic warhead limit of the 2002 Moscow Treaty. The total number of deployed warheads, however, could exceed the 1,550 limit by a

few hundred because per bombe#-only one warhead is counted regardless of how many it actually carries. It will also limit the number of deployed and non-deployed inter-continental ballistic missile (ICBM) launchers, submarine-launched ballistic missile (SLBM) launchers, and heavy bombers equipped for nuclear armaments to 800. The number of deployed ICBMs, SLBMs, and heavy bombers equipped for nuclear armaments is limited to 700. The treaty allows for satellite and remote monitoring, as well as 18 on-site inspections per year to verify limits.

### **New START Limits**

<b>Type</b>	<b>Limit</b>
Deployed missiles and bombers	700
Deployed warheads (RVs and bombers)	550
Deployed and Non-deployed Launchers (missile tubes and bombers)	800

These obligations must be met within seven years from the date the treaty enters into force. The treaty will last ten years, with an option to renew it for up to five years upon agreement of both parties. The treaty entered into force on 5 February 2011, when the United States and Russia exchanged instruments of ratification, following approval by the U.S. Senate and the Federal Assembly of Russia. However, the United States began implementing the reductions even before the treaty was ratified.

Documents made available to the U.S. Senate described removal from service of at least 30 missile silos, 34 bombers and 56 submarine launch tubes, though missiles removed would not be destroyed and bombers could be converted to conventional use. While four of 24 launchers on each of the 14 ballistic missile nuclear submarines would be removed, none would be retired.

The treaty places no limits on tactical systems, such as the Lockheed Martin F-35 Lightning II, which will most likely be replacing the F-15E and F-16 in the tactical nuclear delivery role.

The treaty does not cover rail-mobile ICBM launchers because neither party currently possesses such systems. ICBMs on such launchers would be covered under the generic launcher limits, but the inspection details for such systems would have to be

worked out between the parties if such systems were reintroduced in the future.

Limits in START, Moscow Treaty, and New START

**Treaty**

START	(1991)
New START	(2010)
Moscow Treaty	(2002)

**No limites**

- 1,600 strategic nuclear delivery vehicles
- 800 deDeployed and nondeployed ICBM launchers, SLBM launchers and heavy bombers equipped to carry nuclear weapons
- Limits on Delivery Vehicles
- Within the 800 limit, 700 deployed ICBMs, SLBMs, and heavy bombers equipped to carry nuclear weapons
- 6,000 warheads attributed to ICBMs, SLBMs, and heavy bombers
- 4,900 warheads attributed to ICBMs and SLBMs
- 1,100 warheads attributed to mobile ICBMs

**Limits on Warheads**

- 1,540 warheads attributed to heavy ICBMs
- 1,700-2,200 deployed strategic warheads
- No sublimits 1,550 deployed warheads No sublimits

**No limit**

Limits on Throwweight 3,600 metric tons

**Deadlines**

The New START Treaty requires a number of specific actions within periods after Entry into Force (EIF) (5 February 2011)

- No Later than (NLT) 5 days after EIF

**Exchange Inspection Airplane Information:**

Lists of the types of airplanes intended to transport inspectors to points of entry will be exchanged.

- NLT 25 days after EIF

**Exchange Lists of Inspectors and Aircrew Members:**

Lists of initial inspectors and aircrew will be exchanged.

- NLT 45 days after EIF

**Exchange databases:**

Databases will provide information on the numbers, locations, and technical characteristics of weapon systems and facilities that are covered under the Treaty.

- NLT 60 days after EIF

**Exhibition: Strategic Offensive Arms:**

If a type, variant, or version of a strategic offensive arm (SOA) that was not exhibited in connection with the START Treaty is declared, then the SOA's features and technical characteristics must be demonstrated and confirmed.

- 60 days after EIF

**Right to Conduct Inspections Begins:**

Parties may begin inspections, 18 on-site inspections per year are provided in the Treaty. Each Party is allowed ten Type One Inspections and eight Type Two Inspections.

1. Type One Inspections focus on deployed and non-deployed SOAs sites. Activities include confirming accuracy of data on SOAs, the number of warheads located on designated deployed ICBMs and SLBMs, and the number of nuclear armaments to be on designated deployed heavy bombers.
2. Type Two Inspections focus on sites with non-deployed SOAs. They can involve confirmation of the conversion/elimination of SOAs, and confirming the elimination of facilities.

- NLT 120 days after EIF

**Exhibition: Heavy Bombers at Davis-Monthan Air Force Base:**

The United States will conduct a one-time exhibition of each type of environmentally-sealed deployed heavy bombers located at the storage facility at Davis-Monthan Air Force Base in Arizona.

- NLT 180 days after EIF

**Initial Demonstration of Telemetry Playback Equipment:**

Parties will conduct an initial demonstration of recording media and playback equipment for telemetric information, information that originates on a missile during its initial motion and flight.

- NLT 225 days after EIF

Exchange Updated Databases:

Parties will exchange updated databases and every six months thereafter for the duration of the Treaty.

- NLT 1 year after EIF

**Exhibition : B-1B Heavy Bomber:**

The United States will conduct a one-time exhibition of a B-1B heavy bomber equipped with non-nuclear armaments to demonstrate it no longer can employ nuclear armaments.

- NLT 3 years after EIF

Exhibition: Previously Converted Missile Launchers:

The United States will conduct a one-time exhibition of its four SSGNs, which are equipped with cruise missile launchers and were converted from nuclear ballistic submarines, to confirm that SSGNs cannot launch SLBMs, The United States will also hold an exhibition of the five converted ICBM launcher silos at Vandenberg Air Force Base in California, now used as missile defense interceptor launchers. This will confirm that the converted launchers are no longer able to launch ICBMs and determine the features to distinguish converted silo launchers from unconverted ones.

- NLT 7 years after EIF

**Meet Central Treaty Limits;**

Parties are required to meet the limits laid out in the Treaty for deployed strategic warheads, and deployed and non-deployed strategic delivery vehicles and launchers.

- 10 years after EIF

**Treaty Expires:**

Unless Parties agree with an extension for up to five years.

**The Nuclear Suppliers Group (NSG) at a Glance**

Established in 1975, the Nuclear Suppliers Group (NSG) is comprised of 46 nuclear supplier states, including China, Russia, and the United States, that have voluntarily agreed to coordinate their export controls governing transfers of civilian nuclear material and nuclear-related equipment and technology to non-nuclear-weapon states. The NSG aims to prevent

nuclear exports for commercial and peaceful purposes from being used to make nuclear weapons. NSG members are expected to forgo nuclear trade with governments that do not subject themselves to international measures and inspections designed to provide confidence that their nuclear imports are not used to develop nuclear arms. The NSG has two sets of Guidelines listing the specific nuclear materials, equipment, and technologies that are subject to export controls.

**GUIDELINES AND OPERATION**

The NSG Guidelines require that importing states provide assurances to NSG members that proposed deals will not contribute to the creation of nuclear weapons. Potential recipients are also expected to have physical security measures in place to prevent theft or unauthorized use of their imports and to promise that nuclear materials and information will not be transferred to a third party without the explicit permission of the original exporter. In addition, final destinations for any transfer must have International Atomic Energy Agency (IAEA) safeguards in place. The IAEA is charged with verifying that non-nuclear-weapon states are not illicitly pursuing nuclear weapons. IAEA safeguards to prevent nuclear material or technology from being stolen or misappropriated for weapons include inspections, remote monitoring, seals, and other measures.

The Guidelines are comprised of two parts, each of which was created in response to a significant proliferation event that highlighted shortcomings in then-existing export control systems. Part I lists materials and technology designed specifically for nuclear use. These include fissile materials, nuclear reactors and equipment, and reprocessing and enrichment equipment. First published in 1978, Part I responded to India's diversion of nuclear imports for supposedly peaceful purposes to conduct a nuclear explosion in 1974. Part II identifies dual-use goods, which are non-nuclear items with legitimate civilian applications that can also be used to develop weapons. Machine tools and lasers are two types of dual-use goods. NSG members adopted Part II in 1992 after discovering how close Iraq came to realizing its nuclear weapons ambitions by illicitly employing dual-use imports in a covert nuclear weapons program before the 1991 Persian Gulf War.

At a May 2004 meeting, NSG members adopted a “catchall” mechanism, which authorizes members to block any export suspected to be destined to a nuclear weapons program even if the export does not appear on one of the control lists.

To be eligible for importing Part I items from an NSG member, states must have comprehensive IAEA safeguards covering all their nuclear activities and facilities. In the case of Part II goods, IAEA safeguards are only required for the specific nuclear activity or facility that the import is destined for.

Because the regime is voluntary, NSG members may ultimately make a political calculation to proceed with a transfer that violates the guidelines. For instance, Russia transferred nuclear fuel to India in January 2001 even though 32 of 34 NSG members earlier declared that the shipment would contradict Russia’s NSG commitments.

Members are supposed to report their export denials to each other so potential proliferators cannot approach several suppliers with the same request and get different responses. NSG states are expected to refrain from making exports identical or similar to those denied by other members.

In 2008, the NSG agreed to exempt India from its requirement that recipient countries have in place comprehensive IAEA safeguards covering all nuclear activities. The United States pressed for the exemption for three years to allow nuclear trade with India, and some NSG members were reluctant to agree to such a rule reversal. The waiver commits each NSG member to regularly inform the group of certain “approved transfers” to India and invites each country to share information on their bilateral nuclear cooperation agreements with India.

**Organization:** NSG members periodically review the Guidelines to add new items that pose proliferation risks or to eliminate goods that no longer require special trade controls. An annual plenary, which is chaired on a rotating basis among members, is held to discuss the regime’s operation, including possible changes to the Guidelines. All NSG decisions are made by consensus. Members also participate in regular meetings of separate standing bodies-known as the Dual-Use Consultations and the Joint Information Exchange-

devoted to reviewing Part II of the Guidelines and exchanging information.

The Permanent Mission of Japan in Vienna serves as the NSG point of contact. It distributes NSG documents, schedules meetings, and assists with other administrative work.

### **Membership**

Any state that conducts exports appearing on the Guidelines may apply for NSG membership. A potential member is evaluated on its proliferation record, adherence to international nonproliferation treaties and agreements, and national export controls. All existing members must approve an applicant for it to join the regime. There are several countries with nuclear programs outside the NSG, most notably India, Israel, Pakistan, and North Korea.

### **History**

Negotiated in 1968, the nuclear Nonproliferation Treaty (NPT) granted non-nuclear-weapon states access to nuclear materials and technology for peaceful purposes as long as they committed not to develop nuclear weapons. Recognizing that materials and technologies used in peaceful nuclear programs could be used to develop weapons as well, several NPT nuclear supplier states sought to determine in relation to the treaty what specific equipment and materials could be shared with non-nuclear-weapon states and under what conditions. These supplier states formed the Zangger Committee in 1971 to require states outside the NPT to institute IAEA safeguards before being allowed imports of certain items that could be directly used to pursue nuclear weapons. These items were collectively referred to as the “Trigger List.”

India’s explosion of a nuclear device in 1974 reaffirmed the fact that nuclear materials and technologies acquired under the guise of peaceful purposes could be diverted to build weapons. In response to India’s action, several Zangger Committee members joined with France, which was not a member of the NPT at that time, to establish the NSG to further regulate nuclear-related exports. The NSG added technologies for control to the original Zangger Committee’s “Trigger List.” This became Part I of the NSG Guidelines. In addition, NSG members agreed to

apply their trade restrictions to all states, not just those outside the NPT.

**PARTICIPATING GOVERNMENTS**

Initially the NSG had seven participating governments: Canada, West Germany, France, Japan, the Soviet Union, the United Kingdom, and the United States. In 1976-77, participation was expanded to fifteen with the admittance of Belgium, Czechoslovakia, East Germany, Italy, the Netherlands, Poland, Sweden, and Switzerland. Germany was reunited in 1990 while

Czechoslovakia broke up into the Czech Republic and Slovakia in 1993. Twelve more nations joined up to 1990. Following the collapse of the Soviet Union a number of former republics were given observer status as a stage towards future membership. China became a participating government in 2004. The European Commission and the Zangger Committee Chair participate as observers. The NSG Chair Country for 2013-2014 is the Czech Republic, The-aext chair (for 2014-2015) will be Argentina.

**As of 2014 the NSG has 48 members:**

Argentina	Czech Republic	Japan	Poland	Turkey
Australia	Denmark	Kazakhstan	Portugal	Ukraine
Austria	Estonia	Latvia	Romania	United Kingdom
Belarus	Finland	Lithuania	Russia	United States
Belgium	France	Luxembourg	Serbia	
Brazil	Germany	Malta	Slovakia	
Bulgaria	Greece	Mexico	Slovenia	
Canada	Hungary	Netherlands	South Africa	
People’s Republic of China	Iceland	New Zealand	South Korea	
Croatia	Ireland-	Norway	Spain	
Cyprus	Italy	Sweden	Switzerland	

**COUNTRIES TO SUPPORT INDIA’S MEMBERSHIP OF NUCLEAR SUPPLIER GROUP**

During a state visit to India in November 2010, U.S. President Barack Obama announced U.S. support for India’s participation in the Nuclear Suppliers Group, the Wassenaar Arrangement, the Australia Group and the Missile Technology Control Regime, “in a phased manner,” and to encourage the evolution of regime participation criteria to that end, “consistent with maintaining the core principles of these regimes.”

Australia supports India’s membership of the Nuclear Supplier Group. NSG is a multinational body concerned with reducing nuclear proliferation by controlling the export and re-transfer of materials that may be applicable to nuclear weapon development and by improving safeguards and protection on existing materials. Earlier, former French President Nicholas Sarkozy also expressed his country’s backing for India’s

inclusion in Nuclear Suppliers’Group. The UK has for a long time been a supporter of India’s membership of the Nuclear Suppliers Group.

But others worry about the implications for wider efforts to prevent the spread of atomic bombs if a country that has refused to sign a global anti-nuclear weapons pact were to enter a group which has a key role in countering proliferation of these arms.

If India joined the group, set up in 1975 to ensure that civilian nuclear technology exports are not diverted to make atomic arms, it would be the only member that is outside the 189- nation nuclear Non-Proliferation Treaty (NPr). Western powers have taken a strong interest in the nuclear emergence of India - particularly its ambition to expand its capacity in the next 20 years by adding nearly :30 .reactors, making it an attractive market for technology exporters.

Washington sealed a civilian nuclear supply deal with India in 2008 that China and others found

questionable because Delhi is not part of the NPT. This ended India's nuclear isolation and could mean billions of dollars in business for U.S. firms. Britain is also exploring a nuclear cooperation deal with India. India - Asia's third-largest economy - would need the support of all NSG members to join the secretive body.

China is also believed to have reservations, influenced by its ties to its ally Pakistan, India's arch geo-political rival, which has also tested atomic bombs, analysts say. India and Pakistan which have fought three wars are both outside the NPT, which would oblige them to scrap nuclear weapons. Five world powers - the United States, Russia, China, Britain and France - in the NSG have nuclear arsenals but were allowed to keep them under the NPT because they predated the 1970 treaty, although they committed to disarming eventually.

**IAEA Ministerial Meeting Concludes With Focus on Stronger Nuclear Security**

The International Atomic Energy Agency's International Conference on Nuclear Security: Enhancing Global Efforts, which was held from 1 to 5 July 2013, addressed international nuclear security efforts by reviewing past achievements, current approaches and identifying future trends.

With more than 1 300 registered participants, including some 34 Government Ministers and other Heads of Delegation from 125 States, as well as 21 governmental and non-governmental Organizations, the Conference provided a forum for Ministers, policymakers and senior officials to formulate views on future directions and priorities to strengthen nuclear security.

The Conference opened with a ministerial session, chaired by the President of the Conference, Janos Martonyi, the Foreign Minister of Hungary.

The overall themes for the Conference were the past, present and future of nuclear security worldwide. These themes were discussed at a high level during the main sessions of the Conference, and in more detail in separate, parallel technical sessions.

The results of the Ministerial Conference will also serve as important input in the preparation of the IAEA's next Nuclear Security Plan, for 2014-2017. The IAEA's first comprehensive Action Plan to Protect Against

Nuclear Terrorism was approved in March 2002 by its Board of Governors and General Conference, and two further Nuclear Security Plans were approved in 2005 and 2009 respectively.

Under the 2010-2013 Nuclear Security Plan, the IAEA contributes to efforts to achieve worldwide, effective security wherever nuclear or other radioactive material is in use, in storage, and/or in transport, as well as the security of the associated facilities and activities. The IAEA supports States, upon their request, by providing assistance in capacity building, guidance, peer reviews and advisory services, human resource development, sustainability and risk reduction. The objective of the IAEA's support is also to assist States to implement and adhere to nuclear security-related international legal instruments; and to strengthen the international cooperation and coordination of assistance given through bilateral programmes and other international initiatives.

## **BACKGROUND**

There is a continuing risk that nuclear or other radioactive-material could be used in malicious acts. This risk is regarded as a serious threat to international peace and security. The responsibility for nuclear security rests entirely with each State and that appropriate and effective national systems for nuclear security are vital in facilitating the peaceful use of nuclear energy and enhancing efforts to strengthen nuclear security worldwide.

The IAEA has been active "in the nuclear security field for several decades. Its Office of Nuclear Security maintains an authoritative global" database, which records incidents and trafficking in nuclear and radioactive materials. Upon request, the Office of Nuclear Security also provides, inter alia, peer reviews and advisory services.

Through its support, the IAEA helps States to prevent nuclear and other radioactive materials from being stolen and used maliciously, to secure borders against smuggling of radioactive materials, and to prepare for major public events that could be a target for criminal groups

## **2012 NUCLEAR SECURITY SUMMIT**

The 2012 Nuclear Security Summit was a summit held at the COEX Convention & Exhibition Center in

Seoul, South Korea, on March 26 and 27, 2012. It was the second edition of the conference after the 2010 Nuclear Security Summit. The “2012 Seoul Nuclear Security Summit”, is the largest summit in the security field that discusses international cooperative measures to protect nuclear materials and facilities from terrorist groups, with participation from more than 53 heads of state and international organizations. The main issues to be discussed at the Summit were as follows:

- Cooperative measures to combat the threat of nuclear terrorism
- Protection of nuclear materials and related facilities
- Prevention of illicit trafficking of nuclear materials

Fifty-eight world leaders from 53 states and four international organizations, including the United Nations, International Atomic Energy Agency, the European Union and INTERPOL, have participated in the Summit.

At the summit, the leaders discussed about the nuclear terrorism threats and nuclear security preparedness. They also reviewed the implementation of agreements and voluntary commitments. Then the leaders focused on major nuclear security issues, mostly brought up at the Washington summit, such as the minimization and management of highly enriched uranium, ratification of nuclear security conventions, strengthening information and transportation security, IAEA’s role, preventing illicit nuclear trafficking, nuclear security culture, and international cooperation and assistance.

In the aftermath of the Fukushima nuclear power plant accident in March 2011, Korea took the initiative of adding two new issues of radiological security and nuclear security- safety interface to the agenda-The Washington summit had focused on nuclear terrorism with explosive nuclear devices, perceiving that as the biggest threat to international security. The 2012 Seoul summit discussed protection against dirty bombs or the sabotage of nuclear facilities. The Seoul summit also discussed the integration of nuclear security and safety.

Some states initially opposed these two items, claiming that they would “dilute” the focus of the summit. To the contrary: Their inclusion helps make more countries willing participants in the summit since

radiological terrorism or nuclear safety are more palpable threats than nuclear bomb terrorism.

## **BACKGROUND**

The first Nuclear Security Summit was held in Washington D..C. on April 12 and 13, 2010. U.S. President Obama, who proposed the Nuclear Security Summit in his April 2009 Prague speech, invited 47 heads of states and three representatives of international organizations. In the Prague speech, President Obama announced his vision for a ‘world without nuclear weapons’ and proposed nuclear security as one of three strategic goals for this vision together with nuclear disarmament and nonproliferation. President Obama also announced a nuclear security goal to secure all vulnerable nuclear materials around the world in four years.

During the Washington summit, Korea was designated as the second summit host by Present Obama and this proposal was greeted by all participants. This decision reflects the recognition of Korea’s increasing global presence by international society. The selection of Korea as host of the 2012 Summit reflects the international community’s recognition of its world-class nuclear technology, its compliance with NPT obligations and its exemplary use of nuclear energy for peaceful purposes. The hosting of the Nuclear Security Summit on the Korean peninsula will be highly significant given its implications within the context of denuclearization.

## **SEOUL COMMUNIQUE**

The Seoul Communique builds on the objectives and measures set out in the 2010 Washington Communique to identify 11 areas of priority and importance in nuclear security and presents specific actions in each area.

The 11 areas are as follows: the global nuclear security architecture; the role of the IAEA; nuclear materials; radioactive sources; nuclear security and safety; transportation security; combating illicit trafficking; nuclear forensics; nuclear security culture; information security; and international cooperation.

The Seoul Communique sets out the following specific actions in the above 11 areas:

- Eliminating and disposing of highly enriched uranium (HEU) no longer in use
- Minimizing the use of HEU
- Encouraging voluntary announcements by the end of 2013 of specific actions to minimize the use of HEU
- Welcoming international efforts to develop high-density low-enriched uranium (LEU) fuel for the purpose of replacing HEU fuels in research reactors and medical isotope production facilities
- Seeking to bring the 2005 amended Convention on the Physical Protection of Nuclear Materials (CPPNM) into effect by 2014
- Welcoming an international conference in 2013 organized by the IAEA to coordinate nuclear security activities
- Encouraging voluntary contributions to the IAEA Nuclear Security Fund
- Developing options for national policies on HEU management within the framework of the IAEA
- Encouraging national measures and international cooperation to prevent radiological terrorism
- Strengthening the physical protection of nuclear facilities and enhancing emergency response capabilities in the case of radiological accidents while comprehensively addressing nuclear security and nuclear safety concerns
- Strengthening the management of spent nuclear fuels and radioactive wastes
- Strengthening the protection of nuclear materials and radioactive sources in transport
- Encouraging the establishment of a system to effectively manage and track such materials on a national level
- Preventing the illicit trafficking of nuclear materials
- Strengthening technical capabilities to search for and detect illicitly trafficked nuclear materials and encouraging the sharing of information on persons involved in such activities by cooperating with the INTERPOL
- Building nuclear forensics capacity to identify the source of illicitly trafficked nuclear materials
- Welcoming the establishment of Centers of Excellence for training and education in nuclear security, and supporting networking activities between each Center
- Strengthening the nuclear security culture
- Encouraging the participation of industry, academia, the media, NGOs and other civil actors in the discussions on nuclear security
- Strengthening the protection of sensitive nuclear security-related information and enhancing cyber security at nuclear facilities
- Promoting international cooperation, such as the provision of assistance to countries for the enhancement of national nuclear security capabilities upon request
- The hosting Of the next Nuclear Security Summit in the Netherlands — 2014 Nuclear Security Summit

There are a number of points particularly worthy of note in the Seoul Communique. Firstly, it provides important timelines for advancing nuclear security objectives, such as the target year (end of 2013) for states to announce voluntary actions on minimizing the use of HEU and the goal year (2014) for bringing the amended CPPNM into effect. Secondly, it reflects the need to address both the issues of nuclear security and nuclear safety in a coherent manner for the sustainable peaceful uses of nuclear energy. It also emphasizes the need to better secure spent nuclear fuel and radioactive waste. Thirdly, it sets out specific measures to prevent radiological terrorism, an issue which was only briefly touched upon at the Washington Summit.

#### **2014 NUCLEAR SECURITY SUMMIT**

The 2014 Nuclear Security Summit will be a summit held in The Hague, the Netherlands, on March 24 and 25, 2014. It will be the third edition of the conference, succeeding the 2012

Nuclear Security Summit. The 2014 summit will be attended by 58 world leaders, some 5,000 delegates and some 3,000 journalists. It will chart the accomplishments of the past two years, identifying which of the objectives set out in the Washington Work Plan and the Seoul Communique have not been met and proposing ways to achieve them.

The Netherlands, the organising country, will focus on the following achievable and visible goals:

1. Optimal security for and, if at all possible, a reduction in the use of highly enriched uranium and plutonium.
2. Ratification of the amended Convention on the Physical Protection of Nuclear Material by more countries to ensure that the amendment enters into force as soon as possible.
3. More frequent reviews of state security structures by IAEA advisory missions.
4. National registration and protection of highly radioactive sources (e.g. medical equipment).
5. Greater role for industry in nuclear security, to enhance the security culture and existing regulations. States should provide information to their own people and the international community to demonstrate that they are taking appropriate measures to maintain the security of their nuclear material and facilities.
6. These confidence-building measures will increase trust in the international protection system.

The Netherlands will host the next Nuclear Security Summit at The Hague on March 24 and 25, 2014. The summit process, launched in 2010, responds to growing awareness of the risk that non-state actors and terrorist groups might acquire weapons-usable fissile material. It seeks to further the goal of securing all nuclear material worldwide through engagement with key heads of state and international organizations. The Carnegie Endowment hosted Ambassador Piet de Klerk, Sherpa to the 2014 Nuclear Security Summit and Netherlands ambassador to Jordan, to discuss the continued importance of nuclear security and how the summit at The Hague will build on previous meetings in Washington and Seoul. Togzhan Kassenova moderated.

#### **A GLOBAL CHALLENGE**

- **A Growing Threat:** Over the past several decades the amount of nuclear material in the world has grown considerably, de Klerk said. Despite the threat presented by unsecured nuclear material, the safeguards to control this material remain weak.

- **Weak International Laws:** Important international laws that could increase the security of at-risk nuclear material remain not in force. De Klerk pointed to the example of the 2005 amendment to the Convention on the Physical Protection of Nuclear Material, which is not yet legally binding due to an insufficient number of state ratifications.

#### **Achievements in Seoul**

The major achievements of the 2012 Seoul Nuclear Security Summit:

- **Strengthened the International Legal Regime:** In the run up to the summit in Seoul many countries ratified important nuclear treaties, such as the amended Convention on the Physical Protection of Nuclear Material and the International Convention on the Suppression of Acts of Nuclear Terrorism.
- **Increased Activity in International Bodies:** In Seoul, progress was made on the 2010 and 2013 IAEA nuclear security plans and the G8 countries strengthened their commitment to the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.
- **Consolidated and Minimized Nuclear Material:** At the Nuclear Security Summit in Seoul many countries reported reductions in state inventories of highly enriched uranium (HEU). However, de Klerk cautioned, HEU stockpile reductions in some countries should be understood in the international context of increasing stockpiles in others.
- **Next Steps Forward:** Participants arranged for future meetings and training courses that will serve to strengthen safeguards against the endangerment of nuclear material.

#### **Priorities for the Hague Summit**

The main priorities of the 2014 Hague Nuclear Security Summit:

- **Strengthen the International Legal Regime:** Bringing the amended Convention on the Physical Protection of Nuclear Material into force would constitute a critical success of The Hague Nuclear Security Summit, he said. The entry into force of this convention would extend its jurisdiction beyond

the transport of nuclear material to the storage and use of nuclear material as well.

- **Improve Nuclear Security Assurances:** De Klerk suggested that a dialogue to provide solutions for navigating the inherent tension between protecting state secrets and improving assurances about the physical security of state nuclear material would significantly contribute to improving the confidence about the security of nuclear materials. De Klerk also noted that the International Atomic Energy Agency, which has recently placed a high priority on nuclear security initiatives, could also play a role in verifying the security of state nuclear materials and provide state-based recommendations.
- **Improve Government-Industry Interface:** De Klerk noted the importance of working with experienced industry partners to address nuclear material governance issues.
- **Broaden the Mandate:** The 2010 and 2012 Nuclear Security Summits emphasized the security of nuclear fissile material and did not sufficiently address radioactive material and military sources of nuclear material, de Klerk said. He pointed out that both these sources can present major security threats and expressed his hope that the 2014 summit will address the security of these materials to a greater degree.

### **Challenges Ahead**

While the countries participating in the Nuclear Security Summit share the same broad objectives, they often have different visions of how best to secure nuclear material. He pointed out that some countries seek the abolition of nuclear material, while others argue for a closed fuels cycle, and still and still others for stronger regulation. Navigating these divergent national policies to arrive at productive solutions all countries can agree upon will be the largest challenge at the Nuclear Security Summit in 2014.

### **WORLD MILITARY SPENDING**

Global military expenditure stands at over \$1.7 trillion in annual expenditure at current prices for 2012. It fell by around half a percent compared to 2011 — the first fall since 1998.

**(1991 figures are unavailable. Chart uses 2011 constant prices for comparison.)**

Summarizing some key details from the Stockholm International Peace Research Institute (SIPRI)'s Year Book 2013 summary on military expenditure:

- World military expenditure in 2012 is estimated to have reached \$1,756 trillion;
- This is a 0.4 per cent decrease in real terms than in 2011 — the first fall since 1998;
- The total is still higher than in any year between the end of World War II and 2010;
- This corresponds to 2.5 per cent of world gross domestic product (GDP), or approximately \$249 for each person in the world;

The USA with its massive spending budget, has long been the principal determinant of the current world trend, often accounting for close to half of all the world's military expenditure. The effects of global financial crisis and the post-Iraq/Afghanistan military operations have seen a decline in its spending, now accounting for 39% of spending in 2012.

SIPRI has commented in the past on the increasing concentration of military expenditure, i.e. that a small number of countries spend the largest sums. This trend carries on into 2012 spending. For example,

- The 15 countries with the highest spending account for over 81% of the total;
- The USA is responsible for 39 per cent of the world total, distantly followed by the China (9.5% of world share), Russia (5.2%), UK (3.5%) and Japan (3.4%)

**Military spending is concentrated in North America, Europe, and increasingly, Asia:**

But as recent figures have shown, there is a shift in expenditure — from austerity-hit Western Europe and reduced spending by the US, to increased spending Eastern Europe and Asia.

**Increased Spending Before And Even During Global Economic Crisis**

The global financial and economic crisis resulted in many nations cutting back on all sorts of public spending, and yet military spending continued to increase. Only in 2012 was a fall in world military

expenditure noted—and it was a small fall. How would continued spending be justified in such an era?

Before the crisis hit, many nations were enjoying either high economic growth or far easier access to credit without any knowledge of what was to come. .

A combination of factors explained increased military spending in recent years before the economic crisis as, for example:

- Foreign policy objectives
- Real or perceived threats
- Armed conflict and policies to contribute to multilateral peacekeeping operations
- Availability of economic resources

The last point refers to rapidly developing nations like China and India that have seen their economies boom in recent years. In addition, high and rising world market prices for minerals and fossil fuels (at least until recently) have also enabled some nations to spend more on their militaries. China, for the first time, ranked number 2 in spending in 2008. But even in the aftermath of the financial crisis amidst cries for government cut backs, military spending appeared to have been spared. For example,

For many in Western Europe or USA at the height of the financial crisis, it may have been easy to forget the “global” financial crisis, was primarily a Western financial crisis (albeit with global reverberations). So this helps explain partly why military spending did not fall as immediately as one might otherwise think. As SIPRI explains:

- Some nations like China and India have not experienced a downturn, but instead enjoyed economic growth
- Most developed (and some larger developing) countries have boosted public spending to tackle the recession using large economic stimulus packages. Military spending, though not a large part of it, has been part of that general public expenditure attention (some also call this “Military Keynesianism”)
- Geopolitics and strategic interests are still factors to project or maintain power: rising military spending for the USA, as the only superpower, and for other major or intermediate powers, such as Brazil, China, Russia and India, appears to represent a strategic choice in their long-term quest

for global and regional influence; one that they may be loath to go without, even in hard economic times.

For USA’s 2012 military expenditure, for example, although there is a fall, it is primarily related to war-spending (Iraq and Afghanistan operations primarily). But the baseline defense budget, by comparison, is largely similar to other years (marking a reduction in the rate of increased spending).

By contrast, “when it comes to smaller countries with no such power ambitions and, more importantly, lacking the resources and credit-worthiness to sustain such large budget deficits many have cut back their military spending in 2009, especially in Central and Eastern

Natural resources have also driven military spending and arms imports in the developing world. The increase in oil prices means more for oil exporting nations. The “natural resource curse” has long been recognized as a phenomenon whereby nations, despite abundant rich resources, find themselves in conflict and tension due to the power struggles that those resources bring (internal and external influences are all part of this). In their earlier 2006 report SIPRI noted that, Algeria, Azerbaijan, Russia and Saudi Arabia have been able to increase spending because of increased oil and gas revenues, while Chile and Peru’s increases are resource-driven, “because their military spending is linked by law to profits from the exploitation of key natural resources.” Also, “China and India, the world’s two emerging economic powers, are demonstrating a sustained increase in their military expenditure and contribute to the growth in world military spending. In absolute terms their current spending is only a fraction of the USA’s. Their increases are largely commensurate with their economic growth.”

The military expenditure database from SIPRI also shows that while percentage increases over the previous decade may be large for some nations, their overall spending amounts may be varied.

## **SPENDING FOR PEACE VS SPENDING FOR WAR**

In a similar report from 2004, the SIPRI authors also noted that, “There is a large gap between what countries are prepared to allocate for military means to provide security and maintain their global and regional power status, on the one hand, and to alleviate poverty and promote economic development, on the other.”

Indeed, compare the military spending with the entire budget of the United Nations:

The United Nations and all its agencies and funds spend about \$30 billion each year, or about \$4 for each of the world's inhabitants. This is a very small sum compared to most government budgets and it is less than three percent of the world's military spending. Yet for nearly two decades, the UN has faced financial difficulties and it has been forced to cut back on important programs in all areas, even as new mandates have arisen. Many member states have not paid their full dues and have cut their donations to the UN's voluntary funds. As of December 31, 2010, members' arrears to the Regular Budget topped \$348 million, of which the US owed 80%.

The UN was created after World War II with leading efforts by the United States and key allies.

- The UN was set up to be committed to preserving peace through international cooperation and collective security.
- Yet, the UN's entire budget is just a tiny fraction of the world's military expenditure, approximately- 1.8%
- While the UN is not perfect and has many internal issues that need addressing, it is revealing that the world can spend so much on their military but contribute so little to the goals of global security, international cooperation and peace:

At the current level of spending, it would take just a handful of years for the world's donor countries to cover their entire aid shortfall, of over \$4 trillion in promised official aid since 1970, 40 years ago.

Unfortunately, however, poverty fuels violence and defense spending has a tendency to rise during times of economic hardship. The global financial crisis is potentially ushering in enormous economic hardship around the world.

The Global Peace Index is an attempt to quantify the difficult-to-define value of peace and rank countries based on over 20 indicators using both quantitative data and qualitative scores from a range of sources.

Global Peace Index 2013 attempts to rank nations on various indicators of peace. Most countries are not considered peaceful, unfortunately. The 2013 Global Peace Index (GPI) shows that the world has become less peaceful (The top ranking nations on the global

peace index were, Iceland, Denmark, New Zealand, Austria, Switzerland, Japan, Finland, Canada, Sweden and Belgium. It is worth looking at the report for the full list of indicators used, which cover a mixture of internal and external factors, weighted in various ways.)

### **US Military Spending**

The United States has unquestionably been the most formidable military power in recent years. Its spending levels, as noted earlier, is the principle determinant of world military spending and is therefore worth looking at further.

Generally, US military spending has been on the rise. Recent increases are attributed to the so-called War on Terror and the Afghanistan and Iraq invasions, but it had also been rising before that. The US Department of Defense provides a breakdown of military spending since 2001 :

- Overall spending
- Defense budget vs War spending
- Raw data and sources

### **Overall Spending**

The decline seen in later years was initially mostly due to Iraq war reduction and redeployment to Afghanistan, followed by an attempt to scale down Afghanistan operations, too. The baseline budget, however, showed continued increase until only recently, albeit at a seemingly lower rate. In addition, the effects of the global financial crisis has started to be felt now.

### **CHINA CONGRESS REVEALS DEFENCE BOOST**

China announced a growth target of 7.5% and revealed plans to raise its defence budget by 12.2%. Japan voiced concern at the defence move, citing a lack of transparency.' The latest military budget boost comes amid tensions between China and many of its neighbours, including Japan and the Philippines, over disputed territories.

The increased budget will see military spending rise to just over \$131bn this year (808 bn yuan). China has consistently announced double-digit increases to its official military budget in recent years. Analysts say its total military spend may in fact be higher.

However, China points out that it spends far less on defence than the United States.