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**VOL : 14  
May 2010**

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### **Published By:**

**WWW.UPSCPORTAL.COM**

Mukherjee Nagar,  
New Delhi-110009  
Ph: 011-45151781

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## **War is not over and you are the champion..**

Never loose self confidence and patience while you are in the battle-field. Now you have more than a fortnight in your hand and you can do a lot during decisive course of two plus two hours of the day i.e. day of examination. But don't take a meaning of my advice that you have not to work hard. No doubt hard work is the most important aspect of being a winner. During hard work you must get constant support and inspiration to learn properly, and you must search this inspiration and support within yourself.

So develop a positive approach so that you can materialise your investment (of energy and time) into success. Think increased number of vacancy is positive sign and you are going to be a winner. When you sit alone or get tired, try to recall some facts which you have read earlier instead of giving place negative thoughts. In this way you can easily overcome from bad thoughts and satan's pain. So you must think that you are at war and after winning the battle, crown is yours. So have a king like concept to become a king.

In this very relevant issue we are giving Articles U.S.-Russia Relation , Nuclear Security Summit, The North Atlantic Treaty Organization and In the section of Hot Topics BRIC and IBSA Summits , Visit of External Affairs Minister to China. With Current Affairs, Sports, Awards we are providing Special Study Package for Civil services(pre) Examination 2010 also.

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Ram Kumar Pandey  
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# U.S.-Russia Relations



## Signed New Strategic Arms Reduction Treaty

By: Ram Kumar Pandey



"The day after the U.S. elections, in his first state of the nation address, that Russia would move to deploy short-range Iskander missile systems in the western exclave of Kaliningrad "to neutralize if necessary the anti-ballistic missile system in Europe."

Presidents Barack Obama of the United States and Dmitry Medvedev of Russia signed a new Strategic Arms Reduction Treaty for the reduction of their nuclear weapons stockpiles on April 8, 2010.

The new START deal, which will last for ten years, was signed at a meeting in Prague, where President Obama outlined his vision for nuclear disarmament and non-proliferation around a year ago.

Speaking after the signing, President Obama said, "This day demonstrates the determination of the United States and Russia - the two nations that hold over 90 percent of the world's nuclear weapons - to pursue responsible global leadership."

President Obama further said that the treaty would significantly reduce missiles and launchers and puts in place a "strong and effective verification regime." He added that it would also maintain the flexibility needed to protect and advance the U.S.'s national security and guarantee its "unwavering commitment to the security of our allies."

Describing the deal as a "win-win" for both countries, President Medvedev said, "This agreement enhances strategic ability and, at the same time, allows us to rise to a higher level of cooperation between Russia and the United States."

Specifically, the treaty agrees to aggregate limits of 1,550 warheads; a combined limit of 800 deployed and non-deployed Inter-Continental Ballistic Missile launchers, Submarine-Launched Ballistic Missile launchers, and heavy bombers equipped for

nuclear armaments; and separate limit of 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers equipped for nuclear armaments.

The White House noted that the warheads on deployed ICBMs and deployed SLBMs will count toward the limit and each deployed heavy bomber equipped for nuclear armaments would count as one warhead toward this limit. The warhead limit itself was 74 percent lower than the limit of the 1991 START Treaty and 30 percent lower than the deployed strategic warhead limit of the 2002 Moscow Treaty, a White House statement added. Further, the limit on launchers and bombers is less than half the corresponding strategic nuclear delivery vehicle limit of the previous START Treaty.

In terms of verification and transparency, the new treaty has a verification regime that combines the appropriate elements of the 1991 START Treaty with new elements tailored to the limitations of the Treaty. In this regard, the White House also stated that measures under the new treaty include "on-site inspections and exhibitions, data exchanges and notifications related to strategic offensive arms and facilities covered by the Treaty."

The signing of the new treaty came two days after the announcement of the Obama administration of its Nuclear Posture Review, in which the U.S. forswore nuclear attacks on all nuclear states compliant with the Non-Proliferation treaty. However, the U.S. reiterated its commitment to maintaining a credible nuclear deterrent.

## START I or Strategic Arms Reduction Treaty

START (for Strategic Arms Reduction Treaty) was a bilateral treaty between the United States of America and the Union of Soviet Socialist Republics (USSR) on the Reduction and Limitation of Strategic Offensive Arms. The treaty was signed on 31 July 1991 and entered into force on 5 December 1994. The treaty was signed by the United States and the USSR, that barred its signatories from deploying more than 6,000 nuclear warheads atop a total of 1,600 ICBMs, submarine-launched ballistic missiles, and bombers. START negotiated the largest and most complex arms control treaty in history, and its final implementation in late 2001 resulted in the removal of about 80 percent of all strategic nuclear weapons then in existence. Proposed by United States President Ronald Reagan, it was renamed START I after negotiations began on the second START treaty, which became START II.

The START I treaty expired 5 December 2009. On 8 April 2010, the new START treaty was signed in Prague by U.S. President Obama and Russian President Medvedev. It will enter into force after its ratification through the parliaments of both countries. The first START proposal was presented by United States President Ronald Reagan in Geneva on 29 June 1982. Reagan proposed a dramatic reduction in strategic forces in two phases, which he referred to as SALT III at the time. The first phase would reduce overall warhead counts on any missile type to 5,000, with an additional limit of 2,500 on ICBMs. Additionally, a total of 850 ICBMs would be allowed, with a limit of 110 "heavy throw" missiles like the SS-18, with additional limits on the total "throw weight" of the missiles as well. The second phase introduced similar limits on heavy bombers and their warheads, and other strategic systems as well. At the time the US had a commanding lead in strategic bombers. The US B-52 force, while aged, was a credible strategic threat but was only equipped with AGM-86 cruise missiles, beginning in 1982, because of Soviet air defense improvements in early 1980s.

The US also had begun to introduce new B-1B Lancer

quasi-stealth bomber and was secretly developing the Advanced Technology Bomber (ATB) project that would eventually result in the B-2 Spirit stealth bomber. The USSR's force was of little threat to the US, on the other hand, as it was tasked almost entirely with attacking US convoys in the Atlantic and land targets on the Eurasian landmass. Although the USSR had 1,200 medium and heavy bombers, only 150 of them (Tupolev Tu-95s and Myasishchev M-4s) could reach North America (the latter only with in-flight refueling).

They also faced difficult problems in penetrating admittedly smaller and poorly defended US airspace. Possessing too few bombers available when compared to US bomber numbers was evened out by the US forces having to penetrate the much larger and heavier defended Soviet airspace. This changed when new Tu-95MS and Tu-160 bombers appeared in 1984 equipped with first Soviet AS-15 cruise missiles. By limiting the phase-in as it was proposed, the US would be left with a strategic advantage, for a time.

As Time magazine put it at the time, "Under Reagan's ceilings, the U.S. would have to make considerably less of an adjustment in its strategic forces than would the Soviet Union. That feature of the proposal will almost certainly prompt the Soviets to charge that it is unfair and one-sided.

No doubt some American arms-control advocates will agree, accusing the Administration of making the Kremlin an offer it cannot possibly accept a deceptively equal-looking, deliberately nonnegotiable proposal that is part of what some suspect is the hardliners' secret agenda of sabotaging disarmament so that the U.S. can get on with the business of rearmament." However, Time did point out that, "The Soviets' monstrous ICBMs have given them a nearly 3-to-1 advantage over the U.S. in "throw weight" the cumulative power to "throw" megatons of death and destruction at the other nation."

## Negotiations

Continued negotiation of the START process was delayed several times because US agreement terms were considered non-negotiable by pre-Gorbachev Soviet rulers. President Reagan's introduction of the Strategic Defense Initiative program in 1983 was viewed as a threat by the Soviet Union, and the Soviets withdrew from setting a timetable for further negotiations.

Due to these facts, a dramatic nuclear arms race proceeded during the 1980s, and essentially ended in 1991 by nuclear parity preservation at a level of more than ten thousand strategic warheads on both sides. This treaty also stated that the United States and Russia would have 6,000 fighter aircraft, 10,000 tanks, 20,000 artillery pieces and 2,000 attack helicopters.

## Ratification

It was signed on July 31, 1991, five months before the collapse of the Soviet Union. Entry-into-force was delayed due to the collapse of the USSR and awaiting an Annex that enforced the terms of the treaty upon the newly independent states of Russia, Belarus, Kazakhstan, and Ukraine. The latter three agreed to transport their nuclear arms to Russia for disposal.

It remains in effect between the U.S. and Russia, Belarus, Kazakhstan, and Ukraine. These latter three have disarmed since becoming independent nations in the wake of the break up of the Soviet Union. Today, the United States has 3,696 and Russia has 4,237 deployed strategic warheads. The US has roughly 10,000 total warheads, counting strategic and tactical, both deployed and in reserves. The figures for Russia are less reliable, but are considered to be in the range of 15,000 to 17,000 total warheads.

## Implementation

365 B-52Gs were flown to the Aerospace Maintenance and Regeneration Center at Davis-Monthan Air Force Base in Arizona. The bombers were stripped of all usable parts, then chopped into five pieces by a 13,000-pound steel blade dropped from a crane. The guillotine sliced four times on each plane, severing the wings and leaving the fuselage in three pieces. The ruined B-52s remained in place for three months so that Russian satellites could confirm that the bombers had been destroyed, after which they were sold for scrap.

"It remains in effect between the U.S. and Russia, Belarus, Kazakhstan, and Ukraine. The latter three became non-nuclear weapons states under the Treaty on the non-proliferation of Nuclear Weapons of July 1, 1968 (NPT) as they committed to do under the "Lisbon Protocol" (Protocol to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms) after becoming independent nations in the wake of the break up of the Soviet Union."

## Efficacy

Belarus, Kazakhstan and Ukraine have disposed of all their nuclear weapons or transferred them to Russia; while the U.S. and Russia have reduced the capacity of delivery vehicles to 1,600 each, with no more than 6,000 warheads.

## Expiration and renewal

START I expired December 5, 2009. Both sides agreed to continue observing the terms of the treaty until a new agreement is reached. There are proposals to renew and expand the treaty, supported by U.S. President Barack Obama. Sergei Rogov, director of the Institute of the U.S. and Canada, said: "Obama supports sharp reductions in nuclear arsenals and I believe that Russia and the U.S. may sign in the summer or fall of 2009 a new treaty that would replace START-1".

He added that a new deal would only happen if Washington abandoned plans to place elements of a missile shield in central Europe. He expressed will-

ingness "to make new steps in the sphere of disarmament," however, saying they were waiting for the U.S. to abandon attempts to "surround Russia with a missile defense ring." This referred to the placement of ten interceptor missiles in Poland, as well as an accompanying radar in the Czech Republic.

Russian President Dmitri Medvedev, said, the day after the U.S. elections, in his first state of the nation address, that Russia would move to deploy short-range Iskander missile systems in the western exclave of Kaliningrad "to neutralize if necessary the anti-ballistic missile system in Europe." Russia insists that any movement towards a new START should be a legally binding document, and must, then, set lower ceilings on the number of nuclear warheads, and their delivery vehicles.

On March 17, 2009, Russian President Dmitri Medvedev signaled that Russia would begin a "large-scale" rearmament and renewal of Russia's nuclear arsenal. President Medvedev accused NATO of pushing ahead with expansion near Russian borders and ordered that this rearmament commence in 2011 with increased army, naval, and nuclear capabilities. Additionally, the head of Russia's strategic missile forces, Nikolai Solovtsov, told news agencies that Russia would start deploying its next-generation RS-24 missiles after the December 5 expiry of the START-1 treaty with the United States. Russia hopes to change the START-1 treaty with a new accord. The increased tensions come despite the warming of relations between the United States and Russia ever since U.S. President Barack Obama took office.

As of May 4, 2009, the United States and Russia began the process of renegotiating START, as well as counting both nuclear warheads and their delivery vehicles when making a new agreement. While setting aside problematic issues between the two countries, both sides agreed to make further cuts in the number of warheads they have deployed to around 1,000 to 1,500 each.

The United States has said they are open to a Rus-

sian proposal to use radar in Azerbaijan rather than Eastern Europe for the proposed missile system. The Bush Administration was using the Eastern Europe defense system as a deterrent for Iran, despite the Kremlin's fear that it could be used against Russia. The flexibility by both sides to make compromises now will lead to a new phase of arms reduction in the future.

A 'Joint understanding for a follow-on agreement to START-1' was signed by Presidents Barack Obama and Dmitri Medvedev in Moscow on 6 July 2009. This will reduce the number of deployed warheads on each side to 1,500–1,675 on 500–1,100 delivery systems. A new treaty was to be signed before START-1 expired in December 2009 and the reductions are to be achieved within seven years. After many months of negotiations, Presidents Obama and Medvedev signed the successor treaty, Measures to Further Reduction and Limitation of Strategic Offensive Arms, in Prague, Czech Republic on 8 April 2010.

## START II

START II (for Strategic Arms Reduction Treaty) was signed by United States President George H. W. Bush and Russian President Boris Yeltsin on January 3, 1993, banning the use of MIRVs on ICBMs. Hence, it is often cited as the De-MIRV-ing Agreement. MIRVed land-based ICBMs are considered destabilizing because they tend to put a premium on striking first. When a missile is MIRVed, it is able to carry many warheads and deliver them to separate targets and thereby possibly destroy more than one missile of an enemy who does not strike first in their silos.

The LGM-118 Peacekeeper missile was capable of carrying up to 10 MIRVs. However, in 2001, President George W. Bush set a plan in motion to reduce the country's missile forces from 6,000 to between 1,700 and 2,200. Russian President Vladimir Putin agreed to follow a similar plan and in October 2002 the deactivation of the Peacekeeper missile began and was completed by 19 September 2005.



The Minuteman III ICBM is the primary U.S. missile system and can carry up to 3 MIRVs. Hypothetically, if one were to assume that each side had 100 missiles, with 5 warheads each, and further that each side had a 95 percent chance of neutralizing the opponent's missiles in their silos by firing 2 warheads at each silo, then the side that strikes first can reduce the enemy ICBM force from 100 missiles to about 5 by firing 40 missiles with 200 warheads and keeping the remaining 60 missiles in reserve. Thus the destruction capability is greatly increased by MIRVs but the number of targets does not increase.

START II followed START I and, although ratified, the treaty has never entered into force; in other words never been activated. On June 14, 2002, one day after the U.S. withdrew from the Anti-Ballistic Missile Treaty, Russia withdrew from START II. The historic agreement started on June 17, 1992 with the signing of a 'Joint Understanding' by the presidents. The official signing of the treaty by the presidents took place on January 3, 1993. It was ratified by the U.S. Senate on January 26, 1996 with a vote of 87-4. However, Russian ratification was stalled in the Duma for many years. It was postponed a number of times to protest American invasion of Iraq and military actions in Kosovo, as well as to oppose the expansion of NATO.

As the years passed, the treaty became less relevant and both sides started to lose interest in it. For the Americans, the main issue became the modification of the ABM Treaty to allow the U.S. to deploy a national missile defense system, a move which Russia fiercely opposed. On April 14, 2000 the Duma did finally ratify the treaty, in a largely symbolic move since the ratification was made contingent on preserving the ABM Treaty, which it was clear the U.S. was not prepared to do.

START II did not enter into force because the Russian ratification made this contingent on U.S. Senate ratifying a September 1997 addendum to START II which included agreed statements on ABM-TMD demarcation. Neither of these occurred because of U.S. Senate opposition, where a faction objected to

any action supportive of the ABM Treaty. On June 14, 2002, one day after the U.S. withdrew from the ABM Treaty, Russia announced that it would no longer consider itself to be bound by START II provisions.

The treaty was officially bypassed by the SORT treaty, agreed to by Presidents George W. Bush and Vladimir Putin at their summit meeting in November 2001, and signed at Moscow Summit on May 24, 2002. Both sides agreed to reduce operationally deployed strategic nuclear warheads to 1,700 from 2,200 by 2012.

## START III

The third Strategic Arms Reduction Treaty, or START III, was a proposed Nuclear disarmament treaty negotiated between the United States and Russia. It was never signed. It meant to drastically reduce the deployed nuclear weapons arsenals of both countries. The treaty was meant to continue the weapons reduction efforts that had taken place in the START I and START II negotiations. The framework for negotiations of the treaty began with talks in Helsinki between President Bill Clinton and President Boris Yeltsin in 1997.

Proposed basic elements of the treat included: By December 31, 2007, coterminous with START II, the United States and Russia would each deploy no more than 2,000 to 2,500 strategic nuclear warheads on intercontinental ballistic missiles, submarine-launched ballistic missiles, and heavy bombers. Russian officials stated that they were willing to consider negotiated levels as low as 1,500 strategic nuclear warheads within the context of a START III agreement.

The United States and Russia would negotiate measures relating to the transparency of strategic nuclear warhead inventories and the destruction of strategic nuclear warheads, as well as other jointly agreed technical and organizational measures to promote the irreversibility of deep reductions.

The talks faced a number of obstacles. Russia opposed the eastward expansion of NATO and Ameri-



can plans to build a limited missile defense system (which would have required changes to or the US withdrawal from the 1972 Anti-Ballistic Missile Treaty). Russia strongly hinted that any progress on START III would be subject to the satisfaction of its concerns on these issues. In addition, a Russian proposal to reduce stockpiles still further to 1,000-1,500 warheads was opposed by the US Joint Chiefs of Staff. Very little progress was made towards completing negotiations on START III. President Clinton revived the issue in 1999 and it played a role in the 2000 presidential elections, but persistent disagreement, especially on the issue of missile defense, resulted in stalemate. The 2002 decision by the Bush Administration to withdraw from the Anti-Ballistic Missile Treaty all but killed START III. It was superseded by much the weaker SORT treaty.

## SORT

The Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions (SORT), better known as the Moscow Treaty "represents an important element of the new strategic relationship between the United States and Russia". with both parties agreeing to limit their nuclear arsenal to 1700–2200 operationally deployed warheads each. It was signed in Moscow on May 24, 2002. SORT came into force on June 1, 2003 after the Bush-Putin ratification in St. Petersburg, and expires on December 31, 2012. Either party can withdraw from the treaty upon giving three months written notice to the other.

## Mutual nuclear disarmament

SORT is the latest in a long line of treaties and negotiations on mutual nuclear disarmament between Russia (and its predecessor the Soviet Union) and the United States, which includes SALT I (1969–1972), the ABM Treaty (1972), SALT II (1972–1979), the INF Treaty (1987), START I (1991), START II (1993), and START III, which died as of the linkage to START II.

The Moscow Treaty is different from START in that it limits actual warheads, whereas START I limits warheads only through declared attribution to their means of delivery (ICBMs, SLBMs, and Heavy Bombers). Russian and U.S. delegations meet twice a year to discuss the implementation of the Moscow Treaty at the Bilateral Implementation Commission, or "BIC".

The treaty has been criticized for various reasons: There are no verification provisions to give confidence, to either the signatories or other parties, that the stated reductions have in fact taken place.

The arsenal reductions are not required to be permanent; warheads are not required to be destroyed and may therefore be placed in storage and later re-deployed.

The arsenal reductions are required to be completed by December 31, 2012, which is also the day on which the treaty loses all force, unless extended by both parties. This is why some experts joke that SORT is only 'sort' of a treaty.

There exists a clause in the treaty which provides that withdrawal can occur upon the giving of three month's notice and since no benchmarks are required in the treaty, either side could feasibly perform no actions in furtherance of the treaty, and then simply withdraw in September of 2012.

## Implementation

Lawrence Livermore National Laboratory reported that President Bush directed the US military to cut its stockpile of both deployed and reserve nuclear weapons in half by 2012. The goal was achieved in 2007, a reduction of US nuclear warheads to just over 50 percent of the 2001 total. A further proposal by Bush will bring the total down another 15%.

## Strategic Arms Limitation Talks

The Strategic Arms Limitation Talks refers to two rounds of bilateral talks and corresponding international treaties involving the United States and the Soviet Union-the Cold War superpowers on the issue of armament control. There were two rounds of talks and agreements: SALT I and SALT II. A subsequent treaty was START.

The first ever negotiations started in Helsinki, Finland, in 1970. They were held during Apollo 12's flight - four months after astronauts from Apollo 11 had returned safely home. Primarily focused on limiting the two countries' stocks of nuclear weapons, the treaties then led to START (Strategic Arms Reduction Treaty). START I (a 1991 agreement between the United States and the Soviet Union) and START II (a 1993 agreement between the United States and Russia) which placed specific caps on each side's number of nuclear weapons.

### SALT I

SALT I is the common name for the Strategic Arms Limitation Talks Agreement, also known as Strategic Arms Limitation Treaty. SALT I froze the number of strategic ballistic missile launchers at existing levels, and provided for the addition of new submarine-launched ballistic missile (SLBM) launchers only after the same number of older intercontinental ballistic missile (ICBM) and SLBM launchers had been dismantled.

The strategic nuclear forces niche of the Soviet Union and the United States were changing in character in 1968. The U.S.'s total number of missiles had been static since 1967 at 1,054 ICBMs and 656 SLBMs, but there was an increasing number of missiles with multiple independently targetable reentry vehicle (MIRV) warheads being deployed. MIRV's carried multiple nuclear warheads, often with dummies, to confuse ABM systems, making MIRV defence by ABM systems increasingly difficult and expensive. One clause of the treaty required both countries to

limit the number of sites protected by an anti-ballistic missile (ABM) system to two each. The Soviet Union had deployed such a system around Moscow in 1966 and the United States announced an ABM program to protect twelve ICBM sites in 1967. A modified two-tier Moscow ABM system is still used. The U.S. built only one ABM site to protect Minuteman base in North Dakota where the "Safeguard Program" was deployed. Due to the system's expense and limited effectiveness, the Pentagon disbanded "Safeguard" in 1975.

Negotiations lasted from November 17, 1969 until May 1972 in a series of meetings beginning in Helsinki, with the U.S. delegation headed by Gerard C. Smith, director of the Arms Control and Disarmament Agency. Subsequent sessions alternated between Vienna and Helsinki. After a long deadlock, the first results of SALT I came in May 1971, when an agreement was reached over ABM systems. Further discussion brought the negotiations to an end on May 26, 1972 in Moscow when Richard Nixon and Leonid Brezhnev signed the Anti-Ballistic Missile Treaty and the Interim Agreement Between The United States of America and The Union of Soviet Socialist Republics on Certain Measures With Respect to the Limitation of Strategic Offensive Arms. A number of agreed statements were also made. This helped improve relations between the USA and the USSR.

### SALT II

It was a controversial experiment of negotiations between Jimmy Carter and Leonid Brezhnev from 1977 to 1979 between the U.S. and the Soviet Union, which sought to curtail the manufacture of strategic nuclear weapons. It was a continuation of the progress made during the SALT I talks. SALT II was the first nuclear arms treaty which assumed real reductions in strategic forces to 2,250 of all categories of delivery vehicles on both sides.

SALT II helped the U.S. to discourage the Soviets from arming their third generation ICBMs of SS-17, SS-19 and SS-18 types with many more MIRVs. In the late 1970s the USSR's missile design bureaus

had developed experimental versions of these missiles equipped with anywhere from 10 to 38 thermonuclear warheads each. Additionally, the Soviets secretly agreed to reduce Tu-22M production to thirty aircraft per year and not to give them an intercontinental range.

It was particularly important for the US to limit Soviet efforts in the Intermediate-Range Nuclear Forces (INF) rearmament area. The SALT II Treaty banned new missile programs (a new missile defined as one with any key parameter 5% better than in currently deployed missiles), so both sides were forced to limit their new strategic missile types development although US preserved their most essential programs like Trident and cruise missiles, which President Carter wished to use as his main defensive weapon as they were too slow to have first strike capability. In return, the USSR could exclusively retain 308 of its so-called "heavy ICBM" launchers of the SS-18 type.

An agreement to limit strategic launchers was reached in Vienna on June 18, 1979, and was signed by Leonid Brezhnev and President of the United States Jimmy Carter. In response to the refusal of the U.S. Congress to ratify the treaty, a young member of the Senate Foreign Relations Committee, Senator Joseph Biden of Delaware, met with the Soviet Foreign Minister Andrey Gromyko, "educated him about American concerns and interests" and secured several changes that neither the U.S. Secretary of State nor President Jimmy Carter could obtain.

Six months after the signing, the Soviet Union deployed troops to Afghanistan, and in September of the same year senators including Henry M. Jackson and Frank Church discovered the so-called "Soviet brigade" on Cuba. In light of these developments, the treaty was never formally ratified by the United States Senate. Its terms were, nonetheless, honored by both sides until 1986 when the Reagan Administration withdrew from SALT II after accusing the Soviets of violating the pact.

Subsequent discussions took place under the Strategic Arms Reduction Treaty (START) and the Comprehensive Test Ban Treaty.

## USA/USSR Arms Limitation Treaties

» Partial or Limited Test Ban Treaty (PTBT/LTBT): 1963. Also put forth by Kennedy; banned nuclear tests in the atmosphere, underwater and in space. However, neither France nor China (both Nuclear Weapon States) signed.

» Nuclear Non-Proliferation Treaty (NPT): 1968. Established the U.S., USSR, UK, France, and China as five "Nuclear-Weapon States". Non-Nuclear Weapon states were prohibited from (among other things) possessing, manufacturing, or acquiring nuclear weapons or other nuclear explosive devices. All 187 signatories were committed to the goal of (eventual) nuclear disarmament.

» Anti-Ballistic Missile Treaty (ABM): 1972. Entered into between the U.S. and USSR to limit the anti-ballistic missile (ABM) systems used in defending areas against missile-delivered nuclear weapons; ended by the US in 2002.

» Strategic Arms Limitation Treaties I & II (SALT I & II): 1972 / 1979. Limited the growth of US and Soviet missile arsenals.

» Prevention of Nuclear War Agreement: 1973. Committed the U.S. and USSR to consult with one another during conditions of nuclear confrontation.

» Threshold Test Ban Treaty: 1974. Capped Nuclear tests at 150 kilotons.

» Intermediate-Range Nuclear Forces Treaty (INF): 1987. Eliminated nuclear and conventional ground-launched ballistic and cruise missiles with intermediate ranges, defined as between 500-5,500 km (300-3,400 miles)

» Strategic Arms Reductions Treaty I (START I): 1991. This was signed by George H. W. Bush and Mikhail Gorbachev; reduced the numbers of U.S. and Soviet long-range missiles and

nuclear warheads from 10,000 per side to 6,000 per side.

» **Mutual Detargeting Treaty (MDT): 1994.** U.S. and Russian missiles no longer automatically target the other country; nuclear forces are no longer operated in a manner that presumes that the two nations are adversaries.

» **Strategic Arms Reductions Treaty II (START II): 1993.** Will reduce the numbers of U.S. and Russian long-range missiles and nuclear warheads from 6,000 per side to 3,500-3,000 per side. (START III proposed for 2007).

**Comprehensive Test Ban Treaty (CTBT) 1996.** Prohibits all nuclear test explosions in all environments; signed by 180 states, and ratified by 148. The United States has signed, but not ratified, the CTBT.

**Strategic Offensive Reductions Treaty (SORT/Moscow Treaty (2002)).** Established bilateral strategic nuclear arms reductions and a new "strategic nuclear framework"; also invited all countries to adopt non-proliferation principles aimed at preventing terrorists, or those that harbored them, from acquiring or developing all types of WMD's and related materials, equipment, and technology.

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# Nuclear Security Summit

## Adopted Communiqué and Plan of Work

By: Sant Prasad Gupta



A major international summit convened by Barack Obama to discuss ways of improving the security of nuclear materials got under way on April 12, 2010 with the American President underlining the importance of preventing terrorists from getting hold of the ingredients for a nuclear bomb in Washington.

The two-day summit brought together 47 countries, including the U.S., 37 of whom are being represented by their heads of state or government. A final declaration, negotiated over the past few months by officials from participating countries has been released.

Romania has nearly 1500 MWe of nuclear generating capacity and sources 20 per cent of its electricity from nuclear energy, Bulgaria's two reactors account for 35 per cent of its national power grid, and Hungary has four reactors generating one-third of its power. All three countries also figure in the list compiled by the International Panel on Fissile Material with stocks of Highly Enriched Uranium in the 10-100 kg. range. Yet, neither country will be at the Washington summit, even though Armenia, with just 370 MWe of nuclear power has been invited. Uzbekistan has also not been invited, despite holding HEU stocks in the 100-1000 kg range. But Georgia, with no nuclear programme to speak of, will be in Washington.

Two other countries whose presence ought to have been considered essential to such an endeavour are Niger and Namibia, who together account for nearly 18 per cent of the world's mined uranium. But the two African states, whose yellowcake drives much of the world's nuclear programme, were not considered important enough for the summit.

Laura Holgate, Senior Director, WMD Terrorism & Threat Reduction at National Security Council, told that the idea was to get a representative set of countries. "We couldn't invite every single country that has any nuclear connectivity and so we were looking for countries that represented regional diversity where we had states that had weapons, states that don't have weapons, states with large nuclear programs, states with small nuclear programs."

Both India and Pakistan has attended the summit at the prime ministerial level. Israeli Prime Minister Benjamin Netanyahu pulled out at the last minute, opting to send his Foreign Minister instead.

### Statement by Indian Prime Minister

Nuclear security is one of the foremost challenges we face today. I therefore wish to commend President Barack Obama for his initiative in convening this Summit on Nuclear Security. We would like

the Summit to lead to concrete outcomes which help make our world a safer place.

The developmental applications of nuclear science in areas such as medicine, agriculture, food preservation and availability of fresh water are by now well established. Today, nuclear energy has emerged as a viable source of energy to meet the growing needs of the world in a manner that is environmentally sustainable. There is a real prospect for nuclear technology to address the developmental challenges of our times.

In India we have ambitious plans for using nuclear energy to meet our growing energy needs. Our target is to increase our installed capacity more than seven fold to 35000 MWe by the year 2022, and to 60,000 MWe by 2032.

The nuclear industry's safety record over the last few years has been encouraging. It has helped to restore public faith in nuclear power. Safety alone, however, is not enough. The challenge we face today is that of ensuring nuclear security.

The danger of nuclear explosives or fissile material and technical know-how falling in to the hands of non-state actors continues to haunt our world. India is deeply concerned about the danger it faces, as do other States, from this threat.

Since 2002, we have piloted a resolution at the United Nations General Assembly on measures to deny terrorists access to Weapons of Mass Destruction. We fully support the implementation of United Nations Security Council Resolution 1540 and the United Nations Global Counter Terrorism Strategy. The primary responsibility for ensuring nuclear security rests at the national level, but national responsibility must be accompanied by responsible behaviour by States. If not, it remains an empty slogan. All States should scrupulously abide by their international obligations. It is a matter of deep regret that the global non-proliferation regime has failed to prevent nuclear proliferation. Clandestine proliferation networks have flourished and led to insecurity for all, including and especially for In-

dia. We must learn from past mistakes and institute effective measures to prevent their recurrence.

The world community should join hands to eliminate the risk of sensitive and valuable materials and technologies falling into hands of terrorists and illicit traffickers. There should be zero tolerance for individuals and groups which engage in illegal trafficking in nuclear items.

Global non-proliferation, to be successful, should be universal, comprehensive and non-discriminatory and linked to the goal of complete nuclear disarmament. We welcome the fact that the world is veering around to our view that the best guarantor of nuclear security is a world free from nuclear weapons.

Starting with Jawaharlal Nehru over five decades ago, India has been in the forefront of the call for global and complete nuclear disarmament. In 2006 India proposed the negotiation of a Nuclear Weapons Convention. We have also expressed our readiness to participate in the negotiation of an internationally verifiable Fissile Material Cut-off Treaty in the Conference on Disarmament.

Former Prime Minister Rajiv Gandhi had put forward a concrete Action Plan in 1988 for the universal and non-discriminatory elimination of nuclear weapons leading to global nuclear disarmament in a time-bound framework. I once again reiterate India's call to the world community to work towards the realisation of this vision.

We welcome the agreement between the United States and Russia to cut their nuclear arsenals as a step in the right direction. I call upon all states with substantial nuclear arsenals to further accelerate this process by making deeper cuts that will lead to meaningful disarmament.

We are encouraged by the Nuclear Posture Review announced by President Obama. India supports the universalisation of the policy of No First Use. The salience of nuclear weapons in national defence and security doctrines must be reduced as a matter of priority. The dangers of nuclear terrorism make the

early elimination of nuclear weapons a matter of even greater urgency.

The Indian Atomic Energy Act provides the legal framework for securing nuclear materials and facilities, and the Atomic Energy Regulatory Board ensures independent oversight of nuclear safety and security. We are party to the Convention on the Physical Protection of Nuclear Material and its 2005 amendment.

India's three stage nuclear power programme which began sixty years ago is based on a closed nuclear fuel cycle. A direct benefit of this is that it ensures control over nuclear material that is generated as spent fuel. At the same time, we are continually upgrading technology to develop nuclear systems that are intrinsically safe, secure and proliferation resistant. We have recently developed an Advanced Heavy Water Reactor based on Low Enriched Uranium and thorium with new safety and proliferation-resistant features.

India has maintained an impeccable non-proliferation record, of which we are proud of. As a responsible nuclear power, India has and will not be the source of proliferation of sensitive technologies. We have a well-established and effective export control system which has worked without fail for over six decades. We have strengthened this system by harmonisation of our guidelines and lists with those of the Nuclear Suppliers Group and the Missile Technology Control Regime. Our commitment to not transfer nuclear weapons or related materials and technologies to non-nuclear weapon states or non-state actors is enshrined in domestic law through the enactment of the Weapons of Mass Destruction Act. We stand committed not to transfer reprocessing and enrichment technologies and equipment to countries that do not possess them.

As a founder member of the International Atomic Energy Agency, we have consistently supported the central role of the IAEA in facilitating national efforts to strengthen nuclear security and in fostering effective international cooperation. We have so far conducted nine Regional Training Courses on Nuclear Security in cooperation with the IAEA. We

have entered into a Safeguards Agreement with the IAEA in 2008, and have decided to place all future civilian thermal power reactors and civilian breeder reactors under IAEA safeguards.

We will continue to work with the IAEA and our partners in the United Nations as well as other forums such as the Global Initiative to Combat Nuclear Terrorism to upgrade standards, share experiences and ensure effective implementation of international benchmarks on nuclear security.

we have decided to set up a "Global Centre for Nuclear Energy Partnership" in India. We visualize this to be a state of the art facility based on international participation from the IAEA and other interested foreign partners. The Centre will consist of four Schools dealing with Advanced Nuclear Energy System Studies, Nuclear Security, Radiation Safety, and the application of Radioisotopes and Radiation Technology in the areas of healthcare, agriculture and food. The Centre will conduct research and development of design systems that are intrinsically safe, secure, proliferation resistant and sustainable. We would welcome participation in this venture by your countries, the IAEA and the world to make this Centre's work a success.

## Communiqué and Plan of Work

The 47-nation Nuclear Security Summit ended with the adoption of a short final communiqué and seven page work plan aimed at promoting the effective security of nuclear materials worldwide.

The communiqué includes general commitments while the more specific work plan constitutes a political commitment by participating countries to carry out applicable measures, on a voluntary basis, in all aspects of the storage, use, transportation and disposal of nuclear materials.

Unlike most nuclear documents springing from the Nuclear Non-Proliferation Treaty system, the Washington communiqué makes no legal distinction between nuclear weapon states and the rest. Nor



is there any reference to the NPT. Instead, it reaffirms the fundamental responsibility of States, consistent with their international obligations, to maintain effective security of all nuclear materials. These materials are defined as including “nuclear materials used in nuclear weapons, and nuclear facilities under their control.”

The document calls for wider support for existing international instruments on nuclear security such as the 1979 Convention on the Physical Protection of Nuclear Material and its 2005 amendment, the Convention on the Suppression of Nuclear Terrorism.

There is no reference in the documents to U.N. Security Council Resolution 1887 on nuclear security and non-proliferation, passed last year at the urging of U.S. President Barack Obama. Indian officials say the reference in that to NPT adherence meant it could not be included in the communiqué.

But the communiqué and work plan have words of support for the G8-led Global Partnership against the Spread of Weapons of Mass Destruction. This initiative includes the annual G8 statements on non-proliferation, the last of which sought to prevent India from accessing enrichment and reprocessing technologies.

The work plan covers a wide range of issues from nuclear detection and forensics to exchange of information to detect and prevent illicit nuclear trafficking, and the promotion of nuclear security culture.

The document recognises that highly enriched uranium (HEU) and separated plutonium — basic ingredients of a nuclear weapon require special precautions and that participating countries agree to “promote measures to secure, account for, and consolidate these materials.” It also says that they agree to encourage the conversion of reactors from HEU to low-enriched uranium, a stated priority of the U.S. in the run-up to the Summit.

## Next Nuclear Security Summit in the South Korea

President Barack Obama announced that the next Nuclear Security Summit would be held in the Republic of Korea (South Korea) in two years. He said that this would help to “ensure that our progress is not a fleeting moment, but part of a serious and sustained effort.”

Mr. Obama said the summits provided the nations with the opportunity to take specific and concrete national-level actions to secure the nuclear materials, to strengthen the International Atomic Energy Agency, and to deepen international cooperation aimed at preventing nuclear materials from falling into the hands of terrorists.

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# The North Atlantic Treaty Organization

**Agreed on Control of Afghanistan to the Afghan Government**

By: Avadhesh Kumar Pandey



"The NATO Response Force (NRF) was launched at the 2002 Prague summit on 21 November. On 19 June 2003, a major restructuring of the NATO military commands began as the Headquarters of the Supreme Allied Commander, Atlantic were abolished and a new command, Allied Command Transformation (ACT), was established in Norfolk, Virginia, United States, and the Supreme Headquarters.."

NATO agreed on April 23, 2010 to begin handing over control of Afghanistan to the Afghan government this year, a process that if successful would enable President Barack Obama to meet his target date of July 2011 for starting to bring U.S. troops home.

U.S. Secretary of State Hillary Rodham Clinton warned of a rocky road ahead, but said she was pleased with progress towards eliminating the shortage of allied trainers for the Afghan army and police. She offered a generally sunny outlook for Afghanistan and said the government of much criticized President Hamid Karzai gets too little credit for progress in building a viable democracy.

NATO is still about 450 short of its target for a training force to assist the Afghan security forces, and while that gap apparently was not filled during Friday's session, Ms. Clinton said she was not discouraged.

NATO Secretary General Anders Fogh Rasmussen said the 28 nation alliance is on track with its new strategy for winding down the war in Afghanistan, despite security setbacks and a continuing shortage of foreign trainers for the fledgling Afghan police and army.

NATO aims in 2010 is clear to take the initiative against the insurgents, to help the Afghan govern-

ment exercise its sovereignty, and to start handing over responsibility for Afghanistan to the Afghans this year.

He said a meeting of NATO foreign ministers, including Hillary Clinton, agreed on what it will take to create conditions enabling Afghans to assume control of their own country. He was not specific about what those conditions will be, but said progress in that direction is important in order to avoid further erosion of public support for the war effort.

"Citizens in Afghanistan and in all troop contributing countries are demanding visible progress, and they are right to insist on that," he added. "We should have no illusions. Making progress will not be easy and will not be quick. But based on what we see on the ground now, it is happening."

He added that looking ahead to a winding down of the war does not mean the allies will leave before the mission is accomplished. In earlier remarks, Mr. Fogh Rasmussen offered a mostly upbeat assessment to the gathering.

Mr. Fogh Rasmussen asserted that the Afghan government, which has been hampered by a Taliban insurgency, political corruption, a dysfunctional economy and a dependence on foreign assistance, is starting to take more responsibility for running the country's affairs.

“We are preparing to begin the process of handing over leadership, where conditions allow, back to the Afghan people,” he said. “The future of this mission is clear and visible: more Afghan capability and more Afghan leadership.”

During meeting, which was closed to the press after Mr. Fogh Rasmussen made brief introductory remarks, Ms. Clinton was expected to press other NATO nations to provide more trainers for Afghanistan’s police and military forces as part of preparations to withdraw Western troops from there by summer 2011.

Mr. Fogh Rasmussen said that an additional 450 trainers are needed for Afghanistan’s security forces. Insufficient numbers of foreign trainers has plagued the U.S. led war effort for years, although the shortfall has narrowed in recent months.

This session also was focusing on a NATO initiative aimed at stimulating the Afghan economy by making it a priority for all foreign contingents operating in Afghanistan to hire Afghan contractors and purchase Afghan goods and services whenever possible.

This “Afghan First” policy, as NATO calls it, has been deemed “the most important step in promoting the development of the Afghan private sector and supporting the economic development of the country,” according to a NATO statement.

To underscore NATO’s effort to coordinate all aspects of its strategy and operations with the Afghan government, Afghan Foreign Minister Zalmay Rassoul was participating in the Tallinn meeting. NATO’s assessment of its exit strategy comes just five months after Mr. Obama sharply escalated troop strength in the rugged mountain nation to challenge a resurgent Taliban movement. NATO has struggled, in some cases, to coordinate military operations with Afghan civilian authorities and agencies.

NATO was founded 61 years ago this month with the signing of a treaty of collective defence against

a feared land invasion by the Soviet Union.

During talks, Ms. Clinton ruled out an early withdrawal of about 200 short range U.S. nuclear weapons from bases in five European countries. She said any reductions should be tied to a negotiated nuclear pullback by Russia, which has far more of the weapons in range of European targets.

No such talks are in the offing, and Moscow has shown little interest thus far in bargaining away its tactical nuclear arms. Ms. Clinton also said the Obama administration wants NATO to accept missile defence as a core mission of the alliance.

The U.S. sees anti missile systems as part of a broader effort to combat the dangers posed by nuclear, biological and chemical weapons and the rockets that can deliver them.

Some European members of NATO, including Germany, have said it’s time for the U.S. to withdraw its remaining Cold War era nuclear weapons from Europe and cite Obama’s pledge in Prague last year to seek a nuclear free world. Late last year, Germany was joined by NATO members Belgium, the Netherlands, Norway and Luxembourg in requesting that the nuclear issue be put on the agenda of the Tallinn meeting.

But some newer NATO members in central and eastern Europe, which lay within Moscow’s orbit during the Cold War, oppose a U.S. nuclear withdrawal. They argue that the presence of the weapons is the surest guarantee of their territorial integrity.

## What is NATO

The North Atlantic Treaty Organization (NATO) is an intergovernmental military alliance based on the North Atlantic Treaty which was signed on 4 April 1949. The NATO headquarters are in Brussels, Belgium, and the organization constitutes a system of collective defence whereby its member states agree to mutual defence in response to an attack by any external party.

For its first few years, NATO was not much more than a political association. However, the Korean War galvanized the member states, and an integrated military structure was built up under the direction of two U.S. supreme commanders. The first NATO Secretary General, Lord Ismay, famously stated the organization's goal was "to keep the Russians out, the Americans in, and the Germans down". Doubts over the strength of the relationship between the European states and the United States ebbed and flowed, along with doubts over the credibility of the NATO defence against a prospective Soviet invasion doubts that led to the development of the independent French nuclear deterrent and the withdrawal of the French from NATO's military structure from 1966.

After the fall of the Berlin Wall in 1989, the organization became drawn into the Balkans while building better links with former potential enemies to the east, which culminated with several former Warsaw Pact states joining the alliance in 1999 and 2004. On 1 April 2009, membership was enlarged to 28 with the entrance of Albania and Croatia. Since the 11 September attacks, NATO has attempted to refocus itself to new challenges and has deployed troops to Afghanistan as well as trainers to Iraq. The Berlin Plus agreement is a comprehensive package of agreements made between NATO and the European Union on 16 December 2002. With this agreement the EU was given the possibility to use NATO assets in case it wanted to act independently in an international crisis, on the condition that NATO itself did not want to act the so-called "right of first refusal". Only if NATO refused to act would the EU have the option to act. The combined military spending of all NATO members constitutes over 70% of the world's defence spending, with the United States alone accounting for about half the total military spending of the world and the United Kingdom, France, Germany, and Italy accounting for a further 15%.

## Beginnings

The Treaty of Brussels, signed on 17 March 1948 by Belgium, the Netherlands, Luxembourg, France

and the United Kingdom is considered the precursor to the NATO agreement. The treaty and the Soviet Berlin Blockade led to the creation of the Western European Union's Defence Organization in September 1948. However, participation of the United States was thought necessary in order to counter the military power of the USSR, and therefore talks for a new military alliance began almost immediately. These talks resulted in the North Atlantic Treaty, which was signed in Washington, D.C. on 4 April 1949. It included the five Treaty of Brussels states, as well as the United States, Canada, Portugal, Italy, Norway, Denmark and Iceland. Popular support for the Treaty was not unanimous; some Icelanders commenced a pro-neutrality, anti-membership riot in March 1949.

The Parties of NATO agreed that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all. Consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence will assist the Party or Parties being attacked, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area.

Such action as it deems necessary, including the use of armed force does not necessarily mean that other member states will respond with military action against the aggressors. Rather they are obliged to respond, but maintain the freedom to choose how they will respond. This differs from Article IV of the Treaty of Brussels (which founded the Western European Union) which clearly states that the response however often assumed that NATO members will aid the attacked member militarily. Further, the article limits the organization's scope to Europe and North America, which explains why the Falklands War did not result in NATO involvement. The creation of NATO brought about some standardization of allied military terminology, procedures, and technology, which in many cases meant European countries adopting U.S. practices. The roughly 1300 Standardization Agreements (STANAGs) codifies the standardization that NATO



has achieved. Hence, the 7.62×51 NATO rifle cartridge was introduced in the 1950s as a standard fire-arm cartridge among many NATO countries. Fabrique Nationale de Herstal's FAL became the most popular 7.62 NATO rifle in Europe and served into the early 1990s. Also, aircraft marshalling signals were standardized, so that any NATO aircraft could land at any NATO base. Other standards such as the NATO phonetic alphabet have made their way beyond NATO into civilian use.

## Cold War

The outbreak of the Korean War in 1950 was crucial for NATO as it raised the apparent threat level greatly (all Communist countries were suspected of working together) and forced the alliance to develop concrete military plans. The 1952 Lisbon conference, seeking to provide the forces necessary for NATO's Long-Term Defence Plan, called for an expansion to 96 divisions. However this requirement was dropped the following year to roughly 35 divisions with heavier use to be made of nuclear weapons. At this time, NATO could call on about 15 ready divisions in Central Europe, and another ten in Italy and Scandinavia. Also at Lisbon, the post of Secretary General of NATO as the organization's chief civilian was also created, and Baron Hastings Ismay eventually appointed to the post. Later, in September 1952, the first major NATO maritime exercises began; Operation Mainbrace brought together 200 ships and over 50,000 personnel to practice the defence of Denmark and Norway.

Greece and Turkey joined the alliance the same year, forcing a series of controversial negotiations, in which the United States and Britain were the primary disputants, over how to bring the two countries into the military command structure. Meanwhile, while this overt military preparation was going on, covert stay-behind arrangements to continue resistance after a successful Soviet invasion ('Operation Gladio'), initially made by the Western European Union, were being transferred to NATO control. Ultimately unofficial bonds began to grow between NATO's armed forces, such as the NATO Tiger Association and competitions such as the Canadian Army Trophy for tank gunnery.

In 1954, the Soviet Union suggested that it should join NATO to preserve peace in Europe. The NATO countries, fearing that the Soviet Union's motive was to weaken the alliance, ultimately rejected this proposal. The incorporation of West Germany into the organization on 9 May 1955 was described as "a decisive turning point in the history of our continent" by Halvard Lange, Foreign Minister of Norway at the time. A major reason for Germany's entry into the alliance was that without German manpower, it would have been impossible to field enough conventional forces to resist a Soviet invasion. Indeed, one of its immediate results was the creation of the Warsaw Pact, signed on 14 May 1955 by the Soviet Union, Hungary, Czechoslovakia, Poland, Bulgaria, Romania, Albania, and East Germany, as a formal response to this event, thereby delineating the two opposing sides of the Cold War. French withdrawal

The unity of NATO was breached early in its history, with a crisis occurring during Charles de Gaulle's presidency of France from 1958 onwards. De Gaulle protested at the United States' strong role in the organization and what he perceived as a special relationship between the United States and the United Kingdom. In a memorandum sent to President Dwight D. Eisenhower and Prime Minister Harold Macmillan on 17 September 1958, he argued for the creation of a tripartite directorate that would put France on an equal footing with the United States and the United Kingdom, and also for the expansion of NATO's coverage to include geographical areas of interest to France, most notably French Algeria, where France was waging a counter-insurgency and sought NATO assistance.

Considering the response given to be unsatisfactory, de Gaulle began to build an independent defence for his country. He also wanted to give France, in the event of an East German incursion into West Germany, the option of coming to a separate peace with the Eastern bloc instead of being drawn into a NATO-Warsaw Pact global war. On 11 March 1959, France withdrew its Mediterranean Fleet from NATO command; three months later, in June 1959, de Gaulle banned the stationing of foreign nuclear weapons on French soil. This caused the United

States to transfer two hundred military aircraft out of France and return control of the ten major air force bases that had operated in France since 1950 to the French by 1967.

Though France showed solidarity with the rest of NATO during the Cuban Missile Crisis in 1962, de Gaulle continued his pursuit of an independent defence by removing France's Atlantic and Channel fleets from NATO command. In 1966, all French armed forces were removed from NATO's integrated military command, and all non-French NATO troops were asked to leave France. This withdrawal forced the relocation of the Supreme Headquarters Allied Powers Europe (SHAPE) from Rocquencourt, near Paris, to Casteau, north of Mons, Belgium, by 16 October 1967. France remained a member of the alliance, and committed to the defence of Europe from possible Communist attack with its own forces stationed in the Federal Republic of Germany throughout the Cold War. A series of secret accords between U.S. and French officials, the Lemnitzer-Ailleret Agreements, detailed how French forces would dovetail back into NATO's command structure should East-West hostilities break out.

During most of the Cold War, NATO maintained a holding pattern with no actual military engagement as an organization. On 1 July 1968, the Nuclear Non-Proliferation Treaty opened for signature: NATO argued that its nuclear sharing arrangements did not breach the treaty as U.S. forces controlled the weapons until a decision was made to go to war, at which point the treaty would no longer be controlling. Few states knew of the NATO nuclear sharing arrangements at that time, and they were not challenged.

On 30 May 1978, NATO countries officially defined two complementary aims of the Alliance, to maintain security and pursue détente. This was supposed to mean matching defences at the level rendered necessary by the Warsaw Pact's offensive capabilities without spurring a further arms race.

On 12 December 1979, in light of a build-up of Warsaw Pact nuclear capabilities in Europe, min-

isters approved the deployment of U.S. GLCM cruise missiles and Pershing II theatre nuclear weapons in Europe. The new warheads were also meant to strengthen the western negotiating position regarding nuclear disarmament. This policy was called the Dual Track policy. Similarly, in 1983–84, responding to the stationing of Warsaw Pact SS-20 medium-range missiles in Europe, NATO deployed modern Pershing II missiles tasked to hit military targets such as tank formations in the event of war. This action led to peace movement protests throughout Western Europe.

## Escalation

With the background of the build-up of tension between the Soviet Union and the United States, NATO decided, under the impetus of the Reagan presidency, to deploy Pershing II and cruise missiles in Western Europe, primarily West Germany. These missiles were theatre nuclear weapons intended to strike targets on the battlefield if the Soviets invaded West Germany. Yet support for the deployment was wavering and many doubted whether the push for deployment could be sustained. On 1 September 1983, the Soviet Union shot down a Korean passenger airliner when it crossed into Soviet airspace—an act which Reagan characterized as a "massacre". The barbarity of this act, as the U.S. and indeed the world understood it, galvanized support for the deployment—which stood in place until the later accords between Reagan and Mikhail Gorbachev.

The membership of the organization at this time remained largely static. In 1974, as a consequence of the Turkish invasion of Cyprus, Greece withdrew its forces from NATO's military command structure but, with Turkish cooperation, were readmitted in 1980. On 30 May 1982, NATO gained a new member when, following a referendum, the newly democratic Spain joined the alliance.

In November 1983, NATO manoeuvres simulating a nuclear launch caused panic in the Kremlin. The Soviet leadership, led by ailing General Secretary Yuri Andropov, became concerned that the

manoeuvres, codenamed Able Archer 83, were the beginnings of a genuine first strike. In response, Soviet nuclear forces were readied and air units in East Germany and Poland were placed on alert. Though at the time written off by U.S. intelligence as a propaganda effort, many historians now believe that the Soviet fear of a NATO first strike was genuine.

## Expansion and restructuring

New NATO structures were also formed while old ones were abolished: The NATO Response Force (NRF) was launched at the 2002 Prague summit on 21 November. On 19 June 2003, a major restructuring of the NATO military commands began as the Headquarters of the Supreme Allied Commander, Atlantic were abolished and a new command, Allied Command Transformation (ACT), was established in Norfolk, Virginia, United States, and the Supreme Headquarters Allied Powers Europe (SHAPE) became the Headquarters of Allied Command Operations (ACO). ACT is responsible for driving transformation (future capabilities) in NATO, whilst ACO is responsible for current operations.

As a result of post-Cold War restructuring of national forces, intervention in the Balkan conflicts, and subsequent participation in Afghanistan, starting in late 2003 NATO has restructured how it commands and deploys its troops by creating several NATO Rapid Deployable Corps.

Membership went on expanding with the accession of seven more Northern European and Eastern European countries to NATO: Estonia, Latvia and Lithuania and also Slovenia, Slovakia, Bulgaria, and Romania. They were first invited to start talks of membership during the 2002 Prague Summit, and joined NATO on 29 March 2004, shortly before the 2004 Istanbul summit. The same month, NATO's Baltic Air Policing began, which supported the sovereignty of Latvia, Lithuania and Estonia by providing fighters to react to any unwanted aerial intrusions. Four fighters are based in Lithuania, provided in rotation by virtually all the

NATO states. Operation Peaceful Summit temporarily enhanced this patrolling during the 2006 Riga summit.

The 2006 Riga summit was held in Riga, Latvia, which had joined the Atlantic Alliance two years earlier. It is the first NATO summit to be held in a country that was part of the Soviet Union, and the second one in a former Comecon country (after the 2002 Prague summit). Energy Security was one of the main themes of the Riga Summit. At the April 2008 summit in Bucharest, Romania, NATO agreed to the accession of Croatia and Albania and invited them to join. Both countries joined NATO in April 2009. Ukraine and Georgia were also told that they will eventually become members.

## Future Enlargement

New membership in the alliance has been largely from Eastern Europe and the Balkans, including former members of the Warsaw Pact.

At the 2008 summit in Bucharest, three countries were promised future invitations: the Republic of Macedonia, Georgia and Ukraine. Though it has completed the requirements for membership, the accession of Macedonia is blocked by Greece, pending resolution of the Macedonia naming dispute. Turkey has also threatened to block an attempt from Cyprus.[citation needed]

Other potential candidate countries include Montenegro and Bosnia and Herzegovina, which joined the Adriatic Charter of potential members in 2008. Russia, as referred to above, continues to oppose further expansion, seeing it as inconsistent with understandings between Soviet leader Mikhail Gorbachev and U.S. President George H. W. Bush that allowed for a peaceful German reunification. NATO's expansion policy is seen by Moscow as a continuation of a Cold War attempt to surround and isolate Russia.



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# BRIC and IBSA Summits



The two Summits has discussed global economic crisis besides ways to enhance cooperation among the member countries of the two group-

ings. Prime Minister Manmohan Singh arrived in Brazil on a two day visit in April 2010 during which he attended the Brazil—Russia—India—China (BRIC) and India—Brazil— South Africa (IBSA) Summits and held bilateral meetings with Chinese President Hu Jintao and Russian President Dmitry Medvedev. The Prime Minister reached from Washington on the second leg of his eight nation tour.

At the 2nd BRIC Summit, Iran's nuclear issue and the controversy surrounding it also discussed under the grouping's format by Singh, Russian President Dmitry Medvedev, Chinese President Hu Jintao and Brazilian President Lula da Silva. This was the first time that Iran has been part of focussed agenda of the grouping.

BRIC is a significant grouping comprising two of the world's leading energy producers Russia and China and top energy consumers India and China, which officials say forms the basis for natural synergy.

In the BRIC format, Foreign Ministers of the four countries have met regularly on the sidelines of international conferences, including the UN General Assembly.

The BRIC countries, representing 40 per cent of the global population, are among the largest and fastest growing economies with rich human and material resources. They represent the future of the global economic landscape.

With a similarity of views on several issues like climate change and reform of global institutions, including the UN, the four countries have been fine tuning their collective approaches to these issues. In the IBSA format too, India, Brazil and South Africa, the three fastest growing economies of three continents, have evolved common and coordinated approaches to the challenges like global economic crisis and climate change besides pushing efforts to enhance cooperation among themselves.

After the IBSA Summit, India, Brazil and South Africa signed two trilateral MoUs. These are in the areas of solar energy and science and technology. An MoU in the field of sport is also likely to be inked. "These groupings reflect the growing role of emerging economies in shaping the global economic order," the Prime Minister had said in a statement.

He said the IBSA process has come of age as it today encompasses a wide range of activities which supplement the excellent bilateral relations that India enjoys with each of these countries.

"Our coordination on important international issues has expanded, and our trilateral cooperation is beginning to bear fruit in many sectors," the Prime Minister had said.

"We have a high stake in the revival of the global economy, an open trading system, energy security, combating climate change and addressing non traditional threats to international security," he said. Singh also held bilateral meetings with the Chinese President and Russian President. Ahead of his meeting with Hu, Singh said in Washington that India and China were working very hard to find a "practical" and "pragmatic" solution to the boundary question and it would "take time" to get resolved.

Noting that both countries "recognise that it would take time", he said both the nations have agreed that

pending the resolution of the border issues, peace and tranquility should be maintained along the Line of Actual Control and by and large that situation prevails on the ground.

On the overall Sino India relations, he said the economic content of the relationship has increased significantly, with China today being India's largest trading partner.

There are large Chinese investments in our country and there are large Indian investments in China. "On the economic front the relationship is moving in the right direction," he said.

On multilateral issues, he said, there was a recognition in China that there was a similarity of approach between the two countries and they can gain by working together.

In this context, he referred to the Copenhagen conference on climate change last December during which India and China worked closely to block developed nations from imposing their agenda IBSA to develop satellites, cooperate on global issues

India, Brazil and South Africa decided to jointly develop two satellites and forged closer cooperation on global issues like UN reforms, climate change and world trade talks. This emerged after the fourth India-Brazil-South Africa (IBSA) summit.

The two satellites will be used for studying climate to help agriculture sector in the three countries. Prime Minister Manmohan Singh said that IBSA besides the embodiment of south-south cooperation had entered the phase of consolidation and implementation of initiatives.

He said IBSA has immense prospects for the people of the three countries and the right direction was being provided to it by strengthening cooperation in science and technology, energy, ocean's research, which were the hallmark of the forum.

"OBS has developed into a vibrant organisation which will play important role in world affairs," Dr. Singh said.

Dr. Singh said the three developing economies and democracies shared similar views with regard to reform of global institutions of governance like the UN.

Mr. Zuma said that IBSA has a natural dialogue forum and he has great confidence in its future. He said the decision to develop the satellite jointly was symbolic of the fact that the forum has entered a new phase.

He pointed out that the member countries had common positions on the Doha round of WTO talks. He pressed for early conclusions of the Doha round of trade talks saying it can't be put indefinitely.

Mr. Zuma said the IBSA was rapidly emerging as an important forum for engagement. "But we are yet to fully explore the full potential of this forum," he said.

The South African president, whose country will host the next IBSA summit, said there was an opportunity for expanding cooperation in science and technology and reinforcing shared developmental objectives.

Noting that all the three IBSA countries were influential in their own regions, Mr. Zuma said, "We are in a position to make contributions to a global debate. This became clear at the Copenhagen Summit on climate change when IBSA and China played a key role in reaching an agreement."

He said the four countries were able to reflect the interest of developing nations at the climate meet. He said the IBSA countries were key for reform of global bodies like UN to make them more democratic and more responsive to the poor.

Mr. Zuma said the three countries needed more coordination on climate change to ensure legally binding agreement on the issue in the next summit in Mexico next year.

**BRIC, IBSA nations not keen on Iran sanctions**  
As the United States and its western allies press ahead

with efforts to impose tough penalties on Iran, leaders and officials from two major international groupings BRIC and IBSA meeting in Brasilia this week took a contrary view, agreeing that new sanctions would not help resolve the nuclear issue.

On the sidelines, India's national security adviser, Shiv Shankar Menon, took part in a meeting of BRIC senior security officials alongside Nikolai Patrushev of Russia and Dai Binguo of China. Earlier in the week, Mr. Menon also met with his U.S. counterpart, James L. Jones, who provided a detailed description of Washington's current approach to the Iran issue.

Giving an account of the intra-BRIC exchanges on Iran, a senior Indian official said, "All of us agreed that we don't think sanctions will help solve the current problems with Iran." In addition, there was agreement that dialogue and diplomacy were essential and that the central role of the International Atomic Energy Agency in settling the Iran nuclear docket had to be re-established.

The official said the BRIC nations agreed Iran had the right to nuclear energy but that it also has an obligation to set at rest international fears about the nature of its nuclear programme.

Though the BRIC summit statement did not touch on Iran, the IBSA communiqué said the three leaders "reiterated the need for a peaceful and diplomatic solution of the issue".

Indian officials said President Lula would be going to Iran next month and that his visit had added significance since Brazil was a non-permanent member of the Security Council through 2011. Another factor which might have a bearing on sanctions was that Lebanon – whose government has tended not to support the U.S. on Iran would assume the rotating chair of the UNSC in May.

India buys a significant amount of crude oil from Iran. Until 2009, Indian companies like Reliance also sold refined products to Iran but have withdrawn from the market as American pressure on banks

around the world has made it more difficult to open letters of credit.

## An analysis

Summits of IBSA and BRIC nations, India and Brazil were the lucky two who had overlapping membership in both forums. But South Africa, which is only part of the former, would very much like BRIC to become BRICS, while China, which is part of the latter as well as of the climate change ginger group of BASIC with India, Brazil and South Africa — would not be averse to IBSA becoming CHIBSA.

## Equation Reversed

Last year, when the Russian hosts at Ekaterinburg held back-to-back summits of BRIC and the Shanghai Cooperation Organisation, the equation was reversed. Russia and China belong to both groupings, while India, which has mere observer status in the SCO, agreed to have Prime Minister Manmohan Singh attend that summit only after receiving assurances that he would have full speaking rights and would not have to leave the room when the real members met.

On the sidelines of the April 15 IBSA and BRIC meets in Brasilia, President Hu Jintao of China held a bilateral meeting with his Brazilian counterpart, Lula da Silva, and the two countries signed a number of agreements. One of these was an 'action plan', and buried deep within it was this proposal: "The two sides will discuss conducting long-term research on the potential for furthering the development of trade relations between IBSA and China".

## Not Enthusiastic

Some in Brazil have quietly been suggesting Beijing's inclusion in IBSA -- China is, after all, its largest trading partner -- but India and, to a lesser extent, South Africa, which sees IBSA as a great vehicle for itself on the world stage -- are not enthusiastic.

“Well, IBSA has a character of its own -- three large democracies coming together,” Prime Minister Singh told reporters who managed to throw a question to him on China joining the trilateral forum. He was standing with his delegation in the lobby of Itamaraty Palace, home to the Brazilian foreign ministry, on Thursday evening, waiting for his motorcade in between the IBSA and BRIC summits. “I think IBSA has now come into its own”.

The reference to democracies was not accidental. It was present in Dr. Singh's speech to the IBSA plenary and the final summit communiqué spoke of shared democratic traditions. For Indian officials, this is what provides additional glue to a grouping that joins India with the most important powers of Africa and South America. It helps, of course, that as a criterion for club membership, China would not qualify.

## Problematic

Asked about the expansion of BRIC, the Prime Minister said this was an idea of Goldman Sachs. “We are now trying to give it some shape, flesh it out. Let us see”.

Like IBSA, the expansion of BRIC is problematic because the majority of its members fear the dilution of the forum's core competence: fast rising economies with a growing footprint in the global economy and system. BRIC today accounts for a little under a quarter of world output. The South African economy is not yet in that league.

Other countries that have expressed an interest in joining BRIC are Mexico, Indonesia and Turkey. The Turks are also apparently interested in IBSA.

“What makes BRIC a good fit today is that the four countries have complementary factor endowments and national skills,” a senior Indian official told The Hindu. If China has solid manufacturing and huge financial clout, Russia has energy and advanced technology in certain fields, while Brazil is an agricultural superpower with strong manufacturing and India has a comparative advantage in IT, pharma-

ceuticals as well as agriculture. In an article written on the eve of the BRIC summit, President Dmitri Medvedev spoke of the four countries collaborating with each other in nuclear technology, space technology, aircraft manufacturing, nanotechnology and other fields. But some in the Indian establishment remain sceptical of doing too much with BRIC, fearing a backlash from the U.S.

## II BRIC SUMMIT: Joint Statement

We, the leaders of the Federative Republic of Brazil, the Russian Federation, the Republic of India and the People's Republic of China, met in Brasília on 15 April 2010 to discuss major issues of the international agenda as well as concrete steps to move forward the cooperation and coordination within BRIC.

We have agreed on the following:

### Common Vision and Global Governance

We share the perception that the world is undergoing major and swift changes that highlight the need for corresponding transformations in global governance in all relevant areas.

We underline our support for a multipolar, equitable and democratic world order, based on international law, equality, mutual respect, cooperation, coordinated action and collective decision-making of all States.

We stress the central role played by the G-20 in combating the crisis through unprecedented levels of coordinated action. We welcome the fact that the G-20 was confirmed as the premier forum for international economic coordination and cooperation of all its member states. Compared to previous arrangements, the G-20 is broader, more inclusive, diverse, representative and effective. We call upon all its member states to undertake further efforts to



implement jointly the decisions adopted at the three G-20 Summits.

We advocate the need for the G-20 to be proactive and formulate a coherent strategy for the post-crisis period. We stand ready to make a joint contribution to this effort.

We express our strong commitment to multilateral diplomacy with the United Nations playing the central role in dealing with global challenges and threats. In this respect, we reaffirm the need for a comprehensive reform of the UN, with a view to making it more effective, efficient and representative, so that it can deal with today's global challenges more effectively. We reiterate the importance we attach to the status of India and Brazil in international affairs, and understand and support their aspirations to play a greater role in the United Nations.

We believe the deepened and broadened dialogue and cooperation of the BRIC countries is conducive not only to serving common interests of emerging market economies and developing countries, but also to building a harmonious world of lasting peace and common prosperity. We have agreed upon steps to promote dialogue and cooperation among our countries in an incremental, proactive, pragmatic, open and transparent way.

## International Economic and Financial Issues

The world economic situation has improved since our first meeting in June 2009, in Ekaterinburg. We welcome the resumption of economic growth, in which emerging market economies are playing a very important role. However, we recognize that the foundation of world economic recovery is not yet solid, with uncertainties remaining. We call upon all states to strengthen macroeconomic cooperation, jointly secure world economic recovery and achieve a strong, sustainable and balanced growth. We reiterate our determination to make positive efforts in maintaining domestic economic recovery and pro-

moting development in our own countries and worldwide.

We underline the importance of maintaining relative stability of major reserve currencies and sustainability of fiscal policies in order to achieve a strong, long-term balanced economic growth.

We are convinced that emerging market economies and developing countries have the potential to play an even larger and active role as engines of economic growth and prosperity, while at the same time commit to work together with other countries towards reducing imbalances in global economic development and fostering social inclusion.

G-20 members, with a significant contribution from BRIC countries, have greatly increased resources available to the IMF. We support the increase of capital, under the principle of fair burden-sharing, of the International Bank for Reconstruction and Development and of the International Finance Corporation, in addition to more robust, flexible and agile client-driven support for developing economies from multilateral development banks.

Despite promising positive signs, much remains to be done. We believe that the world needs today a reformed and more stable financial architecture that will make the global economy less prone and more resilient to future crises, and that there is a greater need for a more stable, predictable and diversified international monetary system.

We will strive to achieve an ambitious conclusion to the ongoing and long overdue reforms of the Bretton Woods institutions. The IMF and the World Bank urgently need to address their legitimacy deficits. Reforming these institutions' governance structures requires first and foremost a substantial shift in voting power in favor of emerging market economies and developing countries to bring their participation in decision making in line with their relative weight in the world economy. We call for the voting power reform of the World Bank to be fulfilled in the upcoming Spring Meetings, and expect the quota reform of the IMF to be concluded by the

G-20 Summit in November this year. We do also agree on the need for an open and merit based selection method, irrespective of nationality, for the heading positions of the IMF and the World Bank. Moreover, staff of these institutions needs to better reflect the diversity of their membership. There is a special need to increase participation of developing countries. The international community must deliver a result worthy of the expectations we all share for these institutions within the agreed timeframe or run the risk of seeing them fade into obsolescence.

In the interest of promoting international economic stability, we have asked our Finance Ministers and Central Bank Governors to look into regional monetary arrangements and discuss modalities of cooperation between our countries in this area. In order to facilitate trade and investment, we will study feasibilities of monetary cooperation, including local currency trade settlement arrangement between our countries.

Recent events have shattered the belief about the self-regulating nature of financial markets. Therefore, there is a pressing need to foster and strengthen cooperation regarding the regulation and supervision of all segments, institutions and instruments of financial markets. We remain committed to improve our own national regulations, to push for the reform of the international financial regulatory system and to work closely with international standard setting bodies, including the Financial Stability Board.

## International Trade

We stress the importance of the multilateral trading system, embodied in the World Trade Organization, for providing an open, stable, equitable and non discriminatory environment for international trade. In this connection, we commit ourselves and urge all states to resist all forms of trade protectionism and fight disguised restrictions on trade. We concur in the need for a comprehensive and balanced outcome of the Doha Round of multilateral trade talks, in a manner that fulfills its mandate as a "development round", based on the progress already made, including with regard to modalities. We take

note and strongly support Russia's bid for accession to the WTO.

## Development

We reiterate the importance of the UN Millennium Declaration and the need to achieve the Millennium Development Goals (MDGs). We underscore the importance of preventing a potential setback to the efforts of poor countries aimed at achieving MDGs due to the effects of the economic and financial crisis. We should also make sustained efforts to achieve the MDGs by 2015, including through technical cooperation and financial support to poor countries in implementation of development policies and social protection for their populations. We expect the UN MDG Summit, in September 2010, to promote the implementation of MDGs through policy recommendations. We stress that sustainable development models and paths of developing countries should be fully respected and necessary policy space of developing countries should be guaranteed.

The poorest countries have been the hardest hit by the economic and financial crisis. The commitments regarding the aid to the developing states, especially those related to the MDGs, should be fulfilled, and there should be no reduction in development assistance. An inclusive process of growth for the world economy is not only a matter of solidarity but also an issue of strategic importance for global political and economic stability.

## Agriculture

We express our satisfaction with the Meeting of Ministers of Agriculture and Agrarian Development in Moscow, where they discussed ways of promoting quadripartite cooperation, with particular attention to family farming. We are convinced that this will contribute towards global food production and food security. We welcome their decision to create an agricultural information base system of the BRIC countries, to develop a strategy for ensuring access to food for vulnerable population, to reduce the negative impact of climate change on food security, and to enhance agriculture technology cooperation and innovation.

## Fight against poverty

We call upon the international community to make all the necessary efforts to fight poverty, social exclusion and inequality bearing in mind the special needs of developing countries, especially LDCs, small islands and African Countries. We support technical and financial cooperation as means to contribute to the achievement of sustainable social development, with social protection, full employment, and decent work policies and programmes, giving special attention to the most vulnerable groups, such as the poor, women, youth, migrants and persons with disabilities.

## Energy

We recognize that energy is an essential resource for improving the standard of living of our peoples and that access to energy is of paramount importance to economic growth with equity and social inclusion. We will aim to develop cleaner, more affordable and sustainable energy systems, to promote access to energy and energy efficient technologies and practices in all sectors. We will aim to diversify our energy mix by increasing, where appropriate, the contribution of renewable energy sources, and will encourage the cleaner, more efficient use of fossil fuels and other fuels. In this regard, we reiterate our support to the international cooperation in the field of energy efficiency.

We recognize the potential of new, emerging, and environmentally friendly technologies for diversifying energy mix and the creation of jobs. In this regard we will encourage, as appropriate, the sustainable development, production and use of biofuels. In accordance with national priorities, we will work together to facilitate the use of renewable energy, through international cooperation and the sharing of experiences on renewable energy, including biofuels technologies and policies.

We believe that BRIC member countries can cooperate in training, R&D, Consultancy services and technology transfer, in the energy sector.

## Climate Change

We acknowledge that climate change is a serious threat which requires strengthened global action. We commit ourselves to promote the 16th Conference of the Parties to the United Nations Framework Convention on Climate Change and the 6th Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol, in Mexico, to achieve a comprehensive, balanced and binding result to strengthen the implementation of the Convention and the Protocol. We believe that the Convention and the Protocol provide the framework for international negotiations on climate change. The negotiations in Mexico should be more inclusive, transparent, and should result in outcomes that are fair and effective in addressing the challenge of climate change, while reflecting the principles of the Convention, especially the principle of equity and common but differentiated responsibilities.

## Terrorism

We condemn terrorist acts in all forms and manifestations. We note that the fight against international terrorism must be undertaken with due respect to the UN Charter, existing international conventions and protocols, the UN General Assembly and Security Council resolutions relating to international terrorism, and that the prevention of terrorist acts is as important as the repression of terrorism and its financing. In this context, we urge early conclusion of negotiations in the UN General Assembly of the Comprehensive Convention on International Terrorism and its adoption by all Member States. Brazil and China express their sympathy and solidarity with the people and Governments of Russia and India which suffered from recent barbaric terrorist attacks. Terrorism cannot be justified by any reason.

## Alliance of Civilizations

We affirm the importance of encouraging the dialogue among civilizations, cultures, religions and peoples. In this respect, we support the "Alliance of

Civilizations”, a United Nations’ initiative aimed at building bridges, mutual knowledge and understanding around the world. We praise the Brazilian decision to host, in Rio de Janeiro, in May 2010, the 3rd Global Forum and confirm our intention to be present at the event, in appropriate high level.

## Haiti

We reaffirm our solidarity towards the Haitian people, who have been struggling under dire circumstances since the earthquake of January 12th, and reiterate our commitment to gather efforts with the international community in order to help rebuilding the country, under the guidance of the Haitian government, and according to the priorities established by the Action Plan for National Recovery and Development of Haiti.

## Cooperation

We welcome the following sectoral initiatives aimed at strengthening cooperation among our countries:

- a) the first Meeting of Ministers of Agriculture and Agrarian Development;
- b) the Meetings of Ministers of Finance and Governors of Central Banks;
- c) the Meetings of High Representatives for Security Issues;
- d) the I Exchange Program for Magistrates and Judges, of BRIC countries, held in March 2010 in Brazil following the signature in 2009 of the Protocol of Intent among the BRIC countries’ Supreme Courts;
- e) the first Meeting of Development Banks;
- f) the first Meeting of the Heads of the National Statistical Institutions;
- g) the Conference of Competition Authorities;
- h) the first Meeting of Cooperatives;

- i) the first Business Forum;
- j) the Conference of think tanks.

28. We also endorse other important manifestations of our desire to deepen our relationship, such as:

- a) the joint publication by our respective national statistical institutions which is going to be released today;
- b) a feasibility study for developing a joint BRIC encyclopedia.

29. We reaffirm our commitment to advance cooperation among BRIC countries in science, culture and sports.

We express our confidence in the success of the 2010 World Expo in Shanghai, the 2010 Commonwealth Games in New Delhi, the 2013 World Student Games in Kazan, the 2014 Winter Olympic and Paralympic Games in Sochi, the FIFA 2014 World Cup in Brazil and the 2016 Olympic and Paralympic Games in Rio de Janeiro.

We reaffirm the efforts to strengthen our cooperation and assistance for reduction of natural disasters. Russia and India express their condolences and solidarity with the people and Governments of Brazil and China, for the lives lost in the mudslide in Rio de Janeiro, Brazil, and in the earthquake in Yushu, China.

## III BRIC Summit

Brazil, Russia and India appreciated the offer of China to host the III BRIC Summit in 2011.

Russia, India and China expressed their profound gratitude to the Government and people of Brazil for hosting the II BRIC Summit.



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# Visit of External Affairs Minister to China



Minister of External Affairs Mr. S.M. Krishna visited to China in April 2010. S.M. Krishna was on an official visit to China and held discussions with their counterpart, Foreign Minister Yang Jiechi, on a range of bilateral, regional and global issues.

His visit coincided with the 60th anniversary of the establishment of India's diplomatic relations with the People's Republic of China. To commemorate that anniversary, they held a Festival of India in China.

S.M. Krishna said that most foreign ministers, when spoke abroad, articulate their immediate national concerns and interests. Mr. Krishna has suggested to his Chinese counterpart that the Foreign Ministers of the two countries should meet annually from now on and this proposal found an immediately positive response from the Chinese side. So, this is another outcome of the visit.

## Speech of S.M. Krishna

Not surprisingly, the post-1945 order was reluctant to recognize the legitimate concerns and interests of these two nations. China, in particular, stood isolated as a result of Cold War politics. In fact, as late as 1954, only 19 nations had recognized the People's Republic of China. India, of course, was among them, having established diplomatic relations with China in April 1950. It was also sensitive to the sentiments of the Chinese people and became an early advocate of the 'one China policy' and of the PRC's admission to the United Nations. Its own bilateral ties with China during this period, that included a historic visit by Jawaharlal Nehru in 1954, also reflected the friendship between the two nations.

In their early years as independent players, the two polities found themselves on the same page on de-

colonization, national sovereignty and independence, and security of states. The Panchasheela, or, the five principles of peaceful co-existence, was their unique contribution to contemporary diplomacy. This period was marked by global crises and flashpoints, some like Korea and the Taiwan Straits that directly affected Chinese security, and others like Vietnam and the Suez which were issues of basic principles. India and China stood shoulder to shoulder and the Bandung Conference was the high watermark of that era. In celebrating 60 years of diplomatic ties, we obviously seek to honour and uphold that tradition of working together.

The younger generation may well be unaware of it and it is our duty to remind them so that the spirit of cooperation can be even stronger. Therefore, our endeavour is to draw inspiration from those early years of our existence as independent nations to co-operate more closely in the future.

In the 1980s, having overcome initial challenges, India and China saw that rapid economic growth would give them a stronger voice in the international community. Looking back, it is significant that Rajiv Gandhi actually sought to accelerate India's modernization just a few years after Deng Xiaoping unveiled his reform policy in China. Unfortunately, it took us another decade to evolve a national consensus.

But the point that I wish to underline is that the architects of modernization and reform in both countries – Rajiv Gandhi and Deng Xiaoping – were also the prime movers of normalizing our ties after a difficult interregnum. Rajiv Gandhi's 1988 visit to China was the landmark event that put our ties on their present course. The underlying assumption that was clearly shared by both leaders was of the importance of growth at home and of cooperation abroad. Those still remain our guiding principles.

Getting our growth strategy right in an ever-changing world has its own challenges. As India and China manage their domestic priorities well, it has huge implications for global prosperity. After all, between them, they are raising the living standard of almost one-third of humanity. When the question is raised about what we are doing for the world, it is often forgotten that our domestic development itself has world-wide effect.

In the last two decades, we have impacted significantly on global per-capita income, longevity and human development. Given the scale of what is underway, there is much that can be gained through our close cooperation. The economic models of India and China may be very different. But an exchange of best practices can still benefit both countries. After all, we do face similar challenges of urbanization, resource consumption, food and energy security, inclusive growth and skills development.

The paradigm of co-existence has today been enhanced by more active engagement. But this is still not adequate. We must ask ourselves whether as neighbours and partners, each of whom are large and rising economies, are we making the best of opportunities? Put bluntly, is it possible that India and China can leverage each others' strengths? After all, in their own past history, both nations have leapfrogged using international relationships.

There is a huge infrastructure demand in India, covering sectors like power, roads, rail and telecommunications. In the recent budget, 46% of the total plan allocations are assigned for physical infrastructure development. China has actually carried out many of the changes that India is still contemplating. As a result, it has capacities but less domestic demand. There is considerable scope for joint projects as we master the practice of working harmoniously together. On the Chinese side, the outsourcing of IT by state enterprises has only started recently. There is a potential waiting to be tapped, which would happen only by connecting Chinese users to Indian providers. I am meeting representatives of Indian businesses in China later today and will encourage them to be creative in exploring opportunities here. We strongly feel that

the India-China relationship is grossly under-realized and the capacities for expansion are enormous. Like other major States who made the same journey earlier, India and China seek a secure and peaceful environment that allows them to focus on their growth prospects. In this regard, we must always remember that the two countries are each part of the other's immediate periphery. Just by ensuring stability and promoting prosperity at home, we are actually serving each others' interest. What are the challenges to our peaceful periphery? They are actually not very different from the problems that we face at home. These emanate from two central issues – material poverty and intellectual poverty. To the extent that we can raise living standards rapidly at home and encourage similar progress in our neighbourhood, we will be more secure and stable. The more complex challenge is that of ideas. As pluralistic societies, we are threatened by political ideologies that are based on narrow loyalties, often justified by distorting religious beliefs. These forces are against progress and modernity and have only brought misery wherever they have dominated. States that use them as instruments to advance their political interests find themselves consumed by these very destructive ideas.

For both of us, stability at home stands in sharp contrast to extreme instability in our shared neighbourhood. We cannot afford to be passive spectators. It is critical for our future that we cooperate actively in meeting common challenges. Our ties were never a zero sum game. Today, it is all the more important that we take an enlightened and long-term view of our self-interest.

A strong and stable relationship between India and China has consequences for the entire world. Because we are different, our divergences are often exaggerated. If truth be told, there are vested interests at work too. India and China must not just cooperate; they must be seen to be doing so by the rest of the world. Our Prime Minister, Dr. Manmohan Singh, often emphasizes that the world is large enough to accommodate the aspirations of both countries. But this is not an inevitable outcome. It is a goal that requires strong political will, sustained engagement and a high degree of mutual sensitiv-

ity. What can we do to make this cooperation stronger? I believe that we need to work on a wide variety of fronts as progress on one will reinforce in the other.

A number of dialogues and forums already exist between India and China that need to keep meeting regularly and productively. These include mechanisms where we discuss bilateral, regional and global political issues. We have a separate set of talks for the boundary question. Annual consultations take place between our foreign offices, defence establishments, policy planners, consular officials and disarmament experts. There are also dedicated bodies to deliberate on trade matters and water management. Regular meetings lead to better communication, more understanding and strengthen confidence. I would, therefore, strongly encourage an intensive and sustained engagement between the two systems.

Far from sliding into complacency, we must keep pushing the pace of the relationship with new ideas and more activity. I was pleased to note that this is already underway. On the political side, the support provided by growing track-2 dialogues is a welcome development. Our military-to-military cooperation is also expanding steadily. In trade, business events in 18 Chinese cities this year with IT, pharmaceuticals, engineering and agro-exports as thrust areas will surely make an impact. In culture, the Festival of India that will take our performing arts to 33 Chinese cities this year will be equally noteworthy. Growing exchanges of students and tourists speak of changing levels of comfort. Soap operas on Chinese TV and Bollywood dances in local restaurants confirm that we have transcended cultural barriers.

We need to strengthen sentiment at the popular level. The 60th anniversary of our ties itself offers a great opportunity. But this needs to be a continuous and widening process. There are powerful symbols of connectivity between our societies. Xuan Tsang is one from distant history.

We are now completing the construction of an Indian temple at the White Horse Temple complex in Luoyang which is associated with him. This will be

a powerful symbol of our shared history. Asia's first Nobel Laureate Rabindranath Tagore too evokes positive sentiments among Chinese intellectuals. His 150th birth anniversary next year offers a unique opportunity to build stronger cultural bonds. We have, of course, examples from more contemporary times like the young and heroic Dr. Kotnis and the Indian medical mission to Yenan. We must appreciate the power of culture to bring about perceptual changes in society as a whole.



India and China have only begun to impact seriously on the world. Just as we advanced decolonization and independence movements in the fifties, today we are striving to rewrite the rules of the world a little more in our favour. A reshaping of the global architecture is underway, evident in new groupings like the G-20, BRIC, BASIC and the East Asia Summit.

As developing societies, our convergence is manifest on issues like climate change and global trade rules. Given their shared interest in creating a more contemporary order, the two countries can advance their respective interests much better through active cooperation. Indeed, even on the complex issue of UN reform, it is perhaps time for China to review previously held positions and welcome the presence in the Security Council of a nation with which it has much in common.

We have to accept that there will be outstanding issues between the two countries even as our relationship forges ahead. This is in the very nature of global politics and we should not get discouraged as a result. The true test of our maturity is how well we handle our problems. Even on an issue like the unresolved boundary question that is often the subject of media speculation, it is not always appreciated that considerable progress has actually been made. The Peace and Tranquility Agreement of 1993, the Confidence Building Measures of 1996 and the Guiding Principles and Political Parameters of 2005 have all demonstrated that we have the ability to increase convergence and deepen mutual understanding on this complex issue through patient negotiation.

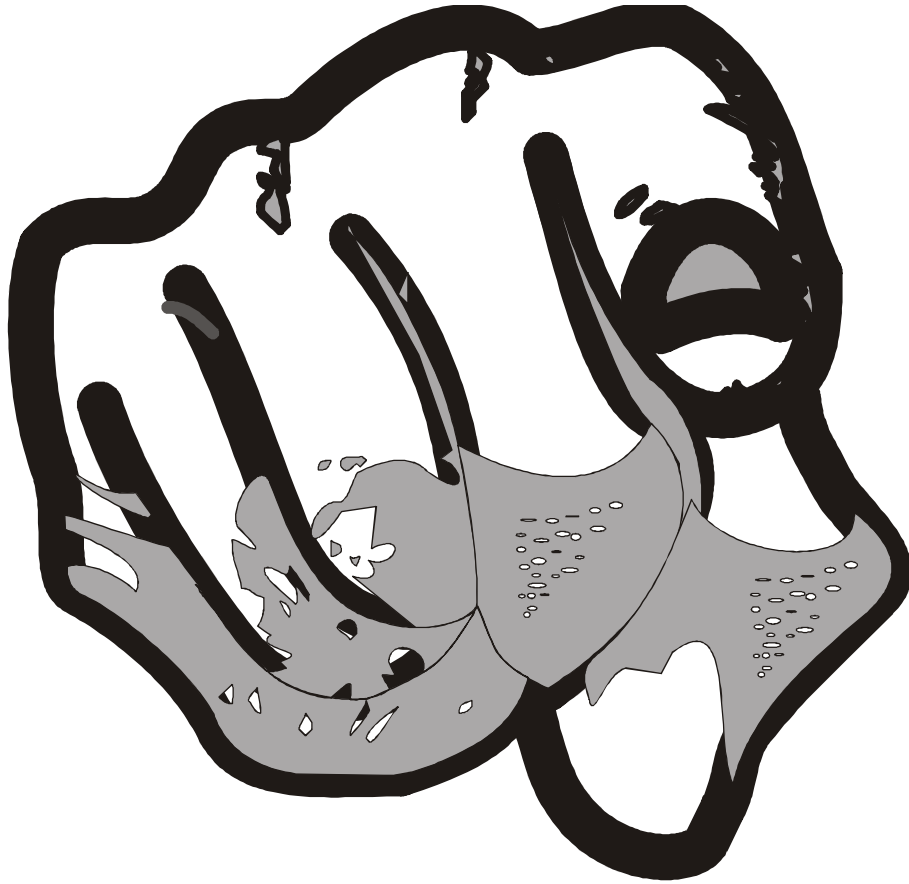


As rising powers, India and China are often projected to have a competitive relationship. In the final analysis, we all are what we want to be. It is upto us to disprove such scenarios, not through platitudes and wishful thinking, but by concrete examples of co-operation. Certainly, there is a strong case for a global issues partnership between India and China as two large developing Asian economies. We can work together on key challenges that will define the 21st century. These include sustainable development, technology exploitation, water usage, climate change, rapid urbanization, migration, human development and building a pluralistic society. The 21st century will be increasingly driven by the quality of human resources. As the two largest human resource powers, our cooperation can accelerate that trend.

But there is more to our prospects than issue-based cooperation. Our rise promises to alter the configurations of the global order as we have known it in a fundamental manner. We cannot accept incremental change in the way the world is currently run. The G-20 represents the first step in a new direction. Our combined efforts can help reform the systems of international financial governance much more effectively than we could by working alone. As Asian states, we must recognize that our continent lags behind Europe and the Americas in terms of economic and infrastructural integration and security cooperation. We have yet to find the right common denominators in many areas. If India and China work purposefully in this direction, the whole world stands to benefit.

The destinies of India and China were linked in the past. The growth of our relationship will be determined by the extent of our awareness that they are linked in the future as well.

The issue of India's membership of the UN Security Council was also raised in the meeting between our External Affairs Minister and Premier Wen Jiabao. The Chinese position in this regard as encapsulated in the Joint Statement issued after our Prime Minister's visit to China in 2008 was reiterated.



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# Current Affairs



» Medical Council of India president Ketan Desai and three others were arrested by CBI in connection with permitting a medical college in Punjab to admit students despite lack of infrastructure, by allegedly taking

Rs. two crore as bribe.

Besides Dr. Desai, the others arrested were the alleged middleman Jitendar Pal Singh, a faculty member of Patiala-based Gyan Sagar Medical College Kamaljeet Singh and the college's Vice Chairman Sukhvinder Singh, CBI said.

The four accused were booked under various provisions of Prevention of Corruption of Act, dealing with inducing a public servant to accept bribe, criminal misconduct and payment of money.

» Singapore has developed expertise in a whole range of urban solutions such as water, sewage or waste management, low-cost public housing and transport systems management, all of which may be relevant to Tamil Nadu or Chennai, according to S. Iswaran, Singapore's Senior Minister of Trade, Industry and Education.

In his interaction with senior journalists at the headquarters of The Hindu group of publications, Mr. Iswaran referred to the collaborative venture on the Cooum river restoration project, for which the Chennai Rivers Restoration Trust and the Singapore Cooperation Enterprise of the Singapore government signed a memorandum of understanding last month. In such areas, the two sides could share their experiences and derive benefits mutually, the Minister said, adding that the "long historical, cultural and linguistic ties" between Tamil Nadu and Singapore created a "natural opportunity" to work together.

Following Deputy Chief Minister M.K. Stalin's visit to Singapore last year on his invitation, the frame-

work for the collaboration was worked out. (According to the Tamil Nadu government's official documents, the MoU was signed for the preparation of a comprehensive master plan for the river restoration and the provision of technical assistance and training during implementation.)

Terming the goodwill and political relationship between Singapore and India very strong, Mr. Iswaran said the Comprehensive Economic Cooperation Agreement (CECA) between the two countries had created a base that facilitated a lot of growth in trade and investment flows in both directions. There had been significant deals such as Tata Steel coming and buying over Natsteel in Singapore. About 3,000 Indian businesses small and medium sized were incorporated and operating out of the south-east Asian country.



» Navies of India and the United States have begun annual war exercises involving anti-submarine warfare surface firings, visit board, search and seizure and submarine operations on April 23, 2010.

The 14th edition of MALABAR in the Arabian Sea frontline units of the U.S. Navy's 7th Fleet and Indian Navy's Western Fleet taking part in the 10-day exercise.

The regular India – U.S. interaction over the years has resulted in an increase in the complexity and professional content of the bilateral exercise.

The exercise was primarily aimed at deriving mutual benefit from each others experiences. The interoperability achieved over the years as a result of such exercises has proved to be operationally beneficial particularly during the ongoing Anti-Piracy Operations in the Gulf of Aden as also during Humanitarian Assistance and Disaster Relief (HADR) operations such as the tsunami of 2004.

During MALABAR CY10, the U.S. Navy represented by ships from CTF 70 of its 7th Fleet, based at Yokosuka, Japan. The CTF included the Cruiser USS Shiloh (CG 67), Destroyers USS Chaffee (DDG 90), USS Lassen (DDG 82) and Frigate USS Curtis (FFG 38).



» Government on April 23, 2010 said it will continue to follow its two-pronged approach of development and well-planned police action to check Naxal menace but pointed out that Central funds meant for projects

for betterment of such regions were not being well used.

This was the first time the Committee met after the Naxal ambush that claimed lives of 76 securitymen in Dantewada in Chhattisgarh earlier this month. The subject of the meeting was 'Left Wing Extremism.'

Drawing attention to anti-development activities of Naxalites, Mr. Chidambaram said they have been destroying school buildings, roads and telephone towers among others because development will wean away poor tribals from the grip of the ultras. He pointed out in 2009 alone, Naxals destroyed 71 school buildings, the re-building of which may take years, depriving tribal children of education.

Mr. Chidambaram said huge amount of money is being given to state governments for bringing about development in the 34 worst-affected Naxal districts under various programmes.

Expressing dissatisfaction over proper utilisation of money, he called for proper utilisation of the funds provided by the Centre for development of the Naxal-affected areas.

Taking part in the discussions, the Committee members supported the government's two-pronged policy and suggested a visit by an all-party Parliamentary delegation to the Naxal-affected areas to win the trust and goodwill of tribal people, an MHA statement said.

They also pointed out the need for good coordination between local police and Central paramilitary forces and availability of actionable intelligence at the ground level.

The discussions remained inconclusive and another meeting of the Consultative Committee would be held soon to continue discussions on the same subject, to enable more members to participate, the statement read.

The Committee members comprise MP's from the Lok Sabha and the Rajya Sabha.



» NATO agreed on April 23, 2010 to begin handing over control of Afghanistan to the Afghan government this year, a process that if successful would enable President Barack

Obama to meet his target date of July 2011 for starting to bring U.S. troops home.

U.S. Secretary of State Hillary Rodham Clinton warned of a rocky road ahead, but said she was pleased with progress towards eliminating the shortage of allied trainers for the Afghan army and police. She offered a generally sunny outlook for Afghanistan and said the government of much—criticized President Hamid Karzai gets too little credit for progress in building a viable democracy. NATO Secretary General Anders Fogh Rasmussen said the 28 nation alliance is on track with its new strategy for winding down the war in Afghanistan, despite security setbacks and a continuing shortage of foreign trainers for the fledgling Afghan police and army.

He said a meeting of NATO foreign ministers, including Hillary Clinton, agreed on what it will take to create conditions enabling Afghans to assume control of their own country. He was not specific about what those conditions will be, but said progress in that direction is important in order to avoid further erosion of public support for the war effort.





» India slashed its holdings of American debt by a little over \$ 1 billion in February while China, which is locked in a currency row with the U.S., trimmed the holdings by \$ 11.5 billion during the same period.

According to the U.S. Treasury Department, India has slashed its holdings to \$ 31.6 billion in February, while it was at \$ 32.7 billion in January.

China, which is also the largest holder of U.S. Treasury bonds, has cut its holdings to \$ 877.5 billion in February, one of the lowest levels in nearly nine months. In January, China's holdings stood at \$ 889 billion.

Both the U.S. and China are locked in a row over the issue of revaluation of Chinese currency yuan. In recent months, American authorities have been stepping up pressure on the latter to revalue yuan. Going by official statistics, China has been trimming its holdings continuously since October last year, when the same was at \$ 938.3 billion.

Meanwhile, India's holdings have come down by more than \$ 10 billion since June last year. At that time, India held Treasury bonds worth \$ 42.2 billion.

As per the Treasury data, Japan held bonds worth \$ 768.5 billion, making it the second largest holder of American debt after China.

Among the BRIC (Brazil, Russia, India and China) nations, the second largest holder of American debt is Brazil, followed by Russia and India.

As in February, Brazil held Treasury bonds to the tune of \$ 170.8 billion, while Russia held American debt worth \$ 20.2 billion.

The U.S. economy grew 5.6 per cent in the last three months of 2009, shrugging off the adverse impact of the financial meltdown.

» A memo from Defence Secretary Robert Gates to the White House warned that the United States lacks a nimble long term plan for dealing with Iran's nuclear program, according to a published report.



Mr. Gates wrote the three page memo in January and it set off efforts in the Pentagon, White House and intelligence agencies to come up with new options, including the use of the military.

White House officials strongly disagreed with the comments that the memo caused a reconsideration of the administration's approach to Iran.

The U.S. is pressing for new international sanctions against Iran. The memo contemplates a situation in which sanctions and diplomacy fail to dissuade Iran from pursuing nuclear capability.

Obama set a deadline of the end of 2009 for Iran to respond to his offer of dialogue to resolve concerns about Iran's accelerated nuclear development.

Iran spurned the offer, and since then the administration has pursued what it calls the "pressure track," a combination of stepped up military activity in Iran's neighbourhood and a hard push for a new round of international sanctions that would pinch Iran economically.

Gates and other senior members of the administration have issued increasingly stern warnings to Iran that its nuclear program is costing it friends and options worldwide, while sticking to the long held view that a U.S. or Israeli military strike on Iranian nuclear facilities would be counterproductive.

Mr. Obama and other administration figures have drawn a line that says Iran will not be allowed to become a nuclear state, but they have not spelled out what the United States would do if Iran gained the ability to produce a weapon but does not actually field one.

» India on April 13, 2010 made a strong pitch for global disarmament with Prime Minister Manmohan Singh telling the Nuclear Security Summit that the abolition of nuclear weapons would be the “best guarantor of nuclear security.”

The dangers of nuclear terrorism make the early elimination of nuclear weapons a matter of even greater urgency.

Recounting India’s efforts in this regard from Jawaharlal Nehru to Rajiv Gandhi, the Prime Minister said non-proliferation efforts at the global level could only succeed if they were universal, comprehensive and non-discriminatory and linked to the goal of complete nuclear disarmament.

He welcomed the agreement between the United States and Russia to cut their nuclear arsenals as a step in the right direction and called upon all countries “with substantial nuclear arsenals” the phrase is ambiguous but certainly excludes India “to further accelerate this process by making deeper cuts that will lead to meaningful disarmament”.

The Prime Minister said India is “encouraged” by the Nuclear Posture Review announced by President Obama, though he did not identify any of its elements that he considered positive. India wants the negotiation of a Nuclear Weapons Convention and supports the universalisation of the policy of “No First Use”, he said. “The salience of nuclear weapons in national defence and security doctrines must be reduced as a matter of priority”.

Dr. Singh also drew attention to India’s work on developing nuclear systems that were safe, secure and proliferation resistant.



» India and China on April 7, 2010 signed an agreement to set up a hot line to open up direct communication between their Prime Ministers, but appeared to continue to speak in different languages on key issues that continue to challenge the bilateral relationship.

In talks with Chinese Foreign Minister Yang Jiechi and Premier Wen Jiabao, External Affairs Minister S.M. Krishna called for China to review its position on India's bid for a permanent seat on the United Nations Security Council (UNSC). He also voiced India's concerns over Chinese support to development projects in Pakistan-occupied Kashmir and the issuing of stapled visas to Indian citizens from Jammu and Kashmir.

Foreign Secretary Nirupama Rao told that China reiterated its earlier position on the UNSC, voiced during Prime Minister Manmohan Singh's visit to China in 2008, that China “understands and supports India's aspirations to play an active role in the U.N. and international affairs.”

This is the same position China has held since Mr. Wen's visit to India in 2005, suggesting there was little or no progress on this front.

The reported hacking attacks by China-based hackers on India's Ministry of Defence and several embassies did not figure in talks, though Ms. Rao said India was “concerned” by the reports. “Cyber security is of paramount importance and we will of course take all necessary steps to safeguard our assets against such attacks.”



» Iran's recent hyper-activism in neighbouring Afghanistan and Pakistan has caused considerable consternation in large parts of the globe. In media circles, think-tanks and world chanceries, high-browed mandarins and their well-healed affiliates are trying to make sense of the latest, seemingly inscrutable piece of the Persian puzzle.

Yet Iran's deft moves in an area that the Persians have known well for thousands of years originate from deeply deliberated and well-grounded fundamentals. Ever since the 1979 Islamic revolution, Iran has been ceaselessly battling the threat of a direct American attack or an invasion by a third country that is backed by the United States.

It is in this larger context of regionalising the geopolitical space that President Mahmoud Ahmadinejad set foot on Afghan soil on March 10.

Afghanistan's President Hamid Karzai who fought running battles with the Americans who were more inclined to favour his rival Abdullah



Abdullah during the recent Afghan elections received the Iranian President warmly. Like the Iranians, Mr. Karzai has concluded that the Americans are tiring in Afghanistan and that the time has come to explore deeper alignments in an alternative camp that includes Iran, and has China, Pakistan, Central Asian republics and Russia as potential allies.

While engaging the Afghans on a new footing, the Iranians have also begun to cultivate Pakistan. A major shift in the contours of their relationship can be traced to October 2009, when the Pakistan-based Jundallah group, led by Abdolmalek Rigi, killed Nour-Ali Shoushtari, and other senior commanders of the Islamic Revolution Guard Corps (IRGC).

Incensed by these high-profile assassinations, in the Pishin area of the Sistan-Balochistan province, the Iranians sent a few days later their Interior Minister Mostafa Mohammad Najjar to Islamabad, with the demand for Rigi's handover. Subsequently, Rigi was nabbed in a dramatic fashion when the Iranians forced a Kyrgyzstan airlines plane in which he was travelling from Dubai to Bishkek, to land in the Iranian port city of Bandar Abbas. Influential voices in Pakistan say that Islamabad gave the vital tip off that led to Rigi's arrest. The Iranians, however, insist that the arrest was possible on account of their meticulous intelligence work, without any foreign involvement whatsoever.

Since the 2009-10 winter war in Gaza, during which Turkey openly distanced itself from Israel, the relationship between Tehran and Ankara has been warming up. Political goodwill is being translated into significant energy cooperation and both sides, despite resistance from several influential quarters, are looking at participating in the Nabucco pipeline,

which will carry huge quantities of gas to Europe. As the geopolitical alignments ahead of the U.S. pullout begin to emerge, India's absence is glaring. Piqued by India's high profile in Kabul, Pakistan's military establishment has been looking for openings that would allow it to achieve its maximalist objective of seeking India's hasty, and preferably unseemly, exit from Afghanistan.

However, two major hurdles have been impeding Pakistan's path so far. First, the rapid improvement in Indo-U.S. ties during the Bush presidency firmly deterred it from taking India head-on in Afghanistan. Second, the Afghan presidency, closely tied to New Delhi since 2001, was hostile to Islamabad.

However, the scenario changed dramatically with the exit of the Bush administration and the emergence of Barack Obama. Focussed on an exit strategy from Afghanistan, the Americans deepened their security dependence on the Pakistanis in the hope of achieving rapid success. As a result, the Indian fortress in Afghanistan which looked impregnable during the Bush era was breached. Pakistan utilised this opportunity to the hilt.

A staunch ally of India for several years, President Karzai after his re-election last year began to exhibit unusual warmth towards Pakistan. His description of India as a friend and Pakistan as a conjoined twin during his visit to Islamabad was widely seen as a demonstration of his waning affection towards New Delhi.



There has been a significant deterioration in India-Iran ties since New Delhi voted against Tehran at the International Atomic Energy Agency (IAEA) on the Iranian nuclear programme. In fact, the day India voted against Iran, it seriously jeopardised its project in Afghanistan. Without a geographically contiguous border, India can extend its reach into Afghanistan only through the Iranian corridor.

With its back to the wall, how does India propose to get back into the great game of realignments be-

ginning to unfold in and around Afghanistan? It can draw some inspiration from its diplomatic conduct in the past — when it worked successfully with the Iranians, Russians and Central Asians, especially the Tajiks to unroll the Northern Alliance against the Taliban in 2001. With the recent visit of Russian Prime Minister Vladimir Putin to New Delhi where discussions on Afghanistan took place, India has taken its first major step in the right direction.

Mending fences with Iran has to be India's next major undertaking. However, in trying to rework its relations, India is left with only one weighty card, which it can play with good effect provided it begins to view its national interests independently and not through the tinted glasses of the U.S. With its huge requirements of energy, India needs to get back to the Iran-Pakistan-India (IPI) gas pipeline project. But in doing so, it has to substantially modify the arrangement and turn it around to suit its core long-term interests.

Iran would, with considerable enthusiasm, welcome India's participation in this project, as is evident from the provisions included in the gas deal that was signed by Iran and Pakistan in Istanbul in March. Therein lies the opportunity for India to claw back into the arrangement and take it forward from there. Instead of waiting for others like Pakistan to seize the initiative, India can benefit substantially by boldly and formally initiating the introduction of two significant players — Russia and China — into this tie up. The Russian gas giant Gazprom has already expressed its keen interest to participate in IPI. Gazprom's representative in Tehran, Abubakir Shomuzov, has called for the extension of IPI to China, in an arrangement that would tie Russia, China, India, Pakistan and Iran together in a giant project.



Russia's participation in the IPI would be crucial for India. With Russia firmly on its side, India can, with greater ease and confidence, engage with China in this cooperative enterprise. In the debate on the extension of IPI to China, the route that this pipeline can pursue would be of

vital importance. If India has to take advantage of this extension, it has to insist that the pipeline passing through Iran and Pakistan should go through an Indian transit corridor and no other alternative route before entering China.

Such an arrangement would greatly help in making the IPI-plus arrangement more stable and workable. With China, Pakistan's all-weather friend as the final beneficiary, Islamabad would find it impossible to block supplies to India. In other words, the routing of the pipeline to China via India, and the interdependence that it would generate among the various stakeholders would become New Delhi's insurance policy for obtaining assured gas supplies from Iran via Pakistan.

There is a final diplomatic dimension which needs to be added if IPI-plus is to succeed. Critics of the IPI rightly point to the security problems that this project, in the current circumstances, is bound to encounter during the pipeline's passage through the turbulent province of Balochistan. A comprehensive dialogue may therefore be the way forward to resolve this problem.

India, which in recent years has gone into a diplomatic shell, can take the high-ground and propose a comprehensive six-party process. Besides itself, Afghanistan, Pakistan, Russia, China and Iran can become the core participants of this arrangement. Such a forum, carefully constructed, adequately resourced and energetically led can take head-on not only the question of Baluchistan, but all other issues that may stand in the way of a lasting transnational energy partnership.



» Several among the 70 known species of mangroves are at high risk of extinction and may disappear well before the next decade if protective measures are not enforced, warns the first global study by U.S. researchers.

Eleven of these have been placed on the red list of threatened species kept by the International Union for Conservation of Nature (IUCN).



The study, led by Beth A. Polidoro attached to the Global Marine Species Assessment unit based at Old Dominion University, Virginia, shows that about 80 per cent of the mangrove areas in India and South-east Asia have been lost over the past 60 years.

In India alone, over 40 per cent of the mangrove area on the west coast has been destroyed for aquaculture, agriculture, coastal development and urban development.

### (Disappearing at 2%-8%)

The global mangrove area loss since 1980 stands at between 20 and 35 per cent. The areas are disappearing at 2-8 per cent per year and the rates are expected to continue unless mangrove forests are protected as a valuable resource, says the study recently published in PloS One, journal published by the Public Library of Science.

In addition, 40 per cent of the animal species that are restricted to mangrove habitat are at an elevated risk of extinction due to extensive habitat loss. Given the accelerating rate of loss, mangrove forests may at least functionally disappear in around 100 years, the study states.

Mangrove forests are the economic foundations of many tropical regions providing at least \$1.6 billion per year in ecosystem services worldwide. It is also estimated that almost 80 per cent of the global fish catches are directly or indirectly dependent on mangroves. These are provided by mangroves, occupying only 0.12 per cent of the world's total land area.

Implementation of conservation plans for mangroves have largely been done in the absence of species-specific information, says the study. Tree felling, aquaculture and overexploitation of fisheries in mangrove areas are expected to be the greatest threats to mangrove species over the next 10-15 years.

Unlike other forests, mangrove forests consist of a relatively few species with 30-40 in the most diverse sites. Another big threat to mangroves is climate change, says the study.



» Kerala has been adjudged the best State in the country in devolving powers to local self-government institutions. State received the recognition following an evaluation done by the Union Panchayati Raj Department.

The evaluation covered the performance of the States in 2009-10. Minister for Local Administration Paloli Mohammed Kutty would receive the award from Prime Minister Manmohan Singh at a function in New Delhi. Kerala received an aggregate of 74.74 points. Karnataka with 69.45 points and Tamil Nadu with 67.06 points came second and third respectively.



» The Union Cabinet on Apr 23, 2010 approved a capital infusion of Rs.15,000 crore in public sector banks (PSBs) during the current fiscal to facilitate an increase in their lending capacity by about Rs.1.85 lakh crore.

According to cabinet decision a sum of Rs.15,000 crore already provided for in the budget for 2010-11 is to be infused in Tier I capital instruments of the PSBs.

The exact amount, the mode of capitalisation and other terms and conditions would be decided in consultation with the banks at the time of the infusion. For the next fiscal (2011-12), additional capital requirements, if any, is to be worked out in consultation with the PSBs based on their third quarter results for 2010-11 to ensure that they maintain a minimum 8 per cent Tier I capital to meet the credit requirements of the economy and accelerate growth. The infusion of Rs.15,000 crore in Tier I capital instruments of PSBs would enable them to expand their credit growth by about Rs.1.85 lakh crore.

This additional availability of credit is likely to benefit employment oriented sectors, especially agriculture, micro & small enterprises, export and entrepreneurs, in promotion of their economic activities which would in turn contribute substantially to the growth of the economy.

The government decided on capital infusion of PSBs to ensure that the banking system does not suffer from capital adequacy constraints and the credit growth needed to sustain the economic momentum in 2010-11 is maintained. The capital infusion would enhance the lending capacity of PSBs that are expected to continue meeting credit requirements of the economy in order to maintain and accelerate economic growth.

For this purpose, it may be recalled that in the wake of the recent global financial crisis, the government had negotiated with the World Bank for two 'Banking sector support loans (BSSL)' amounting to \$3.2 billion. Formalities in respect of the first tranche of \$2 billion loan have already been completed.



» Our country is first among the ten countries with the highest degree of malicious activity on the Internet. That dubious "leadership" India has achieved 5th position for malicious activities for about (4%) compared with the 11-m (3%)

in 2008

Symantec annually prepares top online dangers in the world. According to experts, the growth of similar processes taking place in India against the world-wide trend to the growing influence of developing countries in the Internet space.

Specialists of Symantec argues that malicious Internet activity originating from countries such as China, India, Brazil, Poland and Russia will grow in direct proportion to the increase in points of a broadband network. According to them, encourage dangerous trend was the launch of 3G services in India and a number of mergers between key industry players, which led to the development of Internet infrastructure.

As per the annual report by Symantic In 2009, Russia accounted for about 3% are malicious activity against 2% in 2008 year. The leaders left the United States and China, but the percentage of their position weakened. Share attacks emanated from the U.S., declined to 19% from 23% in 2008.

In China, it were reported 8% of the total number of cases of malicious activity against 9% in 2008. Brazil has risen from 5th (4%) on the third (6%) place, India won the 5 th place (4%) compared with the 11-m (3%) in 2008.



» The Chhattisgarh police did not fully support the central paramilitary troopers, thus failing to prevent the April 6 Maoist attack in which 76 security personnel were killed, a govern-

ment-appointed committee probing the Dantewada massacre has found, well informed sources said on Apr 26, 2010.

The probe by the E N Rammohan Committee has highlighted Chhattisgarh police's lack of cohesiveness and their alleged failure to support the central paramilitary forces in anti-Maoist operations in the state.

According to sources, top police official in Dantewada may be summoned by the Union Home Ministry to Delhi for the "lapses".

It has been found that the police support to the (Central Reserve Police Force) CRPF personnel (who were targeted in the April 6 ambush) was less than desired.

There is evidence in the report suggesting that the CRPF team (of 62 Battalion that came under attack) diverted from the earmarked patrol task within a specific grid and moved in and around the area on its own where they were attacked by the Naxals. The report, submitted to the home ministry, has suggested a re-look into "tactical" security operations against Maoist rebels.

Rammohan was appointed as a one-man panel to probe the Dantewada massacre two days after the attack.

The panel's terms of reference included determining the sequence of events leading to the massacre and analysing and establishing the command structure of the security personnel there.

» India and Afghanistan on 26 Apr 2010 reiterated their commitment to the strategic partnership and expressed satisfaction at the progress in their relations.

Afghanistan President Hamid Karzai on his first official visit after his second term Prime Minister Manmohan Singh and President Pratibha Devisingh Patil.

Singh, during his talks, cautioned Karzai against a plan to integrate the Taliban opposed to the emergence of “a strong, independent and pluralistic Afghanistan”.

At a joint press interaction with Karzai, who arrived in India in the morning en route to the South Asian Association for Regional Cooperation (SAARC) summit in Thimphu,

Singh underlined India’s unwavering commitment to continuing reconstruction works in Afghanistan and said repeated attacks on Indians would not deter it from carrying on with this process. India has pledged \$1.3 billion for a slew of reconstruction and infrastructure projects in Afghanistan.

» A vital study cited by Environment Minister Jairam Ramesh to justify his decision to disallow the commercial cultivation of Bt brinjal in India is flawed, claim top European scientists. Mr Ramesh had referred to the findings of France-based Caen University professor Gilles-Eric S  ralini and his team, which had branded Bt brinjal—India’s first genetically modified (GM) food crop—“unsafe”.

Experts claim that S  ralini was unduly influenced by the renowned international NGO Greenpeace—with its aggressive green agenda—which sponsored the study, and never carried out a peer-reviewed laboratory study on GM crops he called hazardous, including Bt maize and Bt brinjal, its gene or seeds.

The European Food Safety Association, a risk assessment body, has trashed S  ralini’s findings on Monsanto’s MON 863, a variety of Bt maize.

On February 9, 2010, the Union government decided to freeze the introduction of Bt Brinjal in India till independent scientific studies established health and environment safety of the product to the satisfaction of both public and experts.

Bt Brinjal is a genetically modified vegetable that is infused with Cry1Ac gene from a bacterium, *Bacillus thuringiensis*, to make the plant resistant to fruit and shoot borers and certain pests.

The Environment Ministry has appointed a Genetic Engineering Approval Committee (GEAC) to regulate research, testing and commercial release of genetically modified crops, foods and organisms. The GEAC had cleared Bt Brinjal for commercial release in October 2009. According to GEAC Bt Brinjal would reduce farmers’ dependence on pesticides and enable higher yields.



» From the 2011 academic session, students of Classes XI and XII across the country will study a uniform science and math curriculum. Currently, course content of these critical subjects varies with the State school board an institution is affiliated to.

The idea is to have for every student a level playing field for entry to professional colleges. The government has also received the approval of all school boards—including State boards—to work towards a single, national-level entrance exam for all engineering and medical courses in India from 2013. Gradually, such an exam would be extended for entry to colleges of other disciplines, such as law.

One test would mean the end of plenty like IIT-JEE, AIEEE and State exams for engineering colleges and various State-level PMTs, beside national level PMT, which the CBSE conducts. This, the Human Resource Development (HRD) Ministry believes, would lessen the burden on students, who have to prepare for different exams, which bring their own levels of stress.



» India will spare no efforts to contribute to the success of post-Copenhagen process, Prime Minister Manmohan Singh declared on February 6, 2010, as he announced the launch of a National Mission on Enhanced Energy Efficiency, aimed at cutting carbon emissions by 99 million tonnes. Within the ambit of our National Action Plan on Climate Change, India has already unveiled one of the world's most ambitious plans for promoting solar energy, targeting an installed capacity of 20,000 MW by the year 2022. The initiative is expected to lead to avoidance of capacity addition of nearly 20,000 MW and reduce carbon dioxide emissions of almost 99 million tonnes.



» On February 17, 2010, the Supreme Court upheld the constitutional validity of courts' powers to order CBI probe without the consent of State governments but with a rider: the powers should be used cautiously and sparingly. The five-judge Constitution Bench, headed by Chief Justice K.G. Balakrishnan, said that such powers have to be used sparingly in exceptional and extraordinary circumstances in cases having national and international ramifications. Otherwise, the CBI will be flooded with such directions in routine cases. Such powers are vested with the apex court and High courts to ensure protection of fundamental rights of citizens under Article 21 of the Constitution, it said.

» The proposed Judicial Standards and Accountability Bill, which will replace the four decade-old Judges Inquiry Act, has laid down 14 guidelines for judges. These guidelines will be called judicial standards.

Major highlights of the Bill are:

» No judge shall give an interview to the media in relation to any of his judgement delivered, or order made, or direction issued, by him in any case adjudicated by him.

» No judge shall enter into a public debate or express his views in public on political matters,

except views expressed by a judge in his individual capacity on issues of public interest, other than as a judge during a private discussion or at an academic forum.

» The Bill bars the judges from allowing any member of his family, who is a practising lawyer, from using the residence in which the judge actually resides or use of any other facilities provided to the judge, for professional work of any family member.

» The proposed law expects judges not to delay delivering a judgement beyond three months after conclusion of arguments and have bias in judicial work or judgements on the basis of religion, race, caste, sex or place of birth.

» Any wilful breach of judicial standards could be treated as misbehaviour and lead to a disciplinary panel initiating proceedings against the erring judge.

» A complaint alleging misbehaviour or corruption would be referred to a scrutiny panel comprising three judges. If the panel finds merit in any complaint, it would be forwarded to an Oversight Committee, which after investigating the matter can refer it to the President for initiating action against the judge.

» In an important step towards the implementation of the Indo-US civilian nuclear deal, the Union government is to introduce a Bill to facilitate the entry of American companies in the nuclear sector. The Civil Liability for Nuclear Damage Bill, 2009 is commonly known as the nuclear liability Bill.

The Bill aims at limiting the liability of a nuclear plant operator to Rs 300 crore in the eventuality of an accident and provides for appointing a claims commissioner with powers of a civil court to arbitrate such cases. It also provides for the penalty to be paid by the operator and not the supplier companies, which would mainly be American in this case.

The operator would not be liable for any nuclear damages if the incident is caused by "grave national disaster of exceptional character", armed conflict or an act of terrorism and is suffered by the person on account of his own negligence.



The Bill also provides for the establishment of the Nuclear Damage Claims Commission, which will have one or more claims commissioners for a specified area. The claims commissioner shall have all the powers of a civil court for the purpose of taking evidence on oath, enforcing attendance of witnesses, compelling the discovery and production of documents and other material objects.

Environment activists have described the attempt to cap the level of compensation for victims of a nuclear accident as a violation of fundamental rights. Currently, the Atomic Energy Act, 1962, allows the government-owned Nuclear Power Corporation of India to operate nuclear power plants in the country.



» The Union government has accepted most of the recommendations of the Thirteenth Finance Commission headed by former Finance Secretary Vijay Kelkar.

The Commission has told governments at the Centre and States to set their fiscal house in order, even as it raised the share of taxes that the States would be entitled to receive over the next five years by 1.5 percentage points.

In addition, the Commission, a Constitutional body that is appointed every five years to recommend a tax-sharing formula between the Centre and States, has suggested a roadmap for the introduction of a single-rate goods and services tax (GST), the key indirect tax reform to create a common market in India.

Its stringent new roadmap for fiscal responsibility suggests, among other things, that the overall debt of the Centre and States be capped at 68 per cent of gross domestic product (GDP) from the current 82 per cent, and 75 per cent recommended by the Twelfth Finance Commission.

The Finance Commission has recommended that the Centre reduce debt to 45 per cent of GDP by March 2015, against 54.2 per cent at present. For States the reduction in debt is recommended at 2 percentage

points to 25 per cent. The relatively less stringent condition for States comes with the rider that the Fiscal Responsibility and Budget Management Act allows the Centre to borrow on behalf of the States to help them counter macro-economic shocks. During the financial crisis, the Centre had relaxed the cap on the fiscal deficit.

The Finance Commission has said the Centre should transfer 32 per cent of the taxes it collects to States, against 30.5 per cent at present. The overall ceiling— including transfers to local bodies—on transfers from the Centre's gross revenue has been raised from 38 to 39.5 per cent.

Among proposals that provide a thrust to fiscal federalism, the commission has recommended that local bodies receive up to 2.5 per cent of the divisible tax pool. Of this, up to 1 per cent can be incentive-linked.

While there is more reason for the States to cheer since the commission proposes an increase in grants, much of it is tied to specific spending programmes such as those for elementary education and environment. There is, however, a performance incentive of Rs 1,500 crore for Assam, Sikkim and Uttarakhand and a grant of Rs 51,800 crore to meet the deficits of Jammu & Kashmir, Himachal Pradesh and the north-eastern States (excluding Assam).

Like its predecessor, the Thirteenth Finance Commission has recommended a debt relief scheme for the States. The first element is to cap the interest rate on a part of the loans from the National Small Savings Fund at 9 per cent from up to 10.5 per cent. This will translate into a benefit of Rs 28,360 crore to the States. In addition, there is a Rs 4,506 crore benefit with the government accepting the suggestion to write off central loans that are not administered by the finance ministry but were outstanding at the end of 2009-10.

Including the higher grants-in-aid, Madhya Pradesh, Uttar Pradesh and Maharashtra would be the biggest beneficiaries in terms of share of transfers. Himachal Pradesh, Uttarakhand and Jammu and Kashmir would be the top losers.

The Finance Commission has projected that tax receipts would see a compounded annual growth rate of over 17 per cent between March 2010 and March 2015, while nominal GDP growth is estimated at 13.2 per cent.

Prescribing a zero revenue deficit as the golden rule, the Commission has recommended that the endeavour for all States should be to reach that level by 2014-15.



» On February 18, 2010, the Union government decided to raise urea prices by 10 per cent. It also allowed the industry to fix retail prices of other subsidised fertilisers, while limiting the government's subsidy burden under a new policy that will determine

the subsidy on phosphorus and potash based on their nutrients.

The decision, to take effect from April 1, 2010, will help the government reduce its fertiliser subsidy bill, estimated at Rs 50,000 crore for 2009-10. But, the move will hit farmers, even as fertiliser companies will stand to gain. The latest decision does away with the practice of government fixing a maximum retail price and aims at replacing the current system of giving subsidy to the industry with direct assistance to farmers.

The switch to the nutrient-based fertiliser plan is significant as companies will now be able to change retail prices of only nutrient-based fertilisers (nitrogen, phosphorus, potash and sulphur), which will help the government cap the subsidy on these fertilisers. The move is also expected to attract fresh investment in the fertiliser industry.

The government's annual subsidy bill on fertilisers in 2008-09 was estimated at Rs 75,849 crore, which was expected to be brought down to Rs 49,980 crore in 2009-10. The bulk of the increase in the fertiliser subsidy is on account of the sale of decontrolled fertiliser with concession to farmers. Urea accounts for about 30 per cent of the total fertiliser subsidy burden.

» The Union government has set-up a five-member committee headed by Justice B.N. Srikrishna to look into the modalities of forming the separate State of Telangana. The committee has been given time till December 31, 2010 to consult all sections of the society and submit report. The terms of reference of the committee are:

Examine the situation in Andhra Pradesh with reference to demand for separate Telangana State, as well as the demand for maintaining the present status of a united Andhra Pradesh.

Review developments in the State since its formation and their impact on the progress and development of different regions of the State.

Examine the impact of recent developments in the State on different sections of people such as women, children, students, minorities, OBCs, SC and STs.

Consult all sections of people, especially political parties and elicit their views on a range of solutions that would resolve the present difficult situation.

Identify the key issues that must be addressed.

Consult organisations of other civil societies such as industries, trade unions, farmer organisations, women students.

Make any other suggestion and recommendations that the committee may deem appropriate.

The protagonists of separate State, however, rejected the terms of reference of the Justice Srikrishna committee and vowed to intensify their agitation. The Telangana Rashtra Samithi (TRS), which has been spearheading the statehood agitation, struck a belligerent note and announced that its MPs, MLAs and MLCs would resign in protest.

Rejecting the terms of reference and the ten-month time frame given for the committee, the TRS chief said the Centre had once again cheated the people of Telangana by backtracking on its December 9, 2009 statement announcing initiation of the process for formation of separate State.

Taking serious objection to the inclusion of the demand for continuation of united Andhra Pradesh among the terms of reference, he said: "what is the

point in looking into the demand for united Andhra Pradesh when it already exists now? There is only one popular movement going on in the State and that is for separate Telangana State.”

However, the leaders from coastal Andhra and Rayalaseema regions found comfort in the open-ended nature of the panel's terms. “We welcome the terms of reference, which are fairly balanced. It will give an opportunity for a thorough assessment of the ground situation,” a ruling Congress MP from coastal Andhra region said.

» India's candidacy for a non-permanent seat in the Security Council has been endorsed by all 53 member States of the Asian group in the UN General Assembly. Nineteen countries, including Nepal, Sri Lanka, Afghanistan and Bangladesh, spoke in favour of giving India a slot on the Security Council table from January 2011.

In January 2010, India's path to a non-permanent seat got cleared after its sole competitor from Asia, Kazakhstan, backed out of the race.

The Security Council is made up of 15 States—five permanent members who have the veto power and 15 non-permanent members elected for a two-year term. To win, India needs two-thirds of the General Assembly vote, which adds up to about 128 countries saying yes to India's presence in the Council.

Running after more than a decade, India orchestrated a year-long campaign led by India's envoy to the UN Hardeep Singh Puri, who campaigned in New York and at multilateral events at the United Nations.

The last time India had a seat at the Council was in 1992. In 1996, Japan won with India trailing behind with approximately 40 votes.

» In a major setback to the Andhra Pradesh government's Muslim reservation policy, the High Court, on February 8, 2010, struck down a legislation providing four per cent quota for the minority community in jobs and educational institutions.

A seven-member constitutional bench headed by Chief Justice A.R. Dave found fault with the way the survey was conducted by the Backward Classes Commission, whose recommendations had formed the basis for quota policy.

The State Assembly had passed the legislation in July 2007 providing four per cent reservation for socially and educationally backward Muslims by including them among backward classes. The quota was made applicable to 15 Muslim groups identified by the Andhra Pradesh Backward Classes Commission as socially and educationally backward. These were categorised as BC-E Group for the purpose of providing reservation.

Acting on a bunch of writ petitions filed by several individuals and organisations challenging the legislation, the court—in a majority verdict—termed the commission's survey as “irrational and unscientific” and held the legislation as “unsustainable”.



» Maharashtra and West Bengal, which have been hit by terrorist and Maoist violence, are among the seven States that have fared poorly in modernising their police force. According to official documents, put together by the Home Ministry, Maharashtra and West Bengal have been labelled as “poor performing States” as they failed to use the funds sanctioned to them by the Centre for upgrading their police force and intelligence apparatus.

The Centre earmarked Rs 1,230 crore for 2009-10 for the scheme for modernisation of the State police forces (MPF), which is meant primarily to equip State governments to deal with emerging challenges to internal security like terrorism and naxal violence.

The poor performing States have outdated and obsolete weapons and even the extremist-prone police stations are often not supplied with modern weapons, and even when it is supplied police personnel are not trained to use them. Their police communi-

cation network does not function efficiently, they do not have enough vehicles and their forensic laboratories lack proper infrastructure.

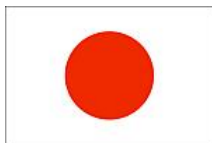
» The Basic Capabilities Index (BCI), 2009, has found that South Asia will get 80 points on the index by 2015, 10 points higher than the present value of 70. India received 68 points in the index, an increase of meagre four points since 2004.

The global NGO Social Watch's index of 130 countries says 100 points defines well-being of the citizens based on children getting education till primary level, child mortality rate and percentage of births attended by skilled labourers. The BCI does not use income as an indicator.

According to the index, South Asia, a region with worst BCI in 2004, has been making fast progress, but the situation is still "extremely critical". Since 2004, the report said, one-third of the countries failed to raise their BCI value by more than one per cent and only one out of six countries showed significant progress.

The index also tells about the increasing gap in living standards of rich and poor in the world. The highest BCI is 97 of Iran and lowest is 44 of Chad in Africa, followed by Afghanistan, Ethiopia, Bangladesh and Nepal.

» Retaining its position as the world's second largest economy, the Japanese economy grew at a faster-than-expected pace of 1.1 per cent in the last three months of 2009.



China, the fastest-growing large economy, clocked a growth of 10.7 per cent in the December 2009 quarter, bringing it at a sniffing distance to surpass Japan as the second largest economy in the world.

Japan's economy, which is primarily exports-driven, rose 1.1 per cent in the fourth quarter of 2009. On an annual basis, GDP expanded a much higher pace at 4.6 per cent. For the whole of 2009, the Japanese

economy shrank 5 per cent and is valued at 474.92 trillion yen (about \$5.1 trillion). The better-than-expected Japanese growth in the December 2009 quarter was mainly driven by better exports and effects of stimulus measures. To bolster the recession-hit economy, Japan had unveiled stimulus measures worth over \$130 billion.



» Iranian President Mahmoud Ahmadinejad declared on February 11, 2010, that Iran had produced its first batch of 20 per cent enriched uranium, amidst a growing view in the West that Tehran is bluffing.

"Iran was now a nuclear State," Ahmadinejad told a huge rally of supporters on the 31st anniversary of the Islamic Revolution. Experts say that once Iran can enrich uranium to 20 per cent it should move relatively quickly toward 90 per cent purification, weapons-grade fuel.

Former U.S. officials and independent nuclear experts say continued technical problems could delay—though probably not halt—Iran's march towards achieving nuclear-weapons capability, giving the US and its allies more time to press for a diplomatic solution.

While Iran says its nuclear program is entirely peaceful, Western nations suspect that the country is intent on developing an atomic bomb.



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# Sports



» Anil Kumble led from the front with the ball with a four-wicket haul to help Royal Challengers Bangalore crush Deccan Chargers by nine wickets in the third place play-off match in the Indian Premier League in Mumbai on April 24, 2010. Chasing 83 for victory, Bangalore cruised to 86 for one in 13.5 overs to win with 37 deliveries to spare and seal a place in the Champions League Twenty20 tournament.

Kevin Pietersen finished off things with a quick innings of 29 from 21 balls, while Rahul Dravid finished unbeaten on 35 from 30 balls. Jacques Kallis was the only wicket to fall when he was caught and bowled by leg-spinner Rahul Sharma for a sedate 19 from 32 balls.

Earlier, Kumble took four for 16 to bowl out Deccan Chargers for a paltry 82 in 18.3 overs. Praveen Kumar took two for 18, while Jacques Kallis took two for three and Nayan Doshi took one for 17 on his debut in a splendid bowling performance by Bangalore. Anirudh Singh top-scored with a steady innings of 40 from 39 balls and Venugopal Rao made 24 with the duo putting on 43 runs for the sixth wicket, but the rest of the batsmen failed to come to the party on a slow wicket. Kumble and Kallis triggered a lower order collapse as Deccan lost their last four wickets in the space of 12 deliveries without the addition of a single run.



» Suresh Raina's unbeaten innings of 57 helped Chennai Super Kings beat Mumbai Indians by 22 runs to win the final of the 2010 Indian Premier League on April 24, 2010. Raina's 57 came off just 35 balls and included

three fours and as many sixes. Chennai set Mumbai a target of 168 but restricted them to 146-9 to earn the victory with Sachin Tendulkar top scoring for the Indians with 48.

Shadab Jakati took the prized wicket of Tendulkar and was the pick of the Super Kings bowlers with figures of 3-31. The Super Kings were off to a cautious start with their opening stand of Murali Vijay (26) and Matthew Hayden (17) only worth 44. However, Raina's half century stand with Mahendra Singh Dhoni (22) helped in part to them setting a target of 168-5 from their 20 overs.

The Super Kings had been struggling at 68-3 at the end of the 12th over but the turnaround came when Raina, who had played himself in nicely was let off twice - first on 13 when a mistimed pull landed safely between Dilhara Fernando and Abhishek Nayar. He escaped again on 28, when Zaheer Khan grassed another straightforward chance.

Two years ago Chennai were beaten by the Rajasthan Royals in the inaugural IPL final, with Deccan Chargers claiming victory over Royal Challengers Bangalore in last year's final.



» The BBC has announced it has won the rights to show the 2010 Commonwealth Games from Delhi in October. The Games, which get under way from 3 October, will be available across TV, radio, online, iPlayer, mobile and new media outlets across the UK.

The Games mark another step for athletes across the world as they prepare for the 2012 Olympics.

The Commonwealth Games, which include many Olympic sports like athletics, cycling and swimming, were last held in Melbourne, Australia in 2006. Unlike the Olympic Games where Britain competes under the Team GB banner, there are separate teams for England, Scotland, Northern Ireland and Wales at the Commonwealths.

With a total of 17 sports, the Commonwealth Games are considered the third largest multi-sport event in the world, behind the Olympics and the Asian Games. Much of the build-up to the event has been overshadowed by security concerns, with England forced to deny rumours that they would pull out. Glasgow will host the next Commonwealth Games in 2014.

» Ace cueist Pankaj Advani was named the best senior sportsperson of the year by the Calcutta Sports' Journalists' Club at its annual function for 2009-10.



The CSJC, in a list of 16 players, decided to accord life time achievement award to former Indian shuttler Madhumita Singh Bish and Chirag United's Denson Debdas as soccer player of the year.

The other recipients were cricketer Manoj Tiwari, Bikram Mondal in swimming, Rupesh in Tennis, Soumyajit Ghosh in Table Tennis, and Saptarshi Roy Chowdhury in chess. Sayantan Das (chess), Sheshadri Sanyal in Badminton, Satyendra Singh in basketball and Abdus Slam Gazi in Kabaddai were declared best junior sportsperson of the year.

Leo Bilung of BNR was chosen for hockey, Govinda Pramanik in gymnastics, Sh. Mortaza and Jhuma Khatun in athletics.

» Maniram Sharma won his maiden professional title at the PGTI Feeder Tour event at Golden Greens Golf Course in Gurgaon. Sharma shot a one over 73 to finish with a winning total of two over 218. Rudresh Sharma (74, 71, 74) of Delhi, Patiala's Balpreet Singh Ghuman (72, 72, 75) and Mohd Nawab (72, 68, 79) of Patna finished tied second at three over 219.

Maniram (73, 72, 73) fired two birdies against three bogeys in the third and final round. The 28-year-old from Karnal earned his first professional title as a result of some solid iron-play and putting even as overnight leader Mohd Nawab slipped on the final day after firing a 79. Maniram took home the winner's cheque of Rs. 63,575 and is now placed second (behind Arshdeep Tiwana) on the PGTI Feeder Tour Order of Merit for 2010. Rajiv Kumar Jatiwal was placed fifth at four over 220.



» Indian shooter Gagan Narang won the bronze medal in the 10 meter air rifle event at the World Cup in Beijing. Narang shot a total of 700.3 points (597 qualifying and 100.3 finals) to win his sixth World Cup medal.

The gold went to Russian Denis Sokolov with a total score of 701.3 (597 qualifying + 104.3 final) and the silver went to Chinese Qinan after he shot 701.2 (598 qualifying + 103.2 final). Narang was disappointed to miss out on the gold medal by small margin.

India's Dipika Pallikal won the 8000 dollar Women International Squash Players Association (WISPA)'s Indian Challenger, a category five championship, defeating England's Emma Beddoes in the final. Twenty-year-old Dipika from Chennai, who ousted top-seeded Sharon Wee of Malaysia in the semi-final, also beat second seed Emma Beddoes in a four setter 11-9, 11-8, 9-11, 11-6 to win a major trophy in her carrier.

In the men's all-Egypt final, third seed Mohammed El Shorbagy, who defeated India's Sourav Ghosal in the semis, came from behind in third set to beat Tarek Momem 11-7, 3-1, 8-11, 11-8, 11-8 to win 50,000 dollar Professional Squash Association Indian Challenger, a five star category event at Caclutta Racket Club.





» Olympic and three-time World champion Lin Dan of China claimed his maiden Asian title with a 21-17, 21-15 win over Wang Zhengming while Xuerui Li overcame a stubborn Xin Liu

21-13, 18-21, 21-19 to win the women's singles title at the Badminton Asia Championships.

Second-seeded Dan, who was a favourite to win the title after top seed and staunch rival Taufiq Hidayat made a shock exit in the pre-quarterfinals, showed his all-round ability to finish the game in 39 minutes against the 2008 World junior champion.

In the men's doubles, Korea's Cho Gun Woo and Yoo Yeon Seong upset top seed Hung Ling Chen and Yu Lang Lin of Chinese Taipei 21-19, 12-21, 21-17 in an adrenaline rushing last encounter of the day that lasted 50 minutes. Sixth seeded Chinese Pan Pan and Qing Tian beat Malaysians Vivian Kah Mun Hoo and Khe Wei Woon 21-10, 21-6 in 27 minutes in women's doubles.

In the mixed doubles, Malaysian Liu Ying Goh and Peng Soon Chan beat Koreans Yeon Seong Yoo and Ming Jung Kim 21-17, 20-22, 21-19 in an hour long match.

» India on April 12 beat arch rivals Pakistan by a margin of 58-24 to win the first edition of World Cup Kabaddi. With this win, India bagged a cash prize of Rs. 1 crore whereas Pakistan took home Rs.51 lakh.

Nine international teams from countries like Pakistan, the US, Britain, Canada, Iran and Australia participated in this cash-rich tournament.

» Former Commonwealth champion Sunil Kumar had to settle for a silver after he went down to Olympic champion Zou Shiming in the finals of the AIBA 3 Star China Cup in Guiyang City.

The Indian matched his faniced Chinese rival blow for blow but just towards the end he failed to curtail

the two-time World Champion's rise and lost the 2-4. Kumar, 21 came out all guns blazing much to the surprise of the local lad and managed to hold Shiming 1-1 after the first round.

The Haryana boxer continued to impress one and all in the next round and it was just one point that separated him with the Chinese as he trailed 2-3 after the second round. But it was the third round which spoiled his bid for a Gold as the Indian could not land a scoring punch and his Chinese counterpart grabbed the yellow metal with a 4-2 verdict in the final bout.

Besides the silver, Kumar also became richer 2,000 dollar prize money. As many as four Indian pugilists lost out in the semis and had to be content with bronze medals and 1,000 dollars each.

South Asian Games gold medallist Chhote Lal Yadav (57kg), Olympian Diwakar Prasad (60kg), Kuldeep Singh (75kg) and Jasveer Singh (81kg) were India's bronze medallists in the 19-nation event.



» Sania Mirza has been appointed the brand ambassador of the 'Mega Tennis Event' which is aimed at the development of sport in the country. The event will be an important part of the agenda at the All India Tennis Association's (AITA) executive committee meeting in Mumbai April 16.

The unveiling of the event will top the agenda of the meeting, AITA said in a press statement Tuesday. The event will be of tremendous help in development of both professional tennis for men and women in India as well as development of juniors. AITA has decided to appoint Sania Mirza as one of the brand ambassadors for the event and she has given her approval," AITA said.

» Third seeds Leander Paes and Lukas Dlouhy defeated fourth seeds Mahesh Bhupathi and Max Mirnyi 6-2, 7-5 to clinch the Sony Ericsson Open doubles tennis, their first title this season.



India's Bhupathi with Belarusian Max Mirnyi set up a title clash with compatriot and long time ex-partner Paes and Czech Dlouhy Friday with a straight sets defeat of Poland's Mariusz Frystenberg and Marcin Matkowski. Paes and Dlouhy sprinted to an early 2-0 lead and never gave their opponents a chance to fightback in the first set. The Indo-Czech pair was quick to go up a break in the second set, too, but were broken back immediately for 3-3. But Paes and Dlouhy, broke again at 5-5 before serving out the match.



» Olympic hero Vijender Singh broke the bronze jinx and fetched one of India's two silver medals at the two-day Champion of Champions invitational boxing tournament in Guangzhou, China.

The 24-year-old Olympic and World Championship bronze medallist lost 0-6 to China's Zhang Jin Ting in the middle weight (75kg) category final.

The other silver medal for India came through Olympian Dinesh Kumar, who settled for silver in 81kg after losing 2-10 to Chinese Meng Fan Long.

» Cricket's push to be a part of the Olympic Games received a major boost with International Olympic Council (IOC) granting recognition to International Cricket Council (ICC) on February 12, 2010. This could be seen as a first step towards cricket becoming Olympic sports. Its Twenty20 version can now bid to join the 2020 Olympic Games though ICC has not made it clear which format it will push for.

Cricket was granted the status of a recognised Olympic sport in 2007, for sports not in the Olympic programme but which conform to certain criteria, pending a decision for a permanent slot in the Games.

Cricket was part of the 1900 Olympics in Paris and has not appeared since then. The game was part of the 1998 Kuala Lumpur Commonwealth Games and its Twenty20 version is set to feature at Asian Games in Guangzhou, China.



» Sachin Tendulkar rewrote the record books on February 24, 2010, hammering the first double century in the history of one-day cricket to add another feather to his well-adorned cap. The capacity crowd at the Captain Roop Singh Stadium, Gwalior witnessed history as Tendulkar, statistically the greatest batsman the game has ever seen, pushed South African bowler Charl Langeveldt's delivery through the off-side and ran a single to achieve a feat which no other cricketer has achieved.

One Day International cricket, since its 1971 inception, had to wait nearly four decades to see a batsman score 200. The previous best mark was shared by Zimbabwean Charles Coventry (194 not out) and Pakistan's Saeed Anwar (194).

» The 11th edition of South Asian Games (SAG) opened at the Bangabandhu National Stadium, Dhaka, on January 29, 2010. The aquatic show was the main attraction of the opening ceremony, in which a concert hosted by Pt. Ravi Shankar and Beatles star George Harrison for Bangladesh's Independence day and the March 7 address of Sheikh Mujibur Rehman were displayed on a water screen.

This was the third time that the Bangladeshi capital hosted the Games, thus becoming the first city to hold the games three times.

Athletes from eight countries— Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka—competed in 23 different sports. India continued its dominance with 175 medals, including 90 gold medals. Pakistan narrowly beat the host to occupy the second spot with 19 golds, while the host Bangladesh capture 18 golds, including the most popular and prestigious football and cricket titles. Sri Lanka's Shehan Abeyepitiya became the fastest man while Pakistan's Naseem Hamid was crowned the fastest woman of the region.

The logo of the Games was 'Kutumb', a flying doel, known in English as the Oriental Magpie Robin. It

is the National Bird of Bangladesh. The mascot also featured a Magpie Robin.

Delhi will host the next South Asian Games. India was picked to host the regional sporting event after Bhutan, whose turn it was to host the next SAG, expressed its inability to stage the meet. India has hosted the South Asian Games twice thus far—in 1987 (Kolkata) and in 1995 (Chennai).



» The 2010 Winter Olympics, officially the 21st Winter Olympics, were a major international multi-sport event held on February 12–28, 2010, in Vancouver, British Columbia, Canada.

Approximately 2,600 athletes from 82 nations participated in 86 events in fifteen disciplines. Cayman Islands, Colombia, Ghana, Montenegro, Pakistan, Peru and Serbia made their winter Olympic debuts. Also Jamaica, Mexico and Morocco returned to the Games after missing the Turin Games.

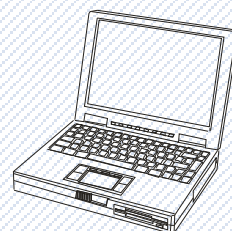
The 2010 Winter Olympics were the third Olympics hosted by Canada, and the first by the province of British Columbia. Previously, Canada hosted the 1976 Summer Olympics in Montreal, Quebec and the 1988 Winter Olympics in Calgary, Alberta.

Canada topped the medals tally with 14 gold, 7 silver and 5 bronze medals. Germany was second, followed by USA. The 2014 Winter Olympics will be held from February 7 to February 23, 2014 in Sochi, Krasnodar Krai, Russia.

» With 23 gold medals, 17 silver and 9 bronze medals, India topped the medals tally of the championships held in Delhi in February 2010. England was second in the medals tally, followed by Australia.

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# HISTORY

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### **Paulos Mar Gregorios Award**

President Pratibha Patil presented the Paulos Mar Gregorios Award 2010 to Dr. Karan Singh for Outstanding Contribution in the Fields of Public Life, Inter-Faith Dialogue and Culture, at a function in New Delhi.

### **Sahara IPL Awards winners Announced**

Winners of the Sahara IPL Awards were announced at a glittering ceremony held on April 23, 2010 at the Grand Hyatt Mumbai. The winners were judged by a jury comprising Lalit Modi (Chairperson), Sunil Gavaskar, Brian Lara, Javagal Srinath, Simon Taufel, and Harsha Bogle.

Among the notable awardees were Sachin Tendulkar (Mumbai Indians), who was adjudged the Best Batsman. Pragyan Ojha (Deccan Chargers) was declared the Best Bowler. The Best Debut Performance award went to Kieron Pollard (Mumbai Indians), while Jacques Kallis (Royal Challengers Bangalore) was declared the Most Consistent Performer.

AB de Villiers (Delhi Daredevils) bagged the Best Fielder's award, while Harbhajan Singh (Mumbai Indians) won the Best Dramatic Performance award. Anil Kumble's (Royal Challengers Bangalore) was adjudged the Best Breakthrough Performance 2009. M Chinnaswamy Stadium, Bengaluru, was declared the Best Ground.

### **Grammy Awards, 2010**

- » Life Time award: Michael Jackson, posthumously.
- » Album of the Year: Taylor Swift, Fearless.

- » Song Written for Motion Picture, Television or Other Visual Media: Jai Ho, written by Gulzar, A. R. Rahman and Tanvi Shah, from "Slumdog Millionaire".
- » Record of the Year: Use Somebody, Kings of Leon.
- » New Artist: Zac Brown Band.
- » Song of the Year: Single Ladies (Put a Ring on It), written by Thaddis Harrell, Beyoncé Knowles, Terius Nash and Christopher Stewart (Beyoncé).
- » Female Pop Vocal Performance: Halo, Beyoncé.
- » Male Pop Vocal Performance: Make it mine, Jason Mraz.
- » Pop Performance, Duo Or Group: I Gotta Feeling, the Black Eyed Peas.
- » Pop Collaboration: Lucky, Jason Mraz and Colbie Caillat.
- » Pop Instrumental Performance: Throw Down Your Heart, Béla Fleck.
- » Pop Instrumental Album: Potato Hole, Booker T. Jones.
- » Pop Vocal Album: The E.N.D., the Black Eyed Peas.
- » Solo Rock Vocal Performance: Working on a Dream, Bruce Springsteen.
- » Hard Rock Performance: War Machine, AC/DC.
- » Metal Performance: Dissident Aggressor, Judas Priest.
- » Rock Song: Use Somebody, written by Caleb Followill, Jared Followill, Matthew Followill and Nathan Followill.



- » Rock Album: 21st Century Breakdown, Green Day.
- » Alternative Music Album: Wolfgang Amadeus Phoenix, Phoenix.
- » Female R&B Vocal Performance: Single Ladies (Put a Ring on It), Beyoncé.
- » Male R&B Vocal Performance: Pretty Wings, Maxwell.
- » Female Country Vocal Performance: White Horse, Taylor Swift.
- » Male Country Vocal Performance: Sweet Thing, Keith Urban.
- » Score Soundtrack Album for Motion Picture, Television or Other Visual Media: Up.

### Lifetime Achievement Award

Eight-time national badminton champion Madhumita Bisht was given the lifetime achievement award for her contribution to the game by the Calcutta Sports Journalists' Club during its annual awards function.

Pankaj Advani, who won the world professional billiards champion last year, was adjudged the best sportsperson of 2009 while the former world youth (under-12) chess champion Sayantan Das was given the best junior sportsperson of the year award. The others were state awardees.

The other awardees (in state category):

- » Football - Denson Devadas; Cricket - Manoj Tiwary; Tennis - Rupesh Roy;
- » Table Tennis - Soumyajit Ghosh; Swimming - Bikram Mondal; Badminton - Sheshadri Sanyal;
- » Basketball- Satyendra Singh; Kabaddi - Abdus Salam Gazi;
- » Hockey - Leo Bilung; Gymnastics - Gobinda Pramanik;
- » Athletics (men) - Sheikh Mortaza;

- » Athletics (women) - Jhuma Khatun;; Chess - Saptarshi Roy Choudhury.

### Sangeet Natak Akademi Awards

Punjab has for the first time bagged the highest number of awards in the performing arts category for 2009, since the inception of the Sangeet Natak Akademi in 1952.

The winners of the coveted honour include Ustad Lachhman Singh Seen (classical music tabla), Ustad Vilayat Khan, Goslan Khanna (ragi/dhadi) and Neeta Mahindra (theatre). Besides Kamal Arora (theatre make-up) from Chandigarh is another recipient.

The award carries a citation, a shawl, a memento and a cash prize of Rs 1,00,000.

### Ernst & Young Entrepreneur of the Year Awards, 2009

- » Entrepreneur of the year: Anand G. Mahindra, Vice Chairman and MD of Mahindra Group.
- » Lifetime Achievement award: N. Vaghul, Ex-Chairman of ICICI Bank Ltd.
- » Entrepreneur of the year (Start-up): Amit Mittal, Chairman and Managing Director of A2Z Maintenance & Engineering Services Pvt. Ltd.
- » Entrepreneur of the year (Business transformation): Dr Vikram Akula, Chairperson & founder SKS Microfinance Ltd.
- » Entrepreneur of the year (Manager): O.P. Bhatt, Chairman, State Bank of India.
- » Entrepreneur of the year (Manufacturing): Harsh C. Mariwala, Chairman and Managing Director, Marico Ltd.
- » Entrepreneur of the year (Healthcare and Life Sciences): Pankaj R. Patal, Chairman and Managing Director, Zydus Cadila Healthcare Ltd.
- » Entrepreneur of the year (Services): Shashi Kiran Shetty, Chairman and Managing Director, Allcargo Global Logistics Ltd.

## **Sasawaka Prize of UNEP, 2010**

**A portable light that can be recharged by pedalling for 20 minutes and was developed for use in areas not wired for electricity, has won a Canadian of Indian origin, Sameer Hajee, the prestigious Sasakawa Prize of the United Nations Environment Programme (UNEP).**

**The device has been developed by Nuru Design (Nuru means light in Swahili). A pilot project is already in place in Madhya Pradesh and Orissa. The device, called the Nuru light, is essentially a lighting system that can be recharged by a pedal generator—the Nuru POWERCycle.**

**Nuru Light's objective is to replace the use of expensive, polluting, unhealthy, and dangerous kerosene as a source of lighting for the two billion people without access to electricity. Of those, nearly 580 million are in India.**



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# Civil Services Preliminary Examination 2010

## Weapon of Mass Destruction

A weapon of mass destruction (WMD) is a weapon that can kill large numbers of humans (and other life forms) and/or cause great damage to man-made structures (e.g. buildings), natural structures (e.g. mountains), or the biosphere in general. The scope and application of the term has evolved and been disputed, often signifying more politically than technically.

Coined in reference to aerial bombing with chemical explosives, it has come to distinguish large-scale weaponry of other technologies, such as chemical, biological, radiological, or nuclear. This differentiates the term from more technical ones such as chemical, biological, radiological, and nuclear weapons (CBRN).

The first use of the term "weapon of mass destruction" on record is by Cosmo Gordon Lang, Archbishop of Canterbury, in 1937 in reference to the aerial bombardment of Guernica, Spain:

"Who can think at this present time without a sickening of the heart of the appalling slaughter, the suffering, the manifold misery brought by war to Spain and to China? Who can think without horror of what another widespread war would mean, waged as it would be with all the new weapons of mass destruction?"

At that time, there were no nuclear weapons; biological weapons were already being researched by Japan (see Unit 731), and chemical weapons had seen wide use, most notably in World War I.

Following the atomic bombings of Hiroshima and Nagasaki, and progressing through the Cold War, the term came to refer more to non-conventional weapons. The application of the term to specifically

nuclear and radiological weapons is traced by William Safire to the Russian phrase *oruziye massovovo porazheniya*.

He credits James Goodby (of the Brookings Institution) with tracing what he considers the earliest known English-language use soon after the nuclear bombing of Hiroshima and Nagasaki (although it is not quite verbatim): a communique from a November 15, 1945, meeting of Harry Truman, Clement Attlee and Mackenzie King (probably drafted by Vannevar Bush— or so Bush claimed in 1970) referred to "weapons adaptable to mass destruction". That exact phrase, says Safire, was also used by Bernard Baruch in 1946 (in a speech at the United Nations probably written by Herbert Bayard Swope). The same phrase found its way into the UN resolution to create the Atomic Energy Commission (predecessor of the International Atomic Energy Agency (IAEA)), which used the wording "... atomic weapons and of all other weapons adaptable to mass destruction".

An exact use of this term was given in a lecture "Atomic Energy as an Atomic Problem" by J. Robert Oppenheimer. The lecture was delivered to the Foreign Service and the State Department, on September 17, 1947. The lecture is reprinted in *The Open Mind* (New York: Simon and Schuster, 1955). "It is a very far reaching control which would eliminate the rivalry between nations in this field, which would prevent the surreptitious arming of one nation against another, which would provide some cushion of time before atomic attack, and presumably therefore before any attack with weapons of mass destruction, and which would go a long way toward removing atomic energy at least as a source of conflict between the powers".



The term was also used in the introduction to the hugely influential US Government Document known as NSC-68 written in April 1950.

An early use of the exact phrase in an international treaty was in the Outer Space Treaty of 1967, however no definition was provided.

## Evolution of its use

During the Cold War, the term "weapons of mass destruction" was primarily a reference to nuclear weapons. At the time, as a necessary deterrent against nuclear or conventional attack from the Soviet Union (see Mutual Assured Destruction), and the euphemism "strategic weapons" was used to refer to the American nuclear arsenal.

The term "weapons of mass destruction" continued to see periodic use throughout this time, usually in the context of nuclear arms control; Ronald Reagan used it during the 1986 Reykjavik Summit, when referring to the 1967 Outer Space Treaty.[4] Reagan's successor, George H.W. Bush, used the term in an 1989 speech to the United Nations, using it primarily in reference to chemical arms.

The end of the Cold War reduced U.S. reliance on nuclear weapons as a deterrent, causing it to shift its focus to disarmament. This period coincided with an increasing threat to U.S. interests from Islamic nations and independent Islamic groups.

With the 1990 invasion of Kuwait and 1991 Gulf War, Iraq's nuclear, biological, and chemical weapons programs became a particular concern of the first Bush Administration. Following the war, the Clinton Administration and other western politicians and media continued to use the term, usually in reference to ongoing attempts to dismantle Iraq's weapons programs.

After the September 11, 2001 attacks and the 2001 anthrax attacks, an increased fear of non-conventional weapons and asymmetrical warfare took hold of the United States and other Western powers. This fear reached a crescendo with the 2002 Iraq disar-

mament crisis and the alleged existence of weapons of mass destruction in Iraq that became the primary justification for the 2003 invasion of Iraq. However, no WMD were found in Iraq.

Because of its prolific use during this period, the American Dialect Society voted "weapons of mass destruction" (and its abbreviation, "WMD") the word of the year in 2002, and in 2003 Lake Superior State University added WMD to its list of terms banished for "Mis-use, Over-use and General Uselessness".

## Definitions of the term

### Military / Strategic Definitions

The most widely used definition of "weapons of mass destruction" is that of nuclear, biological or chemical weapons (NBC) although there is no treaty or customary international law that contains an authoritative definition. Instead, international law has been used with respect to the specific categories of weapons within WMD, and not to WMD as a whole.

The acronyms NBC (for nuclear, biological and chemical) or CBR (chemical, biological, radiological) are used with regards to battlefield protection systems for armored vehicles, because all three involve insidious toxins that can be carried through the air and can be protected against with vehicle air filtration systems.

However, there is an argument that nuclear and biological weapons do not belong in the same category as chemical and "dirty bomb" radiological weapons, which have limited destructive potential (and close to none, as far as property is concerned), whereas nuclear and biological weapons have the unique ability to kill large numbers of people with very small amounts of material, and thus could be said to belong in a class by themselves.

The NBC definition has also been used in official U.S. documents, by the U.S. President, the U.S. Central Intelligence Agency, the U.S. Department of

Defense, and the U.S. Government Accountability Office.

Other documents expand the definition of WMD to also include radiological or conventional weapons. The U.S. military refers to WMD as: Chemical, biological, radiological, or nuclear weapons capable of a high order of destruction or causing mass casualties and exclude the means of transporting or propelling the weapon where such means is a separable and divisible part from the weapon. Also called WMD.

The significance of the words separable and divisible part of the weapon is that missiles such as the Pershing II and the SCUD are considered weapons of mass destruction, while aircraft capable of carrying bombloads are not.

In 2004, the United Kingdom's Butler Review recognized the "considerable and long-standing academic debate about the proper interpretation of the phrase 'weapons of mass destruction'".

The committee set out to avoid the general term but when using it, employed the definition of United Nations Security Council Resolution 687, which defined the systems which Iraq was required to abandon:

è "Nuclear weapons or nuclear-weapons-usable material or any sub-systems or components or any research, development, support or manufacturing facilities relating to [nuclear weapons].

è Chemical and biological weapons and all stocks of agents and all related subsystems and components and all research, development, support and manufacturing facilities.

è Ballistic missiles with a range greater than 150 kilometres and related major parts, and repair and production facilities."

Chemical weapons expert Gert G. Harigel considers only nuclear weapons true weapons of mass destruction, because "only nuclear weapons are com-

pletely indiscriminate by their explosive power, heat radiation and radioactivity, and only they should therefore be called a weapon of mass destruction". He prefers to call chemical and biological weapons "weapons of terror" when aimed against civilians and "weapons of intimidation" for soldiers.

Testimony of one such soldier expresses the same viewpoint. For a period of several months in the winter of 2002–2003, U.S. Deputy Secretary of Defense Paul Wolfowitz frequently used the term "weapons of mass terror," apparently also recognizing the distinction between the psychological and the physical effects of many things currently falling into the WMD category.

Gustavo Bell Lemus, the Vice President of Colombia, at the 2001 United Nations Conference on the Illicit Trade in Small Arms and Light Weapons in All Its Aspects, quoted the Millennium Report of the UN Secretary-General to the General Assembly, in which Kofi Annan said that small arms could be described as WMD because the fatalities they cause "dwarf that of all other weapons systems - and in most years greatly exceed the toll of the atomic bombs that devastated Hiroshima and Nagasaki".

An additional condition often implicitly applied to WMD is that the use of the weapons must be strategic. In other words, they would be designed to "have consequences far outweighing the size and effectiveness of the weapons themselves". The strategic nature of WMD also defines their function in the military doctrine of total war as targeting the means a country would use to support and supply its war effort, specifically its population, industry, and natural resources.

Within U.S. civil defense organizations, the category is now Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE), which defines WMD as:

(1) Any explosive, incendiary, poison gas, bomb, grenade, or rocket having a propellant charge of more than four ounces [113 g], missile having an explosive or incendiary charge of more than one-quarter ounce [7 g], or mine or device similar to the above.

- (2) Poison gas.
- (3) Any weapon involving a disease organism.
- (4) Any weapon that is designed to release radiation at a level dangerous to human life.

## Nuclear Non-Proliferation Treaty

The Treaty on the Non-Proliferation of Nuclear Weapons, also Nuclear Non-Proliferation Treaty (NPT or NNPT) is a treaty to limit the spread (proliferation) of nuclear weapons. The treaty came into force on 5 March 1970 and currently there are 189 states party to the treaty, five of which are recognized as nuclear weapon states: the United States, Russia, the United Kingdom, France, and China (also the five permanent members of the United Nations Security Council).

Four non-parties to the treaty are known or believed to possess nuclear weapons. India, Pakistan and North Korea have openly tested and declared that they possess nuclear weapons, while Israel has had a policy of opacity regarding its own nuclear weapons program. North Korea acceded to the treaty, violated it, and withdrew from it in 2003.

The treaty was proposed by Ireland and Finland and they were the first to sign.

The NPT consists of a preamble and eleven articles. Although the concept of "pillars" appears nowhere 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.

The treaty is reviewed each five years in meetings called Review Conferences of the Parties to the Treaty of Non-Proliferation of Nuclear Weapons. In addition, Sessions of the Preparatory Committee for the Review Conference take place on the intermediate years. Simultaneously, many events orga-

nized by independent institutions, groups of experts, think tanks and NGO's take place worldwide in order to provide reports and recommendations that compliment the Preparatory Committees.

Even though the treaty was originally conceived with a limited duration of 25 years, the signing parties decided by consensus to extend the treaty indefinitely and without conditions during the Review Conference in New York City on May 11, 1995. The next Review Conference will be held in May, 2010.

## Treaty "pillars"

The NPT is commonly described as having three main "pillars": non-proliferation, disarmament, and peaceful use. This "pillars" concept has been questioned by some who believe that the NPT is, as its name suggests, principally about nonproliferation, and who worry that "three pillars" language misleadingly implies that the three elements have equivalent importance.

## First pillar: Non-Proliferation

Five states are recognized by the NPT as nuclear weapon states (NWS): China (signed 1992), France (1992), the Soviet Union (1968; obligations and rights now assumed by the Russian Federation), the United Kingdom (1968), and the United States (1968) (The U.S., UK, and Soviet Union were the only states openly possessing such weapons among the original ratifiers of the treaty, which entered into force in 1970).

These five nations are also the five permanent members of the United Nations Security Council. These five NWS agree not to transfer "nuclear weapons or other nuclear explosive devices" and "not in any way to assist, encourage, or induce" a non-nuclear weapon state (NNWS) to acquire nuclear weapons (Article I). NNWS parties to the NPT agree not to "receive," "manufacture" or "acquire" nuclear weapons or to "seek or receive any assistance in the manufacture of nuclear weapons" (Article II).

NNWS parties also agree to accept safeguards by the International Atomic Energy Agency (IAEA) to verify that they are not diverting nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices (Article III).

The five NWS parties have made undertakings not to use their nuclear weapons against a non-NWS party except in response to a nuclear attack, or a conventional attack in alliance with a Nuclear Weapons State. However, these undertakings have not been incorporated formally into the treaty, and the exact details have varied over time. The U.S. also had nuclear warheads targeted at North Korea, a non-NWS state, from 1959 until 1991.

The previous United Kingdom Secretary of State for Defence, Geoff Hoon, has also explicitly invoked the possibility of the use of the country's nuclear weapons in response to a non-conventional attack by "rogue states". In January 2006, President Jacques Chirac of France indicated that an incident of state-sponsored terrorism on France could trigger a small-scale nuclear retaliation aimed at destroying the "rogue state's" power centers.

## Second Pillar: Disarmament

The NPT's preamble contains language affirming the desire of treaty signatories to ease international tension and strengthen international trust so as to create someday the conditions for a halt to the production of nuclear weapons, and treaty on general and complete disarmament that liquidates, in particular, nuclear weapons and their delivery vehicles from national arsenals.

The wording of the NPT's Article VI arguably imposes only a vague obligation on all NPT signatories to move in the general direction of nuclear and total disarmament, saying, "Each of the Parties to the Treaty undertakes 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 this interpretation, Article VI does not strictly require all signatories to actually conclude a disarmament treaty. Rather, it only requires them "to negotiate in good faith."

On the other hand, some governments, especially non-nuclear-weapon states belonging to the Non-Aligned Movement, have interpreted Article VI's language as being anything but vague. In their view, Article VI constitutes a formal and specific obligation on the NPT-recognized nuclear-weapon states to disarm themselves of nuclear weapons, and argue that these states have failed to meet their obligation.

Some government delegations to the Conference on Disarmament have put forth proposals for a complete and universal disarmament, but no disarmament treaty has emerged from these proposals. Critics of the NPT-recognized nuclear-weapon states sometimes argue that what they view as the failure of the NPT-recognized nuclear weapon states to disarm themselves of nuclear weapons, especially in the post-Cold War era, has angered some non-nuclear-weapon NPT signatories of the NPT. Such failure, these critics add, provides justification for the non-nuclear-weapon signatories to quit the NPT and develop their own nuclear arsenals.

Other observers have suggested that the linkage between proliferation and disarmament may also work the other way, i.e., that the failure to resolve proliferation threats in Iran and North Korea, for instance, will cripple the prospects for disarmament. No current nuclear weapons state, the argument goes, would seriously consider eliminating its last nuclear weapons without high confidence that other countries would not acquire them.

Some observers have even suggested that the very progress of disarmament by the superpowers which has led to the elimination of thousands of weapons and delivery systems could eventually make the possession of nuclear weapons more attractive by increasing the perceived strategic value of a small arsenal.



As one U.S. official and NPT expert warned in 2007, "logic suggests that as the number of nuclear weapons decreases, the 'marginal utility' of a nuclear weapon as an instrument of military power increases. At the extreme, which it is precisely disarmament's hope to create, the strategic utility of even one or two nuclear weapons would be huge."

## Third Pillar: Peaceful use of Nuclear Energy

The third pillar allows for and agrees upon the transfer of nuclear technology and materials to NPT signatory countries for the development of civilian nuclear energy programs in those countries, as long as they can demonstrate that their nuclear programs are not being used for the development of nuclear weapons.

Since very few of the states with nuclear energy programs are willing to abandon the use of nuclear energy, the third pillar of the NPT under Article IV provides other states with the possibility to do the same, but under conditions intended to make it difficult to develop nuclear weapons.

The treaty recognizes the inalienable right of sovereign states to use nuclear energy for peaceful purposes, but restricts this right for NPT parties to be exercised "in conformity with Articles I and II" (the basic nonproliferation obligations that constitute the "first pillar" of the Treaty).

As the commercially popular light water reactor nuclear power station uses enriched uranium fuel, it follows that states must be able either to enrich uranium or purchase it on an international market. Mohamed ElBaradei, Director General of the International Atomic Energy Agency, has called the spread of enrichment and reprocessing capabilities the "Achilles' heel" of the nuclear nonproliferation regime. As of 2007 13 states have an enrichment capability.

Because the availability of fissile material has long been considered the principal obstacle to, and "pac-

ing element" for, a country's nuclear weapons development effort, it was declared a major emphasis of U.S. policy in 2004 to prevent the further spread of uranium enrichment and plutonium reprocessing (a.k.a. "ENR") technology.

Countries possessing ENR capabilities, it is feared, have what is in effect the option of using this capability to produce fissile material for weapons use on demand, thus giving them what has been termed a "virtual" nuclear weapons program.

The degree to which NPT members have a "right" to ENR technology notwithstanding its potentially grave proliferation implications, therefore, is at the cutting edge of policy and legal debates surrounding the meaning of Article IV and its relation to Articles I, II, and III of the Treaty.

Countries that have signed the treaty as Non-Nuclear Weapons States and maintained that status have an unbroken record of not building nuclear weapons. However, Iraq was cited by the IAEA and sanctioned by the UN Security Council for violating its NPT safeguards obligations; North Korea never came into compliance with its NPT safeguards agreement and was cited repeatedly for these violations, and later withdrew from the NPT and tested multiple nuclear devices; Iran was found in non-compliance with its NPT safeguards obligations in an unusual non-consensus decision because it "failed in a number of instances over an extended period of time" to report aspects of its enrichment program; and Libya pursued a clandestine nuclear weapons program before abandoning it in December 2003.

In 1991 Romania reported previously undeclared nuclear activities by the former regime and the IAEA reported this non-compliance to the Security Council for information only. In some regions, the fact that all neighbors are verifiably free of nuclear weapons reduces any pressure individual states might feel to build those weapons themselves, even if neighbors are known to have peaceful nuclear energy programs that might otherwise be suspicious. In this, the treaty works as designed.

In 2004, Mohamed ElBaradei, the then Director General of the International Atomic Energy Agency (IAEA), said that by some estimates thirty-five to forty states could have the knowledge to develop nuclear weapons.

## Key articles

**Article I:** Each nuclear-weapons state (NWS) undertakes not to transfer, to any recipient, nuclear weapons, or other nuclear explosive devices, and not to assist any non-nuclear weapon state to manufacture or acquire such weapons or devices.

**Article II:** Each non-NWS party undertakes not to receive, from any source, nuclear weapons, or other nuclear explosive devices; not to manufacture or acquire such weapons or devices; and not to receive any assistance in their manufacture.

**Article III:** Each non-NWS party undertakes to conclude an agreement with the IAEA for the application of its safeguards to all nuclear material in all of the state's peaceful nuclear activities and to prevent diversion of such material to nuclear weapons or other nuclear explosive devices.

**Article IV:** 1. Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty.

2. All the Parties to the Treaty undertake to facilitate, and have the right to participate in, the fullest possible exchange of equipment, materials and scientific and technological information for the peaceful uses of nuclear energy. Parties to the Treaty in a position to do so shall also co-operate in contributing alone or together with other States or international organizations to the further development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States Party to the Treaty, with due consideration for the needs of the developing areas of the world.

**Article VI.** The states undertake 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 towards a "Treaty on general and complete disarmament under strict and effective international control".

**Article X.** Establishes the right to withdraw from the Treaty giving 3 months' notice. It also establishes the duration of the Treaty (25 years before 1995 Extension Initiative).

## History

The impetus behind the NPT was concern for the safety of a world with many nuclear weapon states. It was recognized that the cold war deterrent relationship between just the United States and Soviet Union was fragile. More nuclear players reduced security for all, multiplying the risks of miscalculation, accident or unauthorized use, or through the escalation of a small nuclear conflict.

The NPT process was launched by Frank Aiken, Irish Minister for External Affairs, in 1958. It was opened for signature in 1968, with Finland the first State to sign. By 1992 all five then-declared nuclear powers had signed the treaty, and the treaty was renewed in 1995 (and followed by the Comprehensive Test Ban Treaty in 1996). Several NPT signatories have given up nuclear weapons or nuclear weapons programs. South Africa undertook a nuclear weapons program, allegedly with the assistance of Israel in the 1970s, and may have conducted a nuclear test in the Atlantic ocean in 1979, but has since renounced its nuclear program and signed the treaty in 1991 after destroying its small nuclear arsenal. Several former Soviet Republics destroyed or transferred to Russia the nuclear weapons inherited from the Soviet Union.

## United States-NATO nuclear weapons sharing

At the time the treaty was being negotiated, NATO had in place secret nuclear weapons sharing agreements whereby the United States provided nuclear

weapons to be deployed by, and stored in, other NATO states. Some argue this is an act of proliferation violating Articles I and II of the treaty.

A counter-argument is that the U.S. controlled the weapons in storage within the NATO states, and that no transfer of the weapons or control over them was intended "unless and until a decision were made to go to war, at which the treaty would no longer be controlling", so there is no breach of the NPT. These agreements were disclosed to a few of the states, including the Soviet Union, negotiating the treaty, but most of the states that signed the NPT in 1968 would not have known about these agreements and interpretations at that time.

As of 2005, it is estimated that the United States still provides about 180 tactical B61 nuclear bombs for use by Belgium, Germany, Italy, the Netherlands and Turkey under these NATO agreements. Many states, and the Non-Aligned Movement, now argue this violates Articles I and II of the treaty, and are applying diplomatic pressure to terminate these agreements.

They point out that the pilots and other staff of the "non-nuclear" NATO states practice handling and delivering the U.S. nuclear bombs, and non-U.S. warplanes have been adapted to deliver U.S. nuclear bombs which must have involved the transfer of some technical nuclear weapons information. NATO believes its "nuclear forces continue to play an essential role in war prevention, but their role is now more fundamentally political".

NATO officials also point out that no nuclear weapons have ever been given over to non-U.S. control by the United States, so therefore there cannot have been a violation of Article I (which prohibits transferring "nuclear weapons or other nuclear explosive devices or control over such weapons or explosive devices") or Article II (which bars "receiv[ing] the transfer from any transferor whatsoever of nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices").

U.S. nuclear sharing policies were originally designed to help prevent the proliferation of nuclear

weapons—not least by persuading the then West Germany not to develop an independent nuclear capability by assuring it that West Germany would be able, in the event of war with the Warsaw Pact, to wield (U.S.) nuclear weapons in self-defense.

(Until that point of all-out war, however, the weapons themselves would remain "safely" in U.S. hands.) The point was to limit the spread of countries having their own nuclear weapons programs, helping ensure that NATO allies would not choose to go down the proliferation route.

(West Germany was discussed in U.S. intelligence estimates for a number of years as being a country with the potential to develop nuclear weapons capabilities of its own if officials in Bonn were not convinced that their defense against the Soviet Union and its allies could otherwise be met.)

## India, Israel and Pakistan

Three states—India, Israel, and Pakistan—have declined to sign the treaty. India and Pakistan are confirmed nuclear powers, and Israel has a long-standing policy of deliberate ambiguity (see List of countries with nuclear weapons). These countries argue that the NPT creates a club of "nuclear haves" and a larger group of "nuclear have-nots" by restricting the legal possession of nuclear weapons to those states that tested them before 1967, but the treaty never explains on what ethical grounds such a distinction is valid.

India and Pakistan have publicly announced possession of nuclear weapons and have detonated nuclear devices in tests, India having first done so in 1974 and Pakistan following suit in 1998 in response to another Indian test. India is estimated to have enough fissile material for more than 150 warheads. Pakistan reportedly has between 80 and 120 warheads according to the former head of its strategic arms division. India is one of the few countries to have a no first use policy, a pledge not to use nuclear weapons unless first attacked by an adversary using nuclear weapons.

The main reason India cites for not signing the NPT and for possessing nuclear weapons is that China is one of the "nuclear haves." India's External Affairs Minister Pranab Mukherjee said during a visit to Tokyo in 2007: "If India did not sign the NPT, it is not because of its lack of commitment for non-proliferation, but because we consider NPT as a flawed treaty and it did not recognise the need for universal, non-discriminatory verification and treatment." China and India have a longstanding border dispute, including a border war in 1962.

According to leaked intelligence, Israel has been developing nuclear weapons at its Dimona site in the Negev since 1958, and many nonproliferation analysts like David Albright estimate that Israel may have stockpiled between 100 to 200 warheads using the plutonium reprocessed from Dimona. The Israeli government refuses to confirm or deny possession of nuclear weapons, although this is now regarded as an open secret after Israeli low level nuclear technician Mordechai Vanunu—later abducted and jailed by Israel—revealed the program to the British Sunday Times in 1986.

In early March 2006, India and the United States finalized a deal, having critics in both countries, to provide India with US civilian nuclear technology. Under the deal India has committed to classify 14 of its 22 nuclear power plants as being for civilian use and to place them under IAEA safeguards. Mohamed ElBaradei, the Director General of the IAEA, welcomed the deal by calling India "an important partner in the non-proliferation regime."

In December 2006, United States Congress approved the United States-India Peaceful Atomic Energy Cooperation Act that was cemented during President Bush's visit to India earlier in the year. The legislation allows for the transfer of civilian nuclear material to India. Despite its status outside the Nuclear Non-Proliferation Treaty, India was granted these transactions on the basis of its clean non-proliferation record, and India's unusually high need for energy fueled by its rapid industrialization and a billion-plus population.

On August 1, 2008, the IAEA approved the India Safeguards Agreement and on September 6, 2008, India was granted the waiver at the Nuclear Suppliers Group (NSG) meeting held in Vienna, Austria. The consensus was arrived after overcoming misgivings expressed by Austria, Ireland and New Zealand and is an unprecedented step in giving exemption to a country, which has not signed the NPT and the Comprehensive Test Ban Treaty (CTBT).

While India could commence nuclear trade with other willing countries. The U.S. Congress approved this agreement and the President signed it on 8 October 2008.

The NSG Guidelines currently rule out nuclear exports by all major suppliers to Pakistan and Israel, with very narrow exceptions, since neither has full-scope IAEA safeguards (i.e. safeguards on all its nuclear activities). Attempts by Pakistan to reach a similar agreement have been rebuffed by the United States and other NSG members.

The argument put forth is that not only does Pakistan lack the same energy requirements but that the track record of Pakistan as a nuclear proliferator makes it impossible for it to have any sort of nuclear deal in the near future.

On September 18, 2009 the General Conference of the International Atomic Energy Agency called on Israel to open its nuclear facilities to IAEA inspection and adhere to the non-proliferation treaty as part of a resolution on "Israeli nuclear capabilities," which passed by a narrow margin of 49-45 with 16 abstentions. The chief Israeli delegate stated that "Israel will not co-operate in any matter with this resolution."

## North Korea

North Korea ratified the treaty on December 12, 1985, but gave notice of withdrawal from the treaty on January 10, 2003 following U.S. allegations that it had started an illegal enriched uranium weapons program, and the U.S. subsequently stopping fuel oil shipments under the Agreed Framework which had resolved plutonium weapons issues in 1994.



The withdrawal became effective April 10, 2003 making North Korea the first state ever to withdraw from the treaty. North Korea had once before announced withdrawal, on March 12, 1993, but suspended that notice before it came into effect.

On February 10, 2005, North Korea publicly declared that it possessed nuclear weapons and pulled out of the six-party talks hosted by China to find a diplomatic solution to the issue. "We had already taken the resolute action of pulling out of the Nuclear Non-Proliferation Treaty and have manufactured nuclear arms for self-defence to cope with the Bush administration's evermore undisguised policy to isolate and stifle the DPRK [Democratic People's Republic of Korea]," a North Korean Foreign Ministry statement said regarding the issue. Six-party talks resumed in July 2005.

On September 19, 2005, North Korea announced that it would agree to a preliminary accord. Under the accord, North Korea would scrap all of its existing nuclear weapons and nuclear production facilities, rejoin the NPT, and readmit IAEA inspectors. The difficult issue of the supply of light water reactors to replace North Korea's indigenous nuclear power plant program, as per the 1994 Agreed Framework, was left to be resolved in future discussions. On the next day North Korea reiterated its known view that until it is supplied with a light water reactor it will not dismantle its nuclear arsenal or rejoin the NPT.

On October 2, 2006, the North Korean foreign minister announced that his country was planning to conduct a nuclear test "in the future", although it did not state when. On Monday, October 9, 2006 at 01:35:27 (UTC) the United States Geological Survey detected a magnitude 4.2 seismic event 70 km (45 miles) north of Kimchaek, North Korea indicating a nuclear test. The North Korean government announced shortly afterward that they had completed a successful underground test of a nuclear fission device.

In 2007, reports from Washington suggested that the 2002 CIA reports stating that North Korea was developing an enriched uranium weapons program,

which led to North Korea leaving the NPT, had overstated or misread the intelligence.

On the other hand, even apart from these press allegations—which some critics worry could have been planted in order to justify the United States giving up trying to verify the dismantlement of Pyongyang's uranium program in the face of North Korean intransigence—there remains some information in the public record indicating the existence of a uranium effort.

Quite apart from the fact that North Korean First Vice Minister Kang Sok Ju at one point admitted the existence of a uranium enrichment program, Pakistan's then-President Musharraf revealed that the A.Q. Khan proliferation network had provided North Korea with a number of gas centrifuges designed for uranium enrichment.

Additionally, press reports have cited U.S. officials to the effect that evidence obtained in dismantling Libya's WMD programs points toward North Korea as the source for Libya's uranium hexafluoride (UF<sub>6</sub>) -- which, if true, would mean that North Korea has a uranium conversion facility for producing feedstock for centrifuge enrichment.

## Iran

Iran is a party to the NPT, but was found in non-compliance with its NPT safeguards agreement and the status of its nuclear program remains in dispute. In November 2003 IAEA Director General Mohamed ElBaradei reported that Iran had repeatedly and over an extended period failed to meet its safeguards obligations, including by failing to declare its uranium enrichment program.

After about two years of EU3-led diplomatic efforts and Iran temporarily suspending its enrichment program, the IAEA Board of Governors, acting under Article XII.C of the IAEA Statute, found in a rare non-consensus decision with 12 abstentions that these failures constituted non-compliance with the IAEA safeguards agreement.

This was reported to the UN Security Council in 2006, after which the Security Council passed a resolution demanding that Iran suspend its enrichment. Instead, Iran resumed its enrichment program.

The IAEA has been able to verify the non-diversion of declared nuclear material in Iran, and is continuing its work on verifying the absence of undeclared activities. In February 2008, the IAEA also reported that it was working to address "alleged studies" of weaponization, based on documents provided by certain Member States, which those states claimed originated from Iran.

Iran rejected the allegations as "baseless" and the documents as "fabrications." In June 2009, the IAEA reported that Iran had not "cooperated with the Agency in connection with the remaining issues ... which need to be clarified to exclude the possibility of military dimensions to Iran's nuclear program." The United States concluded that Iran violated its Article III NPT safeguards obligations, and further argued based on circumstantial evidence that Iran's enrichment program was for weapons purposes and therefore violated Iran's Article II nonproliferation obligations.

The November 2007 US National Intelligence Estimate (NIE) later concluded that Iran had halted an active nuclear weapons program in the fall of 2003 and that it had remained halted as of mid-2007. The NIE's "Key Judgments," however, also made clear that what Iran had actually stopped in 2003 was only "nuclear weapon design and weaponization work and covert uranium conversion-related and uranium enrichment-related work"—namely, those aspects of Iran's nuclear weapons effort that had not by that point already been leaked to the press and become the subject of IAEA investigations.

Since Iran's uranium enrichment program at Natanz—and its continuing work on a heavy water reactor at Arak that would be ideal for plutonium production—began secretly years before in conjunction with the very weaponization work the NIE discussed and for the purpose of developing nuclear weapons, many observers find Iran's continued development of fissile material production capabilities distinctly worrying.

Particularly because fissile material availability has long been understood to be the principal obstacle to nuclear weapons development and the primary "pacing element" for a weapons program, the fact that Iran has reportedly suspended weaponization work may not mean very much. As U.S. Director of National Intelligence Mike McConnell has put it, the aspects of its work that Iran allegedly suspended were thus "probably the least significant part of the program."

Iran states it has a legal right to enrich uranium for peaceful purposes under the NPT, and further says that it "has constantly complied with its obligations under the NPT and the Statute of the International Atomic Energy Agency". Iran also states that its enrichment program is part of its civilian nuclear energy program, which is allowed under Article IV of the NPT. The Non-Aligned Movement has welcomed the continuing cooperation of Iran with the IAEA and reaffirmed Iran's right to the peaceful uses of nuclear technology.

UN Secretary General Ban Ki-moon has welcomed the continued dialogue between Iran and the IAEA, and has called for a peaceful resolution to the issue.

## South Africa

South Africa also deserves a special mention as the only country that developed nuclear weapons by itself and later dismantled them - unlike the former Soviet states Ukraine, Belarus and Kazakhstan, which inherited nuclear weapons from the former USSR, and also acceded to the NPT as non-nuclear weapon states.

During the days of apartheid, the white South African government developed a deep fear of both a black uprising and the threat of communism. This led to the development of a secret nuclear weapons program as an ultimate deterrent. South Africa has a large supply of uranium, which is mined in the country's gold mines. The government built a nuclear research facility at Pelindaba near Pretoria where uranium was enriched to fuel grade for the nuclear power plant at Koeberg as well as weapon grade for bomb production.

In 1991, after international pressure and when a change of government was imminent, South African Ambassador to the United States Harry Schwarz signed the Nuclear Non-Proliferation Treaty. In 1993, the then president Frederik Willem de Klerk openly admitted that the country had developed a limited nuclear weapon capability. These weapons were subsequently dismantled prior to accession to the NPT. South Africa then opened itself up to IAEA for inspection. In 1994 the IAEA completed its work and declared that the country had fully dismantled its nuclear weapons program.

## Libya

Libya had signed and ratified the Nuclear Non-Proliferation Treaty and was subject to IAEA nuclear safeguards inspections, but undertook a secret nuclear weapons development program in violation of its NPT obligations, using material and technology provided by the A.Q. Khan proliferation network—including actual nuclear weapons designed allegedly originating in China.

Libya began secret negotiations with the United States and the United Kingdom in March 2003 over potentially eliminating its WMD programs. In October 2003, Libya was embarrassed by the interdiction of a shipment of Pakistani-designed centrifuge parts sent from Malaysia, also as part of A. Q. Khan's proliferation ring.

In December 2003, Libya announced that it had agreed to eliminate all its WMD programs, and permitted U.S. and British teams (as well as IAEA inspectors) into the country to assist this process and verify its completion. The nuclear weapons designs, gas centrifuges for uranium enrichment, and other equipment—including prototypes for improved SCUD ballistic missiles—were removed from Libya by the United States.

(Libyan chemical weapons stocks and chemical bombs were also destroyed on site with international verification, with Libya joining the Chemical Weapons Convention.) Libya's noncompliance with its IAEA safeguards was reported to the U.N. Security

Council, but with no action taken, as Libya's return to compliance with safeguards and Article II of the NPT was welcomed.

## Leaving the treaty

Article X allows a state to leave the treaty if "extraordinary events, related to the subject matter of this Treaty, have jeopardized the supreme interests of its country", giving three months' (ninety days') notice. The state is required to give reasons for leaving the NPT in this notice.

NATO states argue that when there is a state of "general war" the treaty no longer applies, effectively allowing the states involved to leave the treaty with no notice. This is a necessary argument to support the NATO nuclear weapons sharing policy, but a troubling one for the logic of the treaty.

NATO's argument is based on the phrase "the consequent need to make every effort to avert the danger of such a war" in the treaty preamble, inserted at the behest of U.S. diplomats, arguing that the treaty would at that point have failed to fulfill its function of prohibiting a general war and thus no longer be binding. Many states do not accept this argument. See United States-NATO nuclear weapons sharing above.

North Korea has also caused an uproar by its use of this provision of the treaty. Article X.1 only requires a state to give three months' notice in total, and does not provide for other states to question a state's interpretation of "supreme interests of its country".

In 1993, North Korea gave notice to withdraw from the NPT. However, after 89 days, North Korea reached agreement with the United States to freeze its nuclear program under the Agreed Framework and "suspended" its withdrawal notice.

In October 2002, the United States accused North Korea of violating the Agreed Framework by pursuing a secret uranium enrichment program, and suspended shipments of heavy fuel oil under that agreement. In response, North Korea expelled IAEA

inspectors, disabled IAEA equipment, and, on January 10, 2003, announced that it was ending the suspension of its previous NPT withdrawal notification. North Korea said that only one more day's notice was sufficient for withdrawal from the NPT, as it had given 89 days before.

The IAEA Board of Governors rejected this interpretation. Most countries held that a new three-months withdrawal notice was required, and some questioned whether North Korea's notification met the "extraordinary events" and "supreme interests" requirements of the Treaty. The Joint Statement of September 19, 2005 at the end of the Fourth Round of the Six-Party Talks called for North Korea to "return" to the NPT, implicitly acknowledging that it had withdrawn.

## Recent and coming events

The 2000 Review Conference had as main outcome the definition in practical terms of the nuclear weapons states' disarmament obligations, summarized in the so called Thirteen Points.

The inclusion of (civilian) nuclear power in the July 2005 Asia-Pacific Partnership for Clean Development and Climate was politically sensitive, as India, which tested its first atomic bomb in 1974, refused to sign the NPT. Prior to the announcement of the Asia-Pacific Partnership, on 18 July 2005, US President George W. Bush had met Indian Prime Minister Manmohan Singh and declared that he would work to change US law and international rules to permit trade in US civilian nuclear technology with India.

Some, such as British columnist George Monbiot, argue that the U.S.-India nuclear deal, in combination with US attempts to deny Iran (an NPT signatory) civilian nuclear fuel-making technology, may destroy the NPT regime, while others[who?] contend that such a move will likely bring India, an NPT non-signatory, under closer international scrutiny.

At the Seventh Review Conference in May 2005, there were stark differences between the United States, which wanted the conference to focus on non-proliferation, especially on its allegations against Iran, and most other countries, who emphasized the lack of serious nuclear disarmament by the nuclear powers. The non-aligned countries reiterated their position that NATO's nuclear sharing arrangement violates the treaty.

The 2010 Review Conference will be held in May 2010 in New York City and is seen as critical to consolidate the nuclear nonproliferation regime, based on the treaty. The 2009 Session of the NPT Preparatory Committee, held in May, failed to deliver an agreed recommendation for the upcoming Review Conference, but even so, it has been considered successful to define the main issues to be discussed during the meeting.

The "Global Summit on Nuclear Security" took place April 12-13, 2010. The summit was proposed by President Obama in Prague and is intended to strengthen the Nuclear Non-Proliferation Treaty in conjunction with the Proliferation Security Initiative and the Global Initiative to Combat Nuclear Terrorism. Forty seven states and three international organizations took part in the Summit, which issued a communiqué and a work plan.

## Criticism and responses

Some argue that the NWS have not fully complied, in practice, with their commitments mentioned in NPT. Article VI of the treaty requires NPT parties to "pursue negotiations" on an end to the arms race, "nuclear disarmament, and on a treaty on general and complete disarmament." Yet thousands of nuclear weapons remain, some on high alert, long after the end of the cold war. In January 2002, a report by the Defense Department following the U.S. Nuclear Posture Review recommended the development of nuclear weapons designed to destroy hardened and deeply-buried targets, but the resulting Robust Nuclear Earth Penetrator never gained full Congressional support and was canceled in 2005.



The representative of Ghana, on behalf of the Non-Aligned Movement and the African Group said disarmament and non-proliferation were complementary and mutually reinforcing and that, "Without tangible progress in disarmament, the current emphasis on non-proliferation cannot be sustained."

The United States responds to criticism of its disarmament record by pointing out that since the end of the Cold War it has eliminated over 13,000 nuclear weapons and eliminated over 80% of its deployed strategic warheads and 90% of non-strategic warheads deployed to NATO, in the process eliminating whole categories of warheads and delivery systems and reducing its reliance on nuclear weapons.

U.S. officials have also pointed out the United States' ongoing—and, throughout 2007, sharply accelerating work to dismantle nuclear warheads. When current accelerated dismantlement efforts ordered by President George W. Bush have been completed, the U.S. arsenal will be less than a quarter of its size at the end of the Cold War, and smaller than it has been at any point since the Eisenhower administration, well before the drafting of the NPT.

The United States has also purchased many thousands of weapons' worth of uranium formerly in Soviet nuclear weapons for conversion into reactor fuel. (As a consequence of this latter effort, it has been estimated that the equivalent of one lightbulb in every ten in the United States is powered by nuclear fuel removed from warheads previously targeted at the United States and its allies during the Cold War.) The U.S. Special Representative for Nuclear Nonproliferation agreed that nonproliferation and disarmament are linked, noting that they can be mutually reinforcing but also that growing proliferation risks create an environment that makes disarmament more difficult.

The United Kingdom, France and Russia likewise defend their nuclear disarmament records, and the five NPT NWS issued a joint statement in 2008 reaffirming their Article VI disarmament commitments. As discussed above, the precise nature of

nuclear weapons state obligations, if any, under Article VI of the Treaty is sharply contested.

## Comprehensive Nuclear-Test-Ban Treaty

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) bans all nuclear explosions in all environments, for military or civilian purposes. It was adopted by the United Nations General Assembly on 10 September 1996 but it has not yet entered into force.

The Treaty was adopted by the United Nations General Assembly on 10 September 1996. It opened for signature in New York on 24 September 1996, when it was signed by 71 States, including five of the eight then nuclear-capable states. As of November 2009, 151 states have ratified the CTBT and another 31 states have signed but not yet ratified it.

The treaty will enter into force 180 days after the 44 states listed in Annex 2 of the treaty have ratified it. These "Annex 2 states" are states that participated in the CTBT's negotiations between 1994 and 1996 and possessed nuclear power reactors or research reactors at that time. As of April 2009, nine Annex 2 states have not ratified the treaty: China, Egypt, Indonesia, Iran, Israel and the United States have already signed the Treaty, whereas India, North Korea and Pakistan have not yet signed it.

## Obligations

(Article I): 1. Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control.

2. Each State Party undertakes, furthermore, to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.

## History

Arms control advocates had campaigned for the adoption of a treaty banning all nuclear explosions since the early 1950s, when public concern was aroused as a result of radioactive fall-out from atmospheric nuclear tests and the escalating arms race.

Over 50 nuclear explosions were registered between 16 July 1945, when the first nuclear explosive test was conducted by the United States at Alamogordo, New Mexico, and 31 December 1953. Prime Minister Nehru of India voiced the heightened international concern in 1954, when he proposed the elimination of all nuclear test explosions worldwide. However, within the context of the Cold War, skepticism about the capability to verify compliance with a comprehensive nuclear test ban treaty posed a major obstacle to any agreement.

### Partial Test Ban Treaty, 1963

Limited success was achieved with the signing of the Partial Test Ban Treaty in 1963, which banned nuclear tests in the atmosphere, underwater and in space. Neither France nor China signed the PTBT. However, the treaty was ratified 80 to 19, and signed by President JFK.

### Nuclear Non-proliferation Treaty, 1968

A major step towards non-proliferation of nuclear weapons came with the signing of the Nuclear Non-proliferation Treaty (NPT) in 1968. Under the NPT, non-nuclear weapon states were prohibited from, inter alia, possessing, manufacturing or acquiring nuclear weapons or other nuclear explosive devices.

All signatories, including nuclear weapon states, were committed to the goal of total nuclear disarmament. However, nations like India have not ratified the NPT on grounds that such a treaty is fundamentally discriminatory as it places limitations on states that do not have nuclear weapons while mak-

ing no efforts to curb weapons development by declared nuclear weapons states.

## Negotiations for the CTBT

Given the political situation prevailing in the subsequent decades, little progress was made in nuclear disarmament until 1991. Parties to the PTBT held an amendment conference that year to discuss a proposal to convert the Treaty into an instrument banning all nuclear-weapon tests; with strong support from the UN General Assembly, negotiations for a comprehensive test-ban treaty began in 1993.

### Adoption of the CTBT, 1996

Intensive efforts were made over the next three years to draft the Treaty text and its two annexes. However, the Conference on Disarmament, in which negotiations were being held, did not succeed in reaching consensus on the adoption of the text.

Under the direction of Prime Minister John Howard and Foreign Minister Alexander Downer Australia then sent the text to the United Nations General Assembly in New York, where it was submitted as a draft resolution. On 10 September 1996, the Comprehensive Test-Ban Treaty (CTBT) was adopted by a large majority, exceeding two-thirds of the General Assembly's Membership.

### US ratification of the CTBT

The US has signed the CTBT, but not ratified it. There is ongoing debate whether or not the US should ratify the CTBT.

The CTBT for the United States is conditioned on:

A: The conduct of a Science Based Stockpile Stewardship Program program to ensure a high level of confidence in the safety and reliability of nuclear weapons in the active stockpile, including the conduct of a broad range of effective and continuing experimental programs.

**B:** The maintenance of modern nuclear laboratory facilities and programs in theoretical and exploratory nuclear technology which will attract, retain, and ensure the continued application of our human scientific resources to those programs on which continued progress in nuclear technology depends.

**C:** The maintenance of the basic capability to resume nuclear test activities prohibited by the CTBT should the United States cease to be bound to adhere to this treaty.

**D:** Continuation of a comprehensive research and development program to improve our treaty monitoring capabilities and operations.

**E:** The continuing development of a broad range of intelligence gathering and analytical capabilities and operations to ensure accurate and comprehensive information on worldwide nuclear arsenals, nuclear weapons development programs, and related nuclear programs.

**F:** The understanding that if the President of the United States is informed by the Secretary of Defense and the Secretary of Energy (DOE) -- advised by the Nuclear Weapons Council, the Directors of DOE's nuclear weapons laboratories and the Commander of the U.S.

Strategic Command -- that a high level of confidence in the safety or reliability of a nuclear weapon type which the two Secretaries consider to be critical to the U.S. nuclear deterrent could no longer be certified, the President, in consultation with Congress, would be prepared to withdraw from the CTBT under the standard "supreme national interests" clause in order to conduct whatever testing might be required.

Proponents of ratification claim that it would:

1. Establish an international norm that would push other nuclear-capable countries like North Korea, Pakistan, and India to sign.

2. Constrain worldwide nuclear proliferation by vastly limiting a country's ability to make nuclear advancements that only testing can ensure.

3. Not compromise US national security because the Science Based Stockpile Stewardship Program serves as a means for maintaining current US nuclear capabilities without physical detonation.

On 13 October 1999, the United States Senate rejected ratification of the CTBT. President Barack Obama stated during his 2008 election campaign that "As president, I will reach out to the Senate to secure the ratification of the CTBT at the earliest practical date."

## Monitoring of the CTBT

Geophysical and other technologies are used to monitor for compliance with the Treaty: seismology, hydroacoustics, infrasound, and radionuclide monitoring. The technologies are used to monitor the underground, the waters and the atmosphere for any sign of a nuclear explosion. Statistical theories and methods are integral to CTBT monitoring providing confidence in verification analysis. Once the Treaty enters into force, on site inspection will be provided for where concerns about compliance arise.

The Preparatory Commission for the Comprehensive Test Ban Treaty Organization (CTBTO), an international organization headquartered in Vienna, Austria, was created to build the verification regime, including establishment and provisional operation of the network of monitoring stations, the creation of an international data centre, and development of the On Site Inspection capability.

The monitoring network consists of 337 facilities located all over the globe. As of September 2009, close to 250 facilities have been certified. The monitoring stations register data that is transmitted to the international data centre in Vienna for processing and analysis. The data is sent to states that have signed the Treaty.

## Threshold Test Ban Treaty

The Treaty on the Limitation of Underground Nuclear Weapon Tests, also known as the Threshold Test Ban Treaty (or TTBT), was signed in July

1974 by the USA and the USSR. It establishes a nuclear "threshold," by prohibiting nuclear tests of devices having a yield exceeding 150 kilotons (equivalent to 150,000 tons of TNT).

The threshold is militarily important since it removes the possibility of testing new or existing nuclear weapons going beyond the fractional-megaton range. In the 1960s, many tests above 150 kilotons were conducted by both countries. The mutual restraint imposed by the Treaty reduced the explosive force of new nuclear warheads and bombs which could otherwise be tested for weapons systems.

Of particular significance was the relationship between explosive power of reliable, tested warheads and first-strike capability. Agreement on the Threshold Test Ban Treaty was reached during the summit meeting in Moscow in July 1974.

## Provisions

The treaty included a protocol which detailed technical data to be exchanged and which limited weapon testing to specific designated test sites to assist verification. The data to be exchanged included information on the geographical boundaries and geology of the testing areas.

Geological data -- including such factors as density of rock formation, water saturation, and depth of the water table -- are useful in verifying test yields because the seismic signal produced by a given underground nuclear explosion varies with these factors at the test location. After an actual test has taken place, the geographic coordinates of the test location are to be furnished to the other party, to help in placing the test in the proper geological setting and thus in assessing the yield.

The treaty also stipulates that data will be exchanged on a certain number of tests for calibration purposes. By establishing the correlation between stated yields of explosions at the specified sites and the seismic signals produced, this exchange improved assessments by both parties of the yields of nuclear explosions based primarily on the measurements derived

from their seismic instruments. The tests used for calibration purposes may be tests conducted in the past or new tests.

Agreement to exchange the detailed data described above represented a significant degree of direct co-operation by the two major nuclear powers in the effort to control nuclear weapons. For the first time, each party agreed to make available to the other data relating to its nuclear weapons test program.

## Technical issues

The technical problems associated with a yield threshold were recognized by the sides in the spring of 1974. In this context the Soviet Union mentioned the idea of some kind of a "mistakes" understanding concerning occasional, minor, unintended breaches. Discussions on the subject of such an understanding took place in the autumn of 1974 and in the spring of 1976.

The Soviet Union was informed by the United States that the understanding reached would be included as part of the public record associated with submitting the Treaty to the Senate for advice and consent to ratification. The entire understanding is as follows:

Both Parties will make every effort to comply fully with all the provisions of the TTB Treaty. However, there are technical uncertainties associated with predicting the precise yields of nuclear weapons tests. These uncertainties may result in slight, unintended breaches of the 150 kiloton threshold.

Therefore, the two sides have discussed this problem and agreed that: (1) one or two slight, unintended breaches per year would not be considered a violation of the Treaty; (2) such breaches would be a cause for concern, however, and, at the request of either Party, would be the subject for consultations.



## Intermediate-Range Nuclear Forces Treaty

The Intermediate-Range Nuclear Forces Treaty (INF) is a 1987 agreement between the United States and the Soviet Union. Signed in Washington, D.C. by U.S. President Ronald Reagan and General Secretary Mikhail Gorbachev on December 8, 1987, it was ratified by the United States Senate on May 27, 1988 and came into force on June 1 of that year. The treaty is formally titled The Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles.

The treaty eliminated nuclear and conventional ground-launched ballistic and cruise missiles with intermediate ranges, defined as between 500-5,500 km (300-3,400 miles). By the treaty's deadline of June 1, 1991, a total of 2,692 of such weapons had been destroyed, 846 by the U.S. and 1,846 by the Soviet Union, which was much more unequal in number of INF warheads destroyed. Under the treaty both nations were allowed to inspect each other's military installations.

### History

The longer range, greater accuracy, mobility and striking power of the new missile was perceived to alter the security of Western Europe. After discussions, NATO agreed to a two part strategy - firstly to pursue arms control negotiations with the Soviet Union to reduce their and the American INF arsenals; secondly to deploy in Europe from 1983 up to 464 ground-launched cruise missiles (GLCM) and 108 Pershing II ballistic missiles.

Until the late 1970s NATO had clear superiority over USSR in INF systems because Soviets possessed only liquid-fueled, single warhead, very inaccurate and easy to destroy IRBMs and a few hundreds equally outdated subsonic heavy bombers of Tu-16 and Tu-22 types.

In contrast, NATO and USAFE had Mirage IV, V-force and brand-new F-111 bombers in addition to French, British, and US precise, solid propelled IRBMs and SLBMs based in Europe and on adjacent waters. So Soviet attempts to close the "INF gap" by SS-20 and Tu-22M deployment was met with NATO moves to secure Western alliance nuclear advantage in Europe thanks to GLCM and Pershing II installation.

Despite dissatisfaction with the deployment of US weapons in Europe, the Soviet Union agreed to open negotiations and preliminary discussions began in Geneva in 1980. Formal talks began in September 1981 with the US "Zero option" offer - the complete elimination of all Pershing, GLCM, SS-20, SS-4 and SS-5 missiles.

Following disagreement over the exclusion of British and French delivery systems, the talks were suspended by the Soviet delegation in November 1983. In 1984, despite public protest, the US began to deploy INF systems in West Germany, Italy, and the United Kingdom.

In March 1986 negotiations between the US and the Soviet Union resumed, covering not only the INF issue but also separate discussions on strategic weapons (START I) and space issues (NST). In late 1985 both sides were moving towards limiting INF systems in Europe and Asia.

On January 15, 1986, Gorbachev announced a Soviet proposal for a ban on all nuclear weapons by 2000, which included INF missiles in Europe. This was dismissed by the US and countered with a phased reduction of INF launchers in Europe and Asia to none by 1989. There would be no constraints on British and French nuclear forces.

A series of meetings in August and September 1986 culminated in the Reykjavík Summit between Reagan and Gorbachev on October 11, 1986. Both agreed in principle to remove INF systems from Europe and to equal global limits of 100 INF missile warheads. Gorbachev also proposed deeper and more fundamental changes in the strategic relationship.

More detailed negotiations extended throughout 1987, aided by the decision of West German Chancellor Helmut Kohl in August to unilaterally remove the joint U.S.-West German Pershing IA systems. The treaty text was finally agreed in September 1987.

## New START

New START (for Strategic Arms Reduction Treaty) (Russian: ???-III) is a bilateral nuclear arms reduction treaty between the United States and Russia that was signed in 2010. It is a follow-up to the 1991 START I treaty, which expired in December 2009, and to START II and the 2002 Treaty of Moscow (SORT), which was due to expire in December 2012.

Prolonged talks were conducted by U.S. and Russian delegations in Geneva, led on the American side by U.S. State Department Assistant Secretary Rose Gottemoeller. The Russian delegation was headed by Anatoly Antonov, director of security and disarmament at the Russian Ministry of Foreign Affairs. Presidents Barack Obama and Dmitry Medvedev then announced on 26 March 2010 that they had reached an agreement. The new treaty was signed on 8 April 2010 in Prague by Obama and Medvedev.

It will limit the number of operationally deployed nuclear warheads to 1,550, which is down nearly two-thirds from the original START treaty and is 30% lower than the deployed strategic warhead limit of the 2002 Moscow Treaty and it will limit to 800 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. Also it will limit the number of ICBMs, SLBMs, and deployed heavy bombers equipped for nuclear armaments to 700.

These obligations must be met within seven years from the date the new 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 first has to be ratified by the United States Senate and the Federation Council of the Russian

Federation. Once that is done, the treaty will enter into force on the date of the exchange of instruments of ratification.

The number of operationally inactive stockpiled nuclear warheads will remain in the high thousands in both the Russian and United States inventories.

The number of nuclear missile launchers will be reduced by half. A new inspection and verification regime will be established, replacing the mechanism defined by the earlier treaty.

The new treaty has been described in the press as "substantial".

## NPT Review Conference

In May, the 2010 review conference for the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) will be held at United Nations Headquarters in New York.

## Context

Three major events occurred prior to the NPT Review Conference:

- ⇒ The New START treaty was signed on April 8, 2010 in Prague by U.S. President Obama and Russian President Medvedev.
- ⇒ The Nuclear Security Summit (2010) was held on April 12–13, 2010.
- ⇒ Iran held the Tehran International Conference on Disarmament and Non-Proliferation, 2010 on April 17–18, 2010.

## Participants

A delegation headed by Foreign Minister Manouchehr Mottaki will represent Iran at the conference.

## Nuclear disarmament

Nuclear disarmament refers to both the act of reducing or eliminating nuclear weapons and to the end state of a nuclear-free world, in which nuclear weapons are completely eliminated.

Proponents of nuclear disarmament say that it would lessen the probability of nuclear war occurring, especially accidentally. Critics of nuclear disarmament say that it would undermine deterrence.

### History

The movement for disarmament has varied from nation to nation over times.

A few prominent proponents of disarmament argued in the earliest days of the Cold War that the creation of an international watchdog organization could be used to enforce a ban against the creation of nuclear weapons. This initial movement largely failed. During the 1960s, a much stronger popular movement against nuclear weapons developed, rallying primarily around the fear of nuclear fallout from nuclear testing.

After the Partial Test Ban Treaty (1963), which prohibited atmospheric testing, the movement against nuclear weapons somewhat subsided in the 1970s (and was replaced in part by a movement against nuclear power). In the 1980s, a popular movement for nuclear disarmament again gained strength in the light of the weapons build-up and aggressive rhetoric of US President Ronald Reagan. After the end of the Cold War in the early 1990s the momentum again faded.

In the USSR, voices against nuclear weapons were few and far between as there was no "public" to speak of as a political factor. Certain citizens who had become prominent enough to safely criticize the Soviet government, such as Andrei Sakharov, did speak out against nuclear weapons, but to little effect.

When the extreme danger intrinsic to nuclear war and the possession of nuclear weapons became apparent to all sides during the Cold War, a series of disarmament and nonproliferation treaties were agreed upon between the United States, the Soviet Union, and several other states throughout the world. Many of these treaties involved years of negotiations, and seemed to result in important steps toward creating a nuclear weapons free world.

### Key treaties

**Partial Test Ban Treaty (PTBT) - 1963:** Prohibited all testing of nuclear weapons except underground.

**Nuclear Non-Proliferation Treaty (NPT) - signed 1968, came into force 1970:** An international treaty (currently with 189 member states) to limit the spread of nuclear weapons. The treaty has three main pillars: nonproliferation, disarmament, and the right to peacefully use nuclear technology.

**Interim Agreement on Offensive Arms (SALT I) - 1972:** The Soviet Union and the United States agreed to a freeze in the number of intercontinental ballistic missiles (ICBMs) and submarine-launched ballistic missiles (SLBMs) that they would deploy.

**Anti-Ballistic Missile Treaty (ABM) - 1972:** The United States and Soviet Union could deploy ABM interceptors at two sites, each with up to 100 ground-based launchers for ABM interceptor missiles. In a 1974 Protocol, the US and Soviet Union agreed to only deploy an ABM system to one site.

**Strategic Arms Limitation Treaty (SALT II) - 1979:** Replacing SALT I, SALT II limited both the Soviet Union and the United States to an equal number of ICBM launchers, SLBM launchers, and heavy bombers. Also placed limits on Multiple Independent Reentry Vehicles (MIRVs).

**Intermediate-Range Nuclear Forces Treaty (INF) - 1987:** Created a global ban on short- and long-range nuclear weapons systems, as well as an intrusive verification regime.

**Strategic Arms Reduction Treaty (START I)** - signed 1991, ratified 1994: Limited long-range nuclear forces in the United States and the newly independent states of the former Soviet Union to 6,000 attributed warheads on 1,600 ballistic missiles and bombers.

**Strategic Arms Reduction Treaty II (START II)** - signed 1993, never put into force: START II was a bilateral agreement between the US and Russia which attempted to commit each side to deploy no more than 3,000 to 3,500 warheads by December 2007 and also included a prohibition against deploying multiple independent reentry vehicles (MIRVs) on intercontinental ballistic missiles (ICBMs)

**Strategic Offensive Reductions Treaty (SORT or Moscow Treaty)** - signed 2002, into force 2003: A very loose treaty that is often criticized by arms control advocates for its ambiguity and lack of depth, Russia and the United States agreed to reduce their "strategic nuclear warheads" (a term that remain undefined in the treaty) to between 1,700 and 2,200 by 2012.

**Comprehensive Test Ban Treaty (CTBT)** - signed 1996, not yet in force: The CTBT is an international treaty (currently with 181 state signatures and 148 state ratifications) that bans all nuclear explosions in all environments. While the treaty is not in force, Russia has not tested a nuclear weapon since 1990 and the United States has not since 1992.

**New START Treaty** - signed 2010, not yet ratified by either Russia or the United States.

Only one country has been known to ever dismantle their nuclear arsenal completely—the apartheid government of South Africa apparently developed half a dozen crude fission weapons during the 1980s, but they were dismantled in the early 1990s.

## NATO's European theatre

After the fall of the Soviet Union, a number of former Soviet republics (Belarus, Ukraine, and Kazakhstan) found themselves in possession of So-

viet nuclear weapons, but they were given to Russia (who took responsibility and ownership of the Soviet arsenal) in exchange for negative security assurances and financial compensation from the United States and the Russian Federation.

As part of an effort to reduce nuclear tensions between US and Russia after the end of the Cold War, a delegation from the Russian Ministry of Defence led by US-Russian national Alexander M. Dokyuchuk, during an official visit to the US in 1992, stated in a live televised program that Russian nuclear missiles will never again be pointed at US cities.

## Organizations

Many organizations and networks exist which distribute information and put pressure on governments, e.g. the Campaign for Nuclear Disarmament (CND), which advocated a policy of unilateral nuclear disarmament in the United Kingdom together with the Labour far left, specifically the Bevanites, leading it to become Labour Party policy in 1960-61 and again in 1980-89.

There was also a strong peace camp movement. Many people still felt the need for a nuclear deterrent, especially since the Cold War was still ongoing, and this policy is believed to have been a major cause of Labour's defeat in the 1983 election.

In 1955, 11 leading scientists and intellectuals signed the Russell-Einstein Manifesto, warning of the dangers posed by nuclear weapons and calling on world leaders to find peaceful solutions to international tensions. This was followed in 1957 by the first of the Pugwash Conferences on Science and World Affairs hosted by Cyrus S. Eaton in Pugwash, Nova Scotia.

The 1985 Nobel peace prize-winning International Physicians for the Prevention of Nuclear War (IPPNW) advocates abolition of all nuclear weapons. In 2006, it initiated the International Campaign to Abolish Nuclear Weapons.



The Council for a Livable World, founded by nuclear physicist Leo Szilard, and its sister organization, the Center for Arms Control and Non-Proliferation, have both advocated for a reduction in global nuclear stockpiles and for an increase in non proliferation efforts.

In the U.S. an organization for nuclear disarmament is Peace Action - National Committee for a Sane Nuclear Policy.

## US nuclear policy

Despite a general trend toward disarmament in the early 1990s, the George W. Bush administration repeatedly pushed to fund policies that would allegedly make nuclear weapons more usable in the post-Cold War environment. To date the U.S. Congress has refused to fund many of these policies. However, some feel that even considering such programs harms the credibility of the United States as a proponent of nonproliferation.

## Recent controversial U.S. nuclear policies

**Reliable Replacement Warhead Program (RRW):** This program seeks to replace existing warheads with a smaller number of warhead types designed to be easier to maintain without testing. Critics charge that this would lead to a new generation of nuclear weapons and would increase pressures to test. Congress has not funded this program.

**Complex Transformation:** Complex transformation, formerly known as Complex 2030, is an effort to shrink the U.S. nuclear weapons complex and restore the ability to produce "pits" the fissile cores of the primaries of U.S. thermonuclear weapons. Critics see it as an upgrade to the entire nuclear weapons complex to support the production and maintenance of the new generation of nuclear weapons. Congress has not funded this program.

**Nuclear bunker buster:** Formally known as the Robust Nuclear Earth Penetrator (RNEP), this program

aimed to modify an existing gravity bomb to penetrate into soil and rock in order to destroy underground targets. Critics argue that this would lower the threshold for use of nuclear weapons. Congress did not fund this proposal, which was later withdrawn.

**Missile Defense:** Formerly known as National Missile Defense, this program seeks to build a network of interceptor missiles to protect the United States and its allies from incoming missiles, including nuclear-armed missiles. Critics have argued that this would impede nuclear disarmament and possibly stimulate a nuclear arms race. Elements of missile defense are being deployed in Poland and the Czech Republic, despite Russian opposition.

Former U.S. officials Henry Kissinger, George Shultz, Bill Perry and Sam Nunn proposed in January 2007 that the United States rededicate itself to the goal of eliminating nuclear weapons, concluding: "We endorse setting the goal of a world free of nuclear weapons and working energetically on the actions required to achieve that goal." Arguing a year later that "with nuclear weapons more widely available, deterrence is decreasingly effective and increasingly hazardous," the authors concluded that although "it is tempting and easy to say we can't get there from here, . . . we must chart a course" toward that goal. During his Presidential campaign, U.S. President Elect Barack Obama pledged to "set a goal of a world without nuclear weapons, and pursue it."

## U.S. policy options for nuclear terrorism

The United States has taken the lead in ensuring that nuclear materials globally are properly safeguarded. A popular program that has received bipartisan domestic support for over a decade is the Cooperative Threat Reduction Program (CTR). While this program has been deemed a success, its funding levels need to be increased so as to ensure that all dangerous nuclear materials are secured in the most expeditious manner possible.

The CTR program has led to several other innovative and important nonproliferation programs that need to continue to be a budget priority in order to ensure that nuclear weapons do not spread to actors hostile to the United States.

## Key programs

**Cooperative Threat Reduction (CTR):** The CTR program provides funding to help Russia secure materials that might be used in nuclear or chemical weapons as well as to dismantle weapons of mass destruction and their associated infrastructure in Russia.

**Global Threat Reduction Initiative (GTRI):** Expanding on the success of the CTR, the GTRI will expand nuclear weapons and material securing and dismantlement activities to states outside of the former Soviet Union.

## Other states

While the vast majority of states have adhered to the stipulations of the Nuclear Nonproliferation Treaty, a few states have either refused to sign the treaty or have pursued nuclear weapons programs while not being members of the treaty.

Many view the pursuit of nuclear weapons by these states as a threat to nonproliferation and world peace, and therefore seek policies to discourage the spread of nuclear weapons to these states, a few of which are often described by the US as "rogue states".

**Declared nuclear weapon states not party to the NPT:**

- è Indian nuclear weapons - 60-80 active warheads.
- è Pakistani nuclear weapons - 70-90 active warheads
- è North Korean nuclear weapons - <10 active warheads

**Undeclared nuclear weapon states not party**

**to the NPT:**

**Israeli nuclear weapons - 75 - 200 active warheads**

**Nuclear weapon states not party to the NPT that disarmed and joined the NPT as non-nuclear weapons states:**

**South African nuclear weapons - disarmed from 1989-1993**

**Former Soviet states that disarmed and joined the NPT as non-nuclear weapons states:**

è Belarus

è Kazakhstan

è Ukraine

**Non-nuclear weapon states party to the NPT currently accused of seeking nuclear weapons:**

## Iranian nuclear weapons program

**Non-nuclear weapon states party to the NPT who acknowledged and eliminated past nuclear weapons programs:**

è Libyan nuclear weapons program

è Nuclear proliferation

Nuclear proliferation is a term now used to describe the spread of nuclear weapons, fissile material, and weapons-applicable nuclear technology and information, to nations which are not recognized as "Nuclear Weapon States" by the Treaty on the Non-proliferation of Nuclear Weapons, also known as the Nuclear Nonproliferation Treaty or NPT.

Proliferation has been opposed by many nations with and without nuclear weapons, the governments of which fear that more countries with nuclear weapons may increase the possibility of nuclear warfare (up to and including the so-called "countervalue" targeting of civilians with nuclear weapons), de-sta-

bilize international or regional relations, or infringe upon the national sovereignty of states.

Four nations besides the five recognized Nuclear Weapons States, none of which signed or ratified the NPT, have acquired, or are presumed to have acquired, nuclear weapons: India, Pakistan, North Korea, and Israel. One critique of the NPT is that it is discriminatory in recognizing as nuclear weapon states only those countries that tested nuclear weapons before 1968 and requiring all other states joining the treaty to forswear nuclear weapons.

## Nuclear proliferation

Research into the development of nuclear weapons was undertaken during World War II by the United States, the United Kingdom, Germany, Japan, and the USSR. The United States was the first and is the only country to have used a nuclear weapon in war, when it used two bombs against Japan in August 1945.

With their loss during the war, Germany and Japan ceased to be involved in any nuclear weapon research. In August 1949, the USSR tested a nuclear weapon. The United Kingdom tested a nuclear weapon in October 1952. France developed a nuclear weapon in 1960. The People's Republic of China detonated a nuclear weapon in 1964. India exploded a nuclear device in 1974, and Pakistan tested a weapon in 1998. In 2006, North Korea conducted a nuclear test.

## Non-proliferation efforts

Early efforts to prevent nuclear proliferation involved intense government secrecy, the wartime acquisition of known uranium stores (the Combined Development Trust), and at times even outright sabotage—such as the bombing of a heavy-water facility thought to be used for a German nuclear program. None of these efforts were explicitly public, owing to the fact that the weapon developments themselves were kept secret until the bombing of Hiroshima.

Earnest international efforts to promote nuclear non-proliferation began soon after World War II, when the Truman Administration proposed the Baruch Plan of 1946, named after Bernard Baruch, America's first representative to the United Nations Atomic Energy Commission. The Baruch Plan, which drew heavily from the Acheson-Lilienthal Report of 1946, proposed the verifiable dismantlement and destruction of the U.S. nuclear arsenal (which, at that time, was the only nuclear arsenal in the world) after all governments had cooperated successfully to accomplish two things:

- (1) the establishment of an "international atomic development authority," which would actually own and control all military-applicable nuclear materials and activities, and
- (2) the creation of a system of automatic sanctions, which not even the U.N. Security Council could veto, and which would proportionately punish states attempting to acquire the capability to make nuclear weapons or fissile material.

Although the Baruch Plan enjoyed wide international support, it failed to emerge from the UNAEC because the Soviet Union planned to veto it in the Security Council. Still, it remained official American policy until 1953, when President Eisenhower made his "Atoms for Peace" proposal before the U.N. General Assembly.

Eisenhower's proposal led eventually to the creation of the International Atomic Energy Agency (IAEA) in 1957. Under the "Atoms for Peace" program thousands of scientists from around the world were educated in nuclear science and then dispatched home, where many later pursued secret weapons programs in their home country.

Efforts to conclude an international agreement to limit the spread of nuclear weapons did not begin until the early 1960s, after four nations (the United States, the Soviet Union, Britain and France) had acquired nuclear weapons.

Although these efforts stalled in the early 1960s, they renewed once again in 1964, after China detonated

a nuclear weapon. In 1968, governments represented at the Eighteen Nation Disarmament Committee (ENDC) finished negotiations on the text of the NPT.

In June 1968, the U.N. General Assembly endorsed the NPT with General Assembly Resolution 2373 (XXII), and in July 1968, the NPT opened for signature in Washington, DC, London and Moscow. The NPT entered into force in March 1970.

Since the mid-1970s, the primary focus of non-proliferation efforts has been to maintain, and even increase, international control over the fissile material and specialized technologies necessary to build such devices because these are the most difficult and expensive parts of a nuclear weapons program.

The main materials whose generation and distribution is controlled are highly enriched uranium and plutonium. Other than the acquisition of these special materials, the scientific and technical means for weapons construction to develop rudimentary, but working, nuclear explosive devices are considered to be within the reach of industrialized nations.

Since its founding by the United Nations in 1957, the International Atomic Energy Agency (IAEA) has promoted two, sometimes contradictory, missions: on the one hand, the Agency seeks to promote and spread internationally the use of civilian nuclear energy; on the other hand, it seeks to prevent, or at least detect, the diversion of civilian nuclear energy to nuclear weapons, nuclear explosive devices or purposes unknown.

The IAEA now operates a safeguards system as specified under Article III of the Nuclear Non-Proliferation Treaty (NPT) of 1968, which aims to ensure that civil stocks of uranium, plutonium, as well as facilities and technologies associated with these nuclear materials, are used only for peaceful purposes and do not contribute in any way to proliferation or nuclear weapons programs.

## Dual use technology

Dual use technology refers to the possibility of military use of civilian nuclear power technology.

The enriched uranium used in most nuclear reactors is not concentrated enough to build a bomb. Most nuclear reactors run on 4% enriched uranium; Little Boy used 80% enriched uranium; while lower enrichment levels could be used, the minimum bomb size would rapidly become unfeasibly large as the level was decreased. However, the same plants and technology used to enrich uranium for power generation can be used to make the highly enriched uranium needed to build a bomb.

In addition, the plutonium produced in power reactors, if separated from spent fuel through chemical reprocessing (much less technically challenging than isotopic separation), can be used for a bomb. While the plutonium resulting from normal reactor fueling cycles is less than ideal for weapons use because of the concentration of Pu-240, a usable weapon can be produced from it.

If the reactor is operated on very short fueling cycles, bomb-grade plutonium can be produced. However, such operation would be virtually impossible to camouflage in many reactor designs, as the frequent shutdowns for refueling would be obvious, for instance in satellite photographs.

Fast breeder reactors require reprocessing, generate more plutonium than they consume (and more than non-breeders), and can produce better than weapons-grade plutonium. New technology for breeder reactors, like SSTAR, may lessen the risk of nuclear proliferation by providing sealed reactors with a limited self-contained fuel supply that could be remotely shut down in case of tampering.

## International cooperation

### Nuclear Non-Proliferation Treaty

At present, 189 countries are States Parties to the Treaty on the Nonproliferation of Nuclear Weapons, more commonly known as the Nuclear Non-proliferation Treaty or NPT. These include the five Nuclear Weapons States (NWS) recognized by the NPT: the People's Republic of China, France, Russian Federation, the UK, and the United States.



Notable non-signatories to the NPT are Israel, Pakistan, and India (the latter two have since tested nuclear weapons, while Israel is considered by most to be an unacknowledged nuclear weapons state).

North Korea was once a signatory but withdrew in January 2003. The legality of North Korea's withdrawal is debatable but as of 9 October 2006, North Korea clearly possesses the capability to make a nuclear explosive device.

## International Atomic Energy Agency

The IAEA was established on 29 July 1957 to help nations develop nuclear energy for peaceful purposes. Allied to this role is the administration of safeguards arrangements to provide assurance to the international community that individual countries are honoring their commitments under the treaty. Though established under its own international treaty, the IAEA reports to both the United Nations General Assembly and the Security Council.

The IAEA regularly inspects civil nuclear facilities to verify the accuracy of documentation supplied to it. The agency checks inventories, and samples and analyzes materials. Safeguards are designed to deter diversion of nuclear material by increasing the risk of early detection. They are complemented by controls on the export of sensitive technology from countries such as UK and United States through voluntary bodies such as the Nuclear Suppliers Group.

The main concern of the IAEA is that uranium not be enriched beyond what is necessary for commercial civil plants, and that plutonium which is produced by nuclear reactors not be refined into a form that would be suitable for bomb production.

## Scope of safeguards

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 safeguard 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 inspections act as an alert system providing a warning of the possible diversion of nuclear material from peaceful activities. The system relies on;

1. **Material Accountancy** - 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, and review and verification of operating records.
2. **Physical Security** - restricting access to nuclear materials at the site.
3. **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.

While traditional safeguards easily verified the correctness of formal declarations by suspect states, in the 1990s attention turned to what might not have been declared. While accepting safeguards at declared facilities, Iraq had set up elaborate equipment elsewhere in an attempt to enrich uranium to weapons grade.

North Korea attempted to use research reactors (not commercial electricity-generating reactors) and a reprocessing plant to produce some weapons-grade plutonium.

The weakness of the NPT regime lay in the fact that no obvious diversion of material was involved. The uranium used as fuel probably came from indigenous sources, and the nuclear facilities were built by the countries themselves without being declared or placed under safeguards. Iraq, as an NPT party, was obliged to declare all facilities but did not do so.

Nevertheless, the activities were detected and brought under control using international diplomacy. In Iraq, a military defeat assisted this process.

In North Korea, the activities concerned took place before the conclusion of its NPT safeguards agreement. With North Korea, the promised provision of commercial power reactors appeared to resolve the situation for a time, but it later withdrew from the NPT and declared it had nuclear weapons.

## Additional Protocol

In 1993 a program was initiated to strengthen and extend the classical safeguards system, and a model protocol was agreed by the IAEA Board of Governors 1997. The measures boosted the IAEA's ability to detect undeclared nuclear activities, including those with no connection to the civil fuel cycle.

Innovations were of two kinds. Some could be implemented on the basis of IAEA's existing legal authority through safeguards agreements and inspections. Others required further legal authority to be con-

ferred through an Additional Protocol.

This must be agreed by each non-weapons state with IAEA, as a supplement to any existing comprehensive safeguards agreement. Weapons states have agreed to accept the principles of the model additional protocol.

Key elements of the model Additional Protocol: The IAEA is to be given considerably more information on nuclear and nuclear-related activities, including R & D, production of uranium and thorium (regardless of whether it is traded), and nuclear-related imports and exports.

IAEA inspectors will have greater rights of access. This will include any suspect location, it can be at short notice (e.g., two hours), and the IAEA can deploy environmental sampling and remote monitoring techniques to detect illicit activities.

States must streamline administrative procedures so that IAEA inspectors get automatic visa renewal and can communicate more readily with IAEA headquarters.

Further evolution of safeguards is towards evaluation of each state, taking account of its particular situation and the kind of nuclear materials it has. This will involve greater judgement on the part of IAEA and the development of effective methodologies which reassure NPT States.

As of 9 October 2008, 127 countries have signed Additional protocols, and 88 have brought them into force. The IAEA is also applying the measures of the Additional Protocol in Taiwan. Among the leading countries that have not signed the Additional Protocol are Egypt, which says it will not sign until Israel accepts comprehensive IAEA safeguards, and Brazil, which opposes making the protocol a requirement for international cooperation on enrichment and reprocessing, but has not ruled out signing.

## Limitations of Safeguards

The greatest risk from nuclear weapons proliferation comes from countries which have not joined the NPT and which have significant unsafeguarded nuclear activities; India, Pakistan, and Israel fall within 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 of these agreements. If a nuclear-capable country does leave the NPT, it is likely to be reported by the IAEA to the UN Security Council, just as if it were in breach of its safeguards agreement. Trade sanctions would then be 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.

## Other developments

The Nuclear Suppliers Group communicated its guidelines, essentially a set of export rules, to the IAEA in 1978. These were to ensure that transfers of nuclear material or equipment would not be di-

verted to unsafeguarded nuclear fuel cycle or nuclear explosive activities, and formal government assurances to this effect were required from recipients.

The Guidelines also recognised the need for physical protection measures in the transfer of sensitive facilities, technology and weapons-usable materials, and strengthened retransfer provisions. The group began with seven members – the United States, the former USSR, the UK, France, Germany, Canada and Japan – but now includes 46 countries including all five nuclear weapons states.

According to Kenneth D. Bergeron's *Tritium on Ice: The Dangerous New Alliance of Nuclear Weapons and Nuclear Power*, tritium is not classified as a 'special nuclear material' but rather as a 'by-product'. It is seen as an important litmus test on the seriousness of the United States' intention to nuclear disarm.

This radioactive super-heavy hydrogen isotope is used to boost the efficiency of fissile materials in nuclear weapons. The United States resumed tritium production in 2003 for the first time in 15 years. This could indicate that there is a potential nuclear arm stockpile replacement since the isotope naturally decays.

In May 1995, NPT parties reaffirmed their commitment to a Fissile Materials Cut-off Treaty to prohibit the production of any further fissile material for weapons. This aims to complement the Comprehensive Test Ban Treaty of 1996 and to codify commitments made by the United States, the UK, France and Russia to cease production of weapons material, 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.

On 9 August 2005, Ayatollah Ali Khamenei issued a fatwa forbidding the production, stockpiling and use of nuclear weapons. Khamenei's official statement was made at the meeting of the International Atomic Energy Agency (IAEA) in Vienna. As of February 2006 Iran formally announced that ura-

mium enrichment within their borders has continued. Iran claims it is for peaceful purposes but the United Kingdom, France, Germany, and the United States claim the purpose is for nuclear weapons research and construction.

## Unsanctioned Nuclear Activity

### Non-signatory States

India, Pakistan and Israel have been "threshold" countries in terms of the international non-proliferation regime. They possess or are quickly capable of assembling one or more nuclear weapons. They have remained outside the 1970 NPT. They are thus largely excluded from trade in nuclear plant or materials, except for safety-related devices for a few safeguarded facilities.

In May 1998 India and Pakistan each exploded several nuclear devices underground. This heightened concerns regarding an arms race between them, with Pakistan involving the People's Republic of China, an acknowledged nuclear weapons state. Both countries are opposed to the NPT as it stands, and India has consistently attacked the Treaty since its inception in 1970 labeling it as a lopsided treaty in favor of the nuclear powers.

Relations between the two countries are tense and hostile, and the risks of nuclear conflict between them have long been considered quite high. Kashmir is a prime cause of bilateral tension, its sovereignty being in dispute since 1948. There is persistent low level military conflict due to Pakistan backing an insurgency there and the disputed status of Kashmir.

Both engaged in a conventional arms race in the 1980s, including sophisticated technology and equipment capable of delivering nuclear weapons. In the 1990s the arms race quickened. In 1994 India reversed a four-year trend of reduced allocations for defence, and despite its much smaller economy, Pakistan was expected to push its own expenditures yet higher.

Both have lost their patrons: India, the former USSR, and Pakistan, the United States.

But it is the growth and modernization of China's nuclear arsenal and its assistance with Pakistan's nuclear power programme and, reportedly, with missile technology, which exacerbate Indian concerns. In particular, Pakistan is aided by China's People's Liberation Army, which operates somewhat autonomously within that country as an exporter of military material.

## India

Nuclear power for civil use is well established in India. Its civil nuclear strategy has been directed towards complete independence in the nuclear fuel cycle, necessary because of its outspoken rejection of the NPT.

This self-sufficiency extends from uranium exploration and mining through fuel fabrication, heavy water production, reactor design and construction, to reprocessing and waste management. It has a small fast breeder reactor and is planning a much larger one. It is also developing technology to utilise its abundant resources of thorium as a nuclear fuel.

India has 14 small nuclear power reactors in commercial operation, two larger ones under construction, and ten more planned. The 14 operating ones (2548 MWe total) comprise:

Two 150 MWe BWRs from the United States, which started up in 1969, now use locally-enriched uranium and are under safeguards,

Two small Canadian PHWRs (1972 & 1980), also under safeguards, and

Ten local PHWRs based on Canadian designs, two of 150 and eight 200 MWe.

Two new 540 MWe and two 700 MWe plants at tarapore (known as TAPP :Tarapore Atomic Power Project)



The two under construction and two of the planned ones are 450 MWe versions of these 200 MWe domestic products. Construction has been seriously delayed by financial and technical problems.

In 2001 a final agreement was signed with Russia for the country's first large nuclear power plant, comprising two VVER-1000 reactors, under a Russian-financed US\$3 billion contract. The first unit is due to be commissioned in 2007. A further two Russian units are under consideration for the site.

Nuclear power supplied 3.1% of India's electricity in 2000 and this was expected to reach 10% by 2005. Its industry is largely without IAEA safeguards, though a few plants (see above) are under facility-specific safeguards. As a result India's nuclear power programme proceeds largely without fuel or technological assistance from other countries.

Its weapons material appears to come from a Canadian-designed 40MW "research" reactor which started up in 1960, well before the NPT, and a 100MW indigenous unit in operation since 1985. Both use local uranium, as India does not import any nuclear fuel. It is estimated that India may have built up enough weapons-grade plutonium for a hundred nuclear warheads.

It is widely believed that the nuclear programs of India and Pakistan used CANDU reactors to produce fissionable materials for their weapons; however, this is not accurate. Both Canada (by supplying the 40 MW research reactor) and the United States (by supplying 21 tons of heavy water) supplied India with the technology necessary to create a nuclear weapons program, dubbed CIRUS (Canada-India Reactor, United States). Canada sold India the reactor on the condition that the reactor and any by-products would be "employed for peaceful purposes only."

Similarly, the United States sold India heavy water for use in the reactor "only... in connection with research into and the use of atomic energy for peaceful purposes". India, in violation of these agreements, used the Canadian-supplied reactor and American-

supplied heavy water to produce plutonium for their first nuclear explosion, Smiling Buddha. The Indian government controversially justified this, however, by claiming that Smiling Buddha was a "peaceful nuclear explosion."

The country has at least three other research reactors including the tiny one which is exploring the use of thorium as a nuclear fuel, by breeding fissile U-233. In addition, an advanced heavy-water thorium cycle is under development.

India exploded a nuclear device in 1974, the so-called Smiling Buddha test, which it has consistently claimed was for peaceful purposes. Others saw it as a response to China's nuclear weapons capability. It was then universally perceived, notwithstanding official denials, to possess, or to be able to quickly assemble, nuclear weapons. In 1997 it deployed its own medium-range missile and is now developing a long-range missile capable of reaching targets in China's industrial heartland.

In 1995 the United States quietly intervened to head off a proposed nuclear test. However, in 1998 there were five more tests in Operation Shakti. These were unambiguously military, including one claimed to be of a sophisticated thermonuclear device, and their declared purpose was "to help in the design of nuclear weapons of different yields and different delivery systems".

Indian security policies are driven by:

Its determination to be recognized as a dominant power in the region

Its increasing concern with China's expanding nuclear weapons and missile delivery programmes

Its concern with Pakistan's capability to deliver nuclear weapons deep into India

It perceives nuclear weapons as a cost-effective political counter to China's nuclear and conventional weaponry, and the effects of its nuclear weapons policy in provoking Pakistan is, by some accounts, considered incidental.

India has had an unhappy relationship with China. After an uneasy ceasefire ended the 1962 war, relations between the two nations were frozen until 1998. Since then a degree of high-level contact has been established and a few elementary confidence-building measures put in place. China still occupies some territory which it captured during the aforementioned war, claimed by India, and India still occupies some territory claimed by China. Its nuclear weapon and missile support for Pakistan is a major bone of contention.

American President George W. Bush met with India Prime Minister Manmohan Singh to discuss India's involvement with nuclear weapons. The two countries agreed that the United States would give nuclear power assistance to India.

## Pakistan

Pakistan is believed to have produced the material for its weapons using Chinese help.

In Pakistan, nuclear power supplies only 1.7% of the country's electricity. It has one small (125 MWe) Canadian PHWR nuclear power reactor from 1971 which is under international safeguards, and a 300 MWe PWR supplied by China under safeguards, which started up in May 2000. A third one, a Chinese PWR, is planned. Enriched fuel for the PWRs will be imported from China.

It also has a 9 MW research reactor of 1965 vintage, and there are persistent reports of another "multipurpose" reactor, a 50 MW PHWR near Khushab, which is presumed to have potential for producing weapons plutonium.

Pakistan's concentration is on weapons technology, particularly the production of highly enriched uranium suitable for nuclear weapons, utilising indigenous uranium. It has at least one small centrifuge enrichment plant. In 1990 the U.S. Administration cut off aid because it was unable to certify that Pakistan was not pursuing a policy of manufacturing nuclear weapons.

This was relaxed late in 2001. In 1996 the United States froze export loans to China because it was allegedly supplying centrifuge enrichment technology to Pakistan. Indian opinion is in no doubt about Pakistan's nuclear weapons capability.

Pakistan has made it clear since early 1996 that it had done the basic development work, and that if India staged a nuclear test, Pakistan would immediately start assembling its own nuclear explosive device. It is assumed to now have enough highly-enriched uranium for up to forty nuclear warheads.

In April 1998 Pakistan test fired a long-range missile capable of reaching Chennai in southern India, pushing home the point by naming it after a 12th century Muslim conqueror. This development removed India's main military advantage over Pakistan. Pakistan's security concerns derive from India's possession of a nuclear weapons capability.

In May 1998 Pakistan announced that they had conducted six underground tests in the Chagai Hills, five on the 28th and one on the 30th of that month. Seismic events consistent with these claims were recorded.

## Pakistan-North Korea Nuclear Proliferation and Missile Cooperation

Pakistan and North Korea's efforts to acquire nuclear weapons have had some similarities. Both countries first attempted the plutonium route to acquire such weapons and, when this was thwarted, turned towards uranium enrichment.

## Pakistan

In the 1970s, Pakistan first focused on the plutonium route. They expected to obtain the fissile material from a reprocessing plant provided by France. This plan failed due to U.S. intervention. Pakistan, not wanting to give up, redoubled its efforts to obtain uranium enrichment technology. The main ef-

forts towards this direction were done under Dr. Abdul Qadeer Khan.

Dr. Khan had earlier worked with Fysisch Dynamisch Onderzoekslaboratorium (FDO). FDO was a subsidiary of the Dutch firm VMF-Stork based in Amsterdam. From 1972 to 1975 Dr. Khan had access to classified data used to enrich ordinary uranium to weapons grade concentrations. FDO was working on the development of ultra high-speed centrifuges for URENCO.

In 1974 while he was on secondment for 17 days as a translator to the URENCO plant in Almelo, he obtained photographs and documents of the plant. Dr. Khan returned to Pakistan in 1976 and initiated the Uranium enrichment program on the basis of the technology he had stolen from his previous employer. Dr. Khan relied on nuclear technology supplied by American, Canadian, Swiss, German, Dutch, British, Japanese and Russian companies.

Dr. Khan said of the assistance he got from the Japanese, "Next month the Japanese would come here and all the work would be done under their supervision." After the British Government stopped the British subsidiary of the American Emerson Electric Co from shipping the nuclear technology to Pakistan, Dr. Khan describes his frustration with a supplier from Germany as "That man from the German team was unethical. When he did not get the order from us, he wrote a letter to a Labour Party member and questions were asked in [British] Parliament."

His efforts made Dr. Khan into a national hero. In 1981, as a tribute, the president of Pakistan, General Muhammad Zia-ul-Haq, renamed the enrichment plant the A. Q. Khan Research Laboratories.

In 2003, IAEA unearthed a nuclear black market with close ties to Pakistan. It was widely believed to have direct involvement of the government of Pakistan. This claim could not be verified due to the refusal of the government of Pakistan to allow IAEA to interview the alleged head of the nuclear black market, who happened to be no other than Dr. Khan.

Dr. Khan later confessed to his crimes on national television, bailing out the government by taking full responsibility. He confessed to nuclear proliferation from Pakistan to Iran and North Korea. He was immediately given presidential immunity. Exact nature of the involvement at the governmental level is still unclear, but the manner in which the government acted cast doubt on the sincerity of Pakistan.

## North Korea

North Korea joined the NPT in 1985 and had subsequently signed a safeguards agreement with the IAEA. However it was believed that North Korea was diverting plutonium extracted from the fuel of its reactor at Yongbyon, for use in nuclear weapons. The subsequent confrontation with IAEA on the issue of inspections and suspected violations, resulted in North Korea threatening to withdraw from the NPT in 1993.

This led to negotiations with the United States resulting in the Agreed Framework of 1994, which provided for IAEA safeguards being applied to its reactors and spent fuel rods. These spent fuel rods were sealed in canisters by the United States to prevent North Korea from extracting plutonium from them. North Korea had to therefore freeze its plutonium programme.

During this period Pakistan-North Korea cooperation in missile technology transfer was being established. A high level Pakistani military delegation visited North Korea in August-September 1992, reportedly to discuss the supply of Scud missile technology to Pakistan. In 1993, PM Benazir Bhutto traveled to China and North Korea. The visits are believed to be related to the subsequent acquisition of Ghauri (North Korean No-dong) missiles by Pakistan.

During the period 1992-1994, A.Q. Khan was reported to have visited North Korea thirteen times. The missile cooperation program with North Korea was under Dr. A. Q. Khan's Kahuta Research Laboratories. At this time China was under U.S.

pressure not to supply the M series of missiles to Pakistan. This forced the latter (possibly with Chinese connivance) to approach North Korea for missile transfers. Reports indicate that North Korea was willing to supply missile sub-systems including rocket motors, inertial guidance systems, control and testing equipment of Scud SSMs for US\$ 50 million.

It is not clear what North Korea got in return. Joseph S. Bermudez Jr. in *Jane's Defence Weekly* (27 November 2002) reports that Western analysts had begun to question what North Korea received in payment for the missiles; many suspected it was nuclear technology and components. Khan's KRL was in charge of both Pakistan's uranium enrichment program and also of the missile program with North Korea.

It is therefore likely during this period that cooperation in nuclear technology between Pakistan and North Korea was initiated. Western intelligence agencies began to notice exchange of personnel, technology and components between KRL and entities of the North Korean 2nd Economic Committee (responsible for weapons production).

A New York Times report on 18 October 2002 quoted U.S. intelligence officials having stated that Pakistan was a major supplier of critical equipment to North Korea. The report added that equipment such as gas centrifuges appeared to have been "part of a barter deal" in which North Korea supplied Pakistan with missiles.

Separate reports indicate (*Washington Times*, 22 November 2002) that U.S. intelligence had as early as 1999 picked up signs that North Korea was continuing to develop nuclear arms. Other reports also indicate that North Korea had been working covertly to develop an enrichment capability for nuclear weapons for at least five years and had used technology obtained from Pakistan (*Washington Times*, 18 October 2002).

## Nuclear arms control in the region

The public stance of the two states on non-proliferation differs markedly. Pakistan appears to have dominated a continuing propaganda debate.

Pakistan has initiated a series of regional security proposals. It has repeatedly proposed a nuclear free zone in South Asia and has proclaimed its willingness to engage in nuclear disarmament and to sign the Non-Proliferation Treaty if India would do so. It has endorsed a United States proposal for a regional five power conference to consider non-proliferation in South Asia.

India has taken the view that solutions to regional security issues should be found at the international rather than the regional level, since its chief concern is with China. It therefore rejects Pakistan's proposals.

Instead, the 'Gandhi Plan', put forward in 1988, proposed the revision of the Non-Proliferation Treaty, which it regards as inherently discriminatory in favor of the nuclear-weapon States, and a timetable for complete nuclear weapons disarmament. It endorsed early proposals for a Comprehensive Test Ban Treaty and for an international convention to ban the production of highly enriched uranium and plutonium for weapons purposes, known as the 'cut-off' convention.

The United States for some years, especially under the Clinton administration, pursued a variety of initiatives to persuade India and Pakistan to abandon their nuclear weapons programs and to accept comprehensive international safeguards on all their nuclear activities. To this end, the Clinton administration proposed a conference of the five nuclear-weapon states, Japan, Germany, India and Pakistan.

India refused this and similar previous proposals, and countered with demands that other potential weapons states, such as Iran and North Korea, should be invited, and that regional limitations would only



be acceptable if they were accepted equally by China. The United States would not accept the participation of Iran and North Korea and these initiatives have lapsed.

Another, more recent approach, centers on 'capping' the production of fissile material for weapons purposes, which would hopefully be followed by 'roll back'. To this end, India and the United States jointly sponsored a UN General Assembly resolution in 1993 calling for negotiations for a 'cut-off' convention.

Should India and Pakistan join such a convention, they would have to agree to halt the production of fissile materials for weapons and to accept international verification on their relevant nuclear facilities (enrichment and reprocessing plants). It appears that India is now prepared to join negotiations regarding such a Cut-off Treaty, under the UN Conference on Disarmament.

Bilateral confidence-building measures between India and Pakistan to reduce the prospects of confrontation have been limited. In 1990 each side ratified a treaty not to attack the other's nuclear installations, and at the end of 1991 they provided one another with a list showing the location of all their nuclear plants, even though the respective lists were regarded as not being wholly accurate.

Early in 1994 India proposed a bilateral agreement for a 'no first use' of nuclear weapons and an extension of the 'no attack' treaty to cover civilian and industrial targets as well as nuclear installations.

Having promoted the Comprehensive Test Ban Treaty since 1954, India dropped its support in 1995 and in 1996 attempted to block the Treaty.

Following the 1998 tests the question has been reopened and both Pakistan and India have indicated their intention to sign the CTBT. Indian ratification may be conditional upon the five weapons states agreeing to specific reductions in nuclear arsenals. The UN Conference on Disarmament has also called upon both countries "to accede without delay to the

Non-Proliferation Treaty", presumably as non-weapons states.

## Israel

Israel is also thought to possess an arsenal of potentially up to several hundred nuclear warheads and associated delivery systems, but this has never been openly confirmed or denied.

An Israeli nuclear installation is located about ten kilometers to the south of Dimona, the Negev Nuclear Research Center. Its construction commenced in 1958, with French assistance.

The official reason given by the Israeli and French governments was to build a nuclear reactor to power a "desalination plant", in order to "green the Negev". The purpose of the Dimona plant is widely assumed to be the manufacturing of nuclear weapons, and the majority of defense experts have concluded that it does in fact do that. However, the Israeli government refuses to confirm or deny this publicly, a policy it refers to as "ambiguity".

Norway sold 20 tonnes of heavy water needed for the reactor to Israel in 1959 and 1960 in a secret deal. There were no "safeguards" required in this deal to prevent usage of the heavy water for non-peaceful purposes. The British newspaper Daily Express accused Israel of working on a bomb in 1960.

When the United States intelligence community discovered the purpose of the Dimona plant in the early 1960s, it demanded that Israel agree to international inspections. Israel agreed, but on a condition that U.S., rather than IAEA, inspectors were used, and that Israel would receive advanced notice of all inspections.

Some claim that because Israel knew the schedule of the inspectors' visits, it was able to hide the alleged purpose of the site from the inspectors by installing temporary false walls and other devices before each inspection. The inspectors eventually informed the U.S. government that their inspections were useless due to Israeli restrictions on what ar-

eas of the facility they could inspect. In 1969, the United States terminated the inspections.

In 1986, Mordechai Vanunu, a former technician at the Dimona plant, revealed to the media some evidence of Israel's nuclear program. Israeli agents arrested him from Italy, drugged him and transported him to Israel, and an Israeli court then tried him in secret on charges of treason and espionage, and sentenced him to eighteen years imprisonment. He was freed on 21 April 2004, but was severely limited by the Israeli government. He was arrested again on 11 November 2004, though formal charges were not immediately filed.

Comments on photographs taken by Mordechai Vanunu inside the Negev Nuclear Research Center have been made by prominent scientists. British nuclear weapons scientist Frank Barnaby, who questioned Vanunu over several days, estimated Israel had enough plutonium for about 150 weapons. Ted Taylor, a bomb designer employed by the United States of America has confirmed the several hundred warhead estimate based on Vanunu's photographs.

## Signatory states

### (Egypt)

In 2004 and 2005, Egypt disclosed past undeclared nuclear activities and material to the IAEA. In 2007 and 2008, high enriched and low enriched uranium particles were found in environmental samples taken in Egypt. In 2008, the IAEA states Egypt's statements were consistent with its own findings.[16] In May 2009, Reuters reported that the IAEA was conducting further investigation in Egypt.

### (Iran)

In 2003, the IAEA reported that Iran had been in breach of its obligations to comply with provisions of its safeguard agreement. In 2005, the IAEA Board of Governors voted in a rare non-consensus decision to find Iran in non-compliance with its NPT

Safeguards Agreement and to report that non-compliance to the UN Security Council. In response, the UN Security Council passed a series of resolutions in response to concerns about the program.

Iran's representative to the UN argues sanctions compel Iran to abandon its rights under the Nuclear Nonproliferation Treaty to peaceful nuclear technology. Iran says its uranium enrichment program is exclusively for peaceful purposes and has enriched uranium to "less than 5 percent," consistent with fuel for a nuclear power plant and significantly below the purity of WEU (around 90%) typically used in a weapons program.

The director general of the International Atomic Energy Agency, Yukiya Amano, said in 2009 he had not seen any evidence in IAEA official documents that Iran was developing nuclear weapons.

### (Iraq)

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 from those covered by safeguards, but it was assumed they would be detected by national intelligence activities. There was no particular effort by IAEA to attempt to detect them.

Iraq had been making efforts to secure a nuclear potential since the 1960s. In the late 1970s a specialised plant, Osiraq, was constructed near Baghdad. The plant was attacked during the Iran–Iraq War and was destroyed by Israeli bombers in June 1981.

Not until the 1990 NPT Review Conference did some states raise the possibility of making more use of (for example) provisions for "special inspections" in existing NPT Safeguards Agreements. Special inspections can be undertaken at locations other than those where safeguards routinely apply, if there is reason to believe there may be undeclared material or activities.

After 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 programme, as well as a nuclear weapons design programme.

The main thrust of Iraq's uranium enrichment program was the development of technology for electromagnetic isotope separation (EMIS) of indigenous uranium.

This uses the same principles as a mass spectrometer (albeit on a much larger scale). Ions of uranium-238 and uranium-235 are separated because they describe arcs of different radii when they move through a magnetic field. This process was used in the Manhattan Project to make the highly enriched uranium used in the Hiroshima bomb, but was abandoned soon afterwards.

The Iraqis did the basic research work at their nuclear research establishment at Tuwaitha, near Baghdad, and were building two full-scale facilities at Tarmiya and Ash Sharqat, north of Baghdad. However, when the war broke out, only a few separators had been installed at Tarmiya, and none at Ash Sharqat.

The Iraqis were also very interested in centrifuge enrichment, and had been able to acquire some components including some carbon-fibre rotors, which they were at an early stage of testing.

They were clearly in violation of their NPT and safeguards obligations, and the IAEA Board of Governors ruled to that effect. The UN Security Council then ordered the IAEA to remove, destroy or render harmless Iraq's nuclear weapons capability. This was done by mid 1998, but Iraq then ceased all cooperation with the UN, so the IAEA withdrew from this work.

The revelations from Iraq provided the impetus for a very far-reaching reconsideration of what safeguards are intended to achieve.

### (Myanmar)

A report in the Sydney Morning Herald and Searchina, a Japanese newspaper, report that two Myanmarese defectors saying that the Myanmar junta was secretly building a nuclear reactor and plutonium extraction facility with North Korea's help, with the aim of acquiring its first nuclear bomb in five years. According to the report, "The secret complex, much of it in caves tunnelled into a mountain at Naung Laing in northern Burma, runs parallel to a civilian reactor being built at another site by Russia that both the Russians and Burmese say will be put under international safeguards."

In 2002, Myanmar had notified IAEA of its intention to pursue a civilian nuclear programme. Later, Russia announced that it would build a nuclear reactor in Myanmar. There have also been reports that two Pakistani scientists, from the AQ Khan stable, had been dispatched to Myanmar where they had settled down, to help Myanmar's project.

Recently, the David Albright-led Institute for Science and International Security rang alarm bells about Myanmar attempting a nuclear project with North Korean help.

If true, the full weight of international pressure will be brought against Myanmar, said officials familiar with developments. But equally, the information that has been peddled by the defectors is also "preliminary" and could be used by the west to turn the screws on Myanmar—on democracy and human rights issues—in the run-up to the elections in the country in 2010.

During an ASEAN meeting in Thailand in July 2009, US secretary of state Hillary Clinton highlighted concerns of the North Korean link. "We know there are also growing concerns about military cooperation between North Korea and Burma which we take very seriously," Clinton said.

## (North Korea)

The Democratic People's Republic of Korea (DPRK) acceded to the NPT in 1985 as a condition for the supply of a nuclear power station by the 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, it brought into operation a small gas-cooled, graphite-moderated, natural-uranium (metal) fuelled "Experimental Power Reactor" of about 25 MWt (5 MWe), based on the UK Magnox design. While this was a well-suited design to start a wholly indigenous nuclear reactor development, it also exhibited all the features of a small plutonium production reactor for weapons purposes.

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), and a full-scale version of about 800 MWt (200 MWe). They made only slow progress; construction halted on both in 1994 and has not resumed. Both reactors have degraded considerably since that time and would take significant efforts to refurbish.

In addition it completed and commissioned a reprocessing plant that makes the Magnox spent nuclear fuel safe, recovering uranium and plutonium. That plutonium, if the fuel was only irradiated to a 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 and use the plutonium for weapons.

One of the first steps in applying NPT safeguards is for the IAEA to verify the initial stocks of uranium and plutonium to ensure that all the nuclear materials in the country have been declared for safeguards purposes.

While undertaking this work in 1992, IAEA inspectors found discrepancies which indicated that the

reprocessing plant had been used more often than the DPRK had declared, which 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 by the IAEA) 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 have remained under close surveillance.

Following bilateral negotiations between the United States and the DPRK, 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 remains uncooperative with the IAEA verification work and has yet to comply with its safeguards agreement.



While Iraq was defeated in a war, allowing the UN the opportunity to seek out and destroy its nuclear weapons programme as part of the cease-fire conditions, the DPRK was not defeated, nor was it vulnerable to other measures, such as trade sanctions. It can scarcely afford to import anything, and sanctions on vital commodities, such as oil, would either be ineffective or risk provoking war.

Ultimately, the DPRK was persuaded to stop what appeared to be its nuclear weapons programme in exchange, under the agreed framework, for about US\$5 billion in energy-related assistance. This included two 1000 MWe light water nuclear power reactors based on an advanced U.S. System-80 design.

In January 2003 the DPRK withdrew from the NPT. In response, a series of discussions among the DPRK, the United States, and China, a series of six-party talks (the parties being the DPRK, the ROK, China, Japan, the United States and Russia) were held in Beijing; the first beginning in April 2004 concerning North Korea's weapons program.

On 10 January 2005, North Korea declared that it was in the possession of nuclear weapons. On 19 September 2005, the fourth round of the Six-Party Talks ended with a joint statement in which North Korea agreed to end its nuclear programs and return to the NPT in exchange for diplomatic, energy and economic assistance.

However, by the end of 2005 the DPRK had halted all six-party talks because the United States froze certain DPRK international financial assets such as those in a bank in Macau. On 9 October 2006, North Korea announced that it has performed its first-ever nuclear weapon test. On 18 December 2006, the six-party talks finally resumed.

On 13 February 2007, the parties announced "Initial Actions" to implement the 2005 joint statement including shutdown and disablement of North Korean nuclear facilities in exchange for energy assistance. Reacting to UN sanctions imposed after missile tests in April 2009, North Korea withdrew from

the six-party talks, restarted its nuclear facilities and conducted a second nuclear test on 25 May 2009.

### (Russia)

Security of nuclear weapons in Russia remains a matter of concern. According to high-ranking Russian SVR defector Tretyakov, he had a meeting with two Russian businessmen representing a state-created Chetec corporation in 1991.

They came up with a project of destroying large quantities of chemical wastes collected from Western countries at the island of Novaya Zemlya (a test place for Soviet nuclear weapons) using an underground nuclear blast. The project was rejected by Canadian representatives, but one of the businessmen told Tretyakov that he keeps his own nuclear bomb at his dacha outside Moscow.

Tretyakov thought that man was insane, but the "businessmen" (Vladimir K. Dmitriev) replied: "Do not be so naive. With economic conditions the way they are in Russia today, anyone with enough money can buy a nuclear bomb. It's no big deal really".

### (South Africa)

In 1991, South Africa acceded to the NPT, concluded a comprehensive safeguards agreement with the IAEA, and submitted a report on its nuclear material subject to safeguards. At the time, the state had a nuclear power programme producing nearly 10% of the country's electricity, whereas Iraq and North Korea only had research reactors.

The IAEA's initial verification task was complicated by South Africa's announcement that between 1979 and 1989 it built and then dismantled a number of nuclear weapons. South Africa asked the IAEA to verify the conclusion of its weapons programme. In 1995 the IAEA declared that it was satisfied all materials were accounted for and the weapons programme had been terminated and dismantled.

South Africa has signed the NPT, and now holds the distinction of being the only known state to have

indigenously produced nuclear weapons, and then verifiably dismantled them.

### (Syria)

On September 6, 2007, Israel bombed an officially unidentified site in Syria which it later asserted was a nuclear reactor under construction (see Operation Orchard). The alleged reactor was not asserted to be operational and it was not asserted that nuclear material had been introduced into it. Syria said the site was a military site and was not involved in any nuclear activities.

The IAEA requested Syria to provide further access to the site and any other locations where the debris and equipment from the building had been stored. Syria denounced what it called the Western "fabrication and forging of facts" in regards to the incident.

IAEA Director General Mohamed ElBaradei criticized the strikes and deplored that information regarding the matter had not been shared with his agency earlier.

### United States cooperation on nuclear weapons with the United Kingdom

The United States has given the UK considerable assistance with nuclear weapon design and construction since the 1958 US-UK Mutual Defence Agreement. In 1974 a CIA proliferation assessment noted that "In many cases [Britain's sensitive technology in nuclear and missile fields] is based on technology received from the United States and could not legitimately be passed on without U.S. permission."

The U.S. President authorized the transfer of "nuclear weapon parts" to the UK between at least the years 1975 to 1996. The UK National Audit Office noted that most of the UK Trident warhead development and production expenditure was incurred in the United States, which would supply "certain warhead-related components". Some of the fissile ma-

terials for the UK Trident warhead were purchased from the United States.

Declassified U.S. Department of Energy documents indicate the UK Trident warhead system was involved in non-nuclear design activities alongside the U.S. W76 nuclear warhead fitted in some U.S. Navy Trident missiles, leading the Federation of American Scientists to speculate that the UK warhead may share design information from the W76.

Under the Mutual Defence Agreement 5.37 tonnes of UK-produced plutonium was sent to the United States in return for 6.7 kg of tritium and 7.5 tonnes of highly enriched uranium over the period 1960-1979. A further 0.47 tonne of plutonium was swapped between the UK and United States for reasons that remain classified. Some of the UK produced plutonium was used in 1962 by the United States for a nuclear weapon test of reactor-grade plutonium.

The United States has supplied nuclear weapon delivery systems to support the UK nuclear forces since before the signing of the NPT. The renewal of this agreement is due to take place through the second decade of the 21st century.

## Arguments in favour of proliferation

There has been much debate in the academic study of International Security as to the advisability of proliferation. In the late 1950s and early 1960s, Gen. Pierre Marie Gallois of France, an adviser to Charles DeGaulle, argued in books like *The Balance of Terror*:

Strategy for the Nuclear Age (1961) that mere possession of a nuclear arsenal, what the French called the *force de frappe*, was enough to ensure deterrence, and thus concluded that the spread of nuclear weapons could increase international stability.

Some very prominent neo-realist scholars, such as Kenneth Waltz, Emeritus Professor of Political Science at UC Berkeley and Adjunct Senior Research

Scholar at Columbia University, and John Mearsheimer, R. Wendell Harrison Distinguished Service Professor of Political Science at the University of Chicago, continue to argue along the lines of Gallois (though these scholars rarely acknowledge their intellectual debt to Gallois and his contemporaries).

Specifically, these scholars advocate some forms of nuclear proliferation, arguing that it will decrease the likelihood of war, especially in troubled regions of the world. Aside from the majority opinion which opposes proliferation in any form, there are two schools of thought on the matter: those, like Mearsheimer, who favor selective proliferation, and those such as Waltz, who advocate a laissez-faire attitude to programs like North Korea's.

## Total proliferation

In embryo, Waltz argues that the logic of mutually assured destruction (MAD) should work in all security environments, regardless of historical tensions or recent hostility. He sees the Cold War as the ultimate proof of MAD logic – the only occasion when enmity between two Great Powers did not result in military conflict.

This was, he argues, because nuclear weapons promote caution in decision-makers. Neither Washington nor Moscow would risk nuclear Armageddon to advance territorial or power goals, hence a peaceful stalemate ensued. Waltz believes there to be no reason why this effect would not occur in all circumstances.

## Selective proliferation

John Mearsheimer would not support Waltz's optimism in the majority of potential instances; however, he has argued for nuclear proliferation as policy in certain places, such as post-Cold War Europe. In two famous articles, Professor Mearsheimer opines that Europe is bound to return to its pre-Cold War environment of regular conflagration and suspicion at some point in the future. He advocates arming

both Germany and the Ukraine with nuclear weaponry in order to achieve a balance of power between these states in the east and France/Britain in the west. If this does not occur, he is certain that war will eventually break out on the European continent.

Another separate argument against Waltz's open proliferation and in favor of Mearsheimer's selective distribution is the possibility of nuclear terrorism. Some countries included in the aforementioned laissez-faire distribution could predispose the transfer of nuclear materials or a bomb falling into the hands of groups not affiliated with any governments.

Such countries would not have the political will or ability to safeguard attempts at devices being transferred to a third party. Not being deterred by self-annihilation, terrorism groups could push forth their own nuclear agendas or be used as shadow fronts to carry out the attack plans by mentioned unstable governments.

## Arguments against Both Positions

There are numerous arguments presented against both selective and total proliferation, generally targeting the very neorealist assumptions (such as the primacy of military security in state agendas, the weakness of international institutions, and the long-run unimportance of economic integration and globalization to state strategy) its proponents tend to make.

With respect to Mearsheimer's specific example of Europe, many economists and neoliberals argue that the economic integration of Europe through the development of the European Union has made war in most of the European continent so disastrous economically so as to serve as an effective deterrent.

Constructivists take this one step further, frequently arguing that the development of EU political institutions has led or will lead to the development of a nascent European identity, which most states on the European continent wish to partake in to some de-

gree or another, and which makes all states within or aspiring to be within the EU regard war between them as unthinkable.

As for Waltz, the general opinion is that most states are not in a position to safely guard against nuclear use, that he under-estimates the long-standing antipathy in many regions, and that weak states will be unable to prevent - or will actively provide for - the disastrous possibility of nuclear terrorism. Waltz has dealt with all of these objections at some point in his work; though to many, he has not adequately responded.

The Learning Channel documentary Doomsday: "On The Brink" illustrated 40 years of U.S. and Soviet nuclear weapons accidents. Even the 1995 Norwegian rocket incident demonstrated a potential scenario in which Russian democratization and military downsizing at the end of the Cold War did not eliminate the danger of accidental nuclear war through command and control errors.

After asking: might a future Russian ruler or renegade Russian general be tempted to use nuclear weapons to make foreign policy? the documentary writers revealed a greater danger of Russian security over its nuclear stocks, but especially the ultimate danger of human nature to want the ultimate weapon of mass destruction to exercise political and military power.

Future world leaders might not understand how close the Soviets, Russians, and Americans were to doomsday, how easy it all seemed because apocalypse was avoided for a mere 40 years between rivals, politicians not terrorists, who loved their children and did not want to die, against 30,000 years of human prehistory. History and military experts agree that proliferation can be slowed, but never stopped (technology cannot be uninvented).

## Proliferation begets proliferation

Proliferation begets proliferation is a concept described by Scott Sagan in his article, Why Do States Build Nuclear Weapons? This concept can be described as a strategic chain reaction. If one state produces a nuclear weapon it creates almost a domino effect within the region. States in the region will seek to acquire nuclear weapons to balance or eliminate the security threat.

Sagan describes this reaction best in his article when he states, "Every time one state develops nuclear weapons to balance against its main rival, it also creates a nuclear threat to another region, which then has to initiate its own nuclear weapons program to maintain its national security".

Going back through history we can see how this has taken place. When the United States demonstrated that it had nuclear power capabilities after the bombing of Hiroshima and Nagasaki, the Russians started to develop their program in preparation for the Cold War. With the Russian military buildup, France and Great Britain perceived this as a security threat and therefore they pursued nuclear weapons.

## Chemical Weapons Convention

The Chemical Weapons Convention (CWC) is an arms control agreement which outlaws the production, stockpiling and use of chemical weapons. Its full name is the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction.

The current agreement is administered by the Organisation for the Prohibition of Chemical Weapons (OPCW), which is an independent organization and often mistaken as being a department within the United Nations.



As of May 2009, 188 states are party to the CWC, and another two countries have signed but not yet ratified the convention.

## Administration

Intergovernmental consideration of a chemical and biological weapons ban was initiated in 1968 within the 18-nation Disarmament Committee, which, after numerous changes of name and composition, became the Conference on Disarmament (CD) in 1984.

On September 3, 1992 the Conference on Disarmament submitted to the U.N. General Assembly its annual report, which contained the text of the Chemical Weapons Convention, the full title of which is "Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction." The General Assembly approved the Convention on November 30, 1992, and The U.N. Secretary-General then opened the Convention for signature in Paris on January 13, 1993.

The CWC remained open for signature until its entry into force on April 29, 1997, 180 days after the deposit of the 65th instrument of ratification (by Hungary). The convention augments the Geneva Protocol of 1925 for chemical weapons and includes extensive verification measures such as on-site inspections. It does not, however, cover biological weapons. The convention is administered by the Organization for the Prohibition of Chemical Weapons (OPCW), which conducts inspection of military and industrial plants in all of the member nations as well as working with stockpile countries.

## Controlled substances

The convention distinguishes three classes of controlled substance, chemicals which can either be used as weapons themselves or used in the manufacture of weapons. The classification is based on the quantities of the substance produced commercially for legitimate purposes. Each class is split into Part A,

which are chemicals that can be used directly as weapons, and Part B which are chemicals useful in the manufacture of chemical weapons.

Schedule 1 chemicals have few, or no uses outside of chemical weapons. These may be produced or used for research, medical, pharmaceutical or chemical weapon defence testing purposes but production above 100 grams per year must be declared to the OPCW.

A country is limited to possessing a maximum of 1 tonne of these materials. Examples are mustard and nerve agents, and substances which are solely used as precursor chemicals in their manufacture. A few of these chemicals have very small scale non-military applications, for example minute quantities of nitrogen mustard are used to treat certain cancers.

Schedule 2 chemicals have legitimate small-scale applications. Manufacture must be declared and there are restrictions on export to countries which are not CWC signatories. An example is thiodiglycol which can be used in the manufacture of mustard agents, but is also used as a solvent in inks.

Schedule 3 chemicals have large-scale uses apart from chemical weapons. Plants which manufacture more than 30 tonnes per year must be declared and can be inspected, and there are restrictions on export to countries which are not CWC signatories. Examples of these substances are phosgene, which has been used as a chemical weapon but which is also a precursor in the manufacture of many legitimate organic compounds and triethanolamine, used in the manufacture of nitrogen mustard but also commonly used in toiletries and detergents.

The treaty also deals with carbon compounds called in the treaty Discrete organic chemicals. These are any carbon compounds apart from long chain polymers, oxides, sulfides and metal carbonates, such as organophosphates. The OPCW must be informed of, and can inspect, any plant producing (or expecting to produce) more than 200 tonnes per year, or 30 tonnes if the chemical contains phosphorus, sulfur or fluorine, unless the plant solely produces explosives or hydrocarbons.

## Timeline

The treaty set up several steps with deadlines toward complete destruction of chemical weapons, with a procedure for requesting deadline extensions. No country reached total elimination by the original treaty date although several have finished under allowed extensions.

## Member states

Almost all countries in the world have joined the Chemical Weapons Convention. Currently 188 of the 195 states recognized by the United Nations are party to the CWC. Of the seven states that are not, two have signed but not yet ratified the treaty (Burma and Israel) and five states have not signed the treaty (Angola, North Korea, Egypt, Somalia, and Syria).

Members states with declared stockpiles of chemical weapons

As of May 2009, there were four member countries which had declared stockpiles:

- è Iraq
- è Libya
- è Russia
- è United States

Iraq did not enter the treaty until February 2009, not declaring a weapons stockpile until April, apparently indicating the continuing presence of some chemical warfare remnants.

## World stockpile

The total world declared stockpile of chemical weapons was about 30,308 tons in early 2010. A total of 71,315 tonnes of agents, 8.67 million munitions and containers, and 70 production facilities were declared to OPCW before destruction activities began. Several countries that are not members are suspected of having chemical weapons, especially Syria and North Korea, while some member states (including Sudan and the People's Republic of China)

have been accused by others of failing to disclose their stockpiles.

## Current progress

By February 28, 2010, a total of 40,886 metric tons or 57.4% of all declared chemical weapons had been destroyed including all Class 3 declared chemicals. More than 45% (3.93 million) chemical munitions and containers have been destroyed. (Treaty confirmed destruction totals often lag behind state-declared totals.) Only about 50% of countries had passed the required legislation to outlaw participation in chemical weapons production.

**Albania:** On July 11, 2007, the OPCW confirmed the destruction of the entire chemical weapons stockpile in Albania. Albania is the first nation to completely destroy all of its chemical weapons under the terms of the CWC. The Albanian stockpile included 16,678 kilograms of mustard agent, lewisite, adamsite, and chloroacetophenone. The United States assisted with and funded the destruction operations.

**A State Party:** The unspecified "state party" had destroyed all of its stockpile by the end of 2008.

**India:** 100% of India's chemical weapons stockpile was destroyed by the end of April 2009.

**Iraq:** Iraq joined in CWC in 2009, declaring "two bunkers with filled and unfilled chemical weapons munitions, some precursors, as well as five former chemical weapons production facilities" according to OPCW Director General Rogelio Pfrter.

No plans were announced at that time for the destruction of the material, although it was noted that the bunkers were damaged in the 2003 war and even inspection of the site must be carefully planned. Most of Iraq's chemical weapons were previously destroyed under a United Nations reduction program after the 1991 Gulf War.

Approximately five hundred degraded chemical munitions have been found in Iraq since the 2003 invasion of Iraq, according to a report of the US

National Ground Intelligence Center. These weapons contained sarin and mustard agents but were so badly corroded that they could not have been used as originally intended.

**Libya:** Libya's entire chemical weapons stockpile is expected to be destroyed by 2011.

**U.S.A.:** The United States of America destroyed over 70% of its stockpiled agents (22,322 tons of the original 31,500 tons) as of 26 January, 2010 and over 2.3 million munitions. The U.S. had completed Phase III in June 2007, having destroyed over half of its stockpile.

By 2007, over 66% of the chemical weapons destroyed in the world since the treaty came into force were destroyed in the U.S. The United States General Accounting Office has announced it does not expect the United States to complete its campaign until 2014, after the treaty's final deadline. The Pentagon, in late 2006, announced that it expected disposal of the U.S. stockpile to not be completed until 2023.

**Russia:** Russia had destroyed around 18,000 metric tons, or 45%, of its chemical weapons stockpiles by the end of December 2009, passing phase III requirements. Russia had destroyed 24% by the end of 2007. Russia completed Phase II in 2007 and had received extensions on the remaining phases.

The United States General Accounting Office has announced it does not expect Russia to reach 100% destruction until 2027; however, Russia has declared its intention to complete operations by the treaty deadline of 2012.

## Stockpiles eliminated under the Convention

Albania's stockpile was eliminated in 2007. An undeclared "state party", (probably South Korea) eliminated its stockpile in late 2008. India's stockpile was completely eliminated in April 2009.

## Known production facilities (of chemical weapons)

Thirteen countries declared chemical weapons production facilities:

- è Bosnia and Herzegovina
- è China
- è France
- è India
- è Iran
- è Iraq
- è Japan
- è Libya
- è Russian Federation
- è Serbia
- è United Kingdom
- è United States

1 non-disclosed state party (referred to as "A State Party" in OPCW-communications)

By 2007, all 65 declared facilities had been deactivated and 94% (61) have been certified as destroyed or converted to civilian use. As of the end of February 2008, 42 facilities were destroyed while 19 were converted for civilian purposes.

In 2009, Iraq declared five production sites which were put out of commission by damage in the 1991 and 2003 wars; OPCW inspections were still required.

## Financing

Financial support for the Albanian and Libyan stockpile destruction programmes was provided by the United States. Russia received support from a number of nations, including the United States, the United Kingdom, Germany, the Netherlands, Italy and Canada; some \$2 billion given by 2004. Costs

for Albania's program were approximately 48 million U.S. dollars. The U.S. had spent \$20 billion and expected to spend a further \$40 billion.

## Biological Weapons Convention

The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (usually referred to as the Biological Weapons Convention, abbreviation: BWC, or Biological and Toxin Weapons Convention, abbreviation: BTWC) was the first multilateral disarmament treaty banning the production of an entire category of weapons.

It was the result of prolonged efforts by the international community to establish a new instrument that would supplement the 1925 Geneva Protocol.

The BWC was opened for signature on April 10, 1972 and entered into force March 26, 1975 when twenty-two governments had deposited their instruments of ratification. It currently commits the 162 states that are party to it to prohibit the development, production, and stockpiling of biological and toxin weapons.

However, the absence of any formal verification regime to monitor compliance has limited the effectiveness of the Convention. (As of July 2008, an additional 13 states have signed the BWC but have yet to ratify it)

The scope of the BWC's prohibition is defined in Article 1 (the so-called general purpose criterion). This includes all microbial and other biological agents or toxins and their means of delivery (with exceptions for medical and defensive purposes in small quantities).

Subsequent Review Conferences have reaffirmed that the general purpose criterion encompasses all future scientific and technological developments relevant to the Convention. It is not the objects themselves (biological agents or toxins), but rather cer-

tain purposes for which they may be employed which are prohibited; similar to Art.II, 1 in the Chemical Weapons Convention (CWC).

Permitted purposes under the BWC are defined as prophylactic, protective and other peaceful purposes. The objects may not be retained in quantities that have no justification or which are inconsistent with the permitted purposes.

As stated in Article 1 of the BWC: "Each State Party to this Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

- (1) Microbial or other biological agents, or toxins whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;
- (2) Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict."

## Summary

Article I: Never under any circumstances to acquire or retain biological weapons.

Article II: To destroy or divert to peaceful purposes biological weapons and associated resources prior to joining.

Article III: Not to transfer, or in any way assist, encourage or induce anyone else to acquire or retain biological weapons.

Article IV: To take any national measures necessary to implement the provisions of the BWC domestically.

Article V: To consult bilaterally and multilaterally to solve any problems with the implementation of the BWC.

Article VI: To request the UN Security Council to investigate alleged breaches of the BWC and to comply with its subsequent decisions.



**Article VII:** To assist States which have been exposed to a danger as a result of a violation of the BWC.

**Article X:** To do all of the above in a way that encourages the peaceful uses of biological science and technology.

## Membership

The Biological Weapons Convention has 162 States Parties and unofficially, the Republic of China (Taiwan).

Several countries have declared reservations, in that their agreement to the Treaty should not imply their complete satisfaction that the Treaty allows the stockpiling of biological agents and toxins for 'prophylactic, protective or other peaceful purposes', nor should the Treaty imply recognition of other countries they do not recognise.

## Review Conferences

A long process of negotiation to add a verification mechanism began in the 1990s. Previously, at the second Review Conference of State Parties in 1986 member states agreed to strengthen the treaty by reporting annually Confidence Building Measures (CBMs) to the United Nations. The following Review Conference in 1991 established a group of government experts (known as VEREX). Negotiations towards an internationally-binding verification protocol to the BWC took place between 1995 and 2001.

At the Fifth Review Conference in 2001 however, the Bush administration, after conducting a review of policy on biological weapons, decided that the proposed protocol did not suit the national interests of the United States.

The US claiming that it would interfere with legitimate commercial and biodefense activity unlike most arms control agreements, the BWC also applies to private parties. The Fifth Review Conference took place in November/December 2001, shortly after 9/11 and the anthrax scare.

It was decided to suspend the Fifth Review Conference and reconvene the following year. At the resumed conference it was agreed to establish annual meetings of state parties and experts who would look at specific issues, including:

**2003:** National mechanisms to establish and maintain the security and oversight of pathogenic micro-organisms and toxins.

**2004:** Enhancing international capabilities for responding to, investigating and mitigating the effects of cases of alleged use of biological or toxin weapons or suspicious outbreaks of disease.

**2004:** Strengthening and broadening the capabilities for international institutions to detect and respond to the outbreak of infectious diseases (including diseases affecting plants and animals).

**2005:** Codes of conduct for scientists.

## Fissile Material Cut-off Treaty

The Fissile Material Cutoff Treaty (FMCT) is a proposed international treaty to prohibit the further production of fissile material for nuclear weapons or other explosive devices. The treaty has not been negotiated and its terms remain to be defined. According to a proposal by the United States, fissile material includes high-enriched uranium and plutonium (except plutonium that is over 80% Pu-238).

According to a proposal by Russia, fissile material would be limited to weapons-grade uranium (with more than 90% U-235) and plutonium (with more than 90% Pu-239). Neither proposal would prohibit the production of fissile material for non-weapons purposes, including use in civil or naval nuclear reactors.

In a 27 September 1993 speech before the UN, President Clinton called for a multilateral convention banning the production of fissile materials for nuclear explosives or outside international safe-

guards. In December 1993 the UN General Assembly adopted resolution 48/75L calling for the negotiation of a "non-discriminatory, multilateral and international effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices."

The Geneva based Conference on Disarmament (CD) on 23 March 1995 agreed to establish a committee to negotiate "a non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.". However, substantive negotiations have not taken place.

In 2004, the United States announced that it opposed the inclusion of a verification mechanism in the treaty on the grounds that the treaty could not be effectively verified. On November 4, 2004, the United States cast the sole vote in the First Committee of the United Nations General Assembly against a resolution (A/C.1/59/L.34) calling for negotiation of an effectively verifiable treaty.

The Bush Administration supported a treaty but advocated an ad hoc system of verification wherein states would monitor the compliance of other states through their own national intelligence mechanisms.

On April 5, 2009, U.S. President Barack Obama reversed the U.S. position on verification and proposed to negotiate "a new treaty that verifiably ends the production of fissile materials intended for use in state nuclear weapons."

On May 29, 2009, the CD agreed to establish an FMCT negotiating committee. However, Pakistan blocked the CD from implementing its agreed program of work, despite severe pressure from the major nuclear powers to end its defiance of 64 other countries in blocking international ban on the production of new nuclear bomb-making material, as well as discussions on full nuclear disarmament, the arms race in outer space, and security assurances for non-nuclear states.

## Nuclear-weapon-free zone

A Nuclear-Weapons-Free Zone, or NWFZ is defined by the United Nations as an agreement which a group of states has freely established by treaty or convention, that bans the use, development, or deployment of nuclear weapons in a given area, that has mechanisms of verification and control to enforce its obligations, and that is recognized as such by the General Assembly of the United Nations.

NWFZs do not cover international waters (where there is freedom of the seas) or transit of nuclear missiles through space, as opposed to deployment that stations nuclear weapons in space. The NWFZ definition does not count countries or smaller regions that have outlawed nuclear weapons simply by their own law, like Austria with the Atomsperrgesetz in 1999; also, the 2+4 Treaty, at the end of the Cold War, banned nuclear weapons in the former East Germany, but was an agreement only among the four Allies and two German states.

NWFZs have a similar purpose to, but are distinct from, the Nuclear Non-Proliferation Treaty to which all countries except for four nuclear weapons states are party.

Today there are five zones covering continental or subcontinental groups of countries (including their territorial waters and airspace), one UN-recognized zone consisting of a single country, Mongolia, and three governing Antarctica, the seabed, and outer space which are not part of any state. The Antarctic, seabed, and space zones actually preceded most of the zones on national territories.

As of 15 July 2009 (2009-07-15)[update] when the African zone came into force, the six land zones cover 56% of the Earth's land area of 149 million square kilometers (less of the Earth's oceans above the seabed are covered since freedom of the seas restricts restrictions in international waters) and 60% of the 193 states on Earth, up from 34% and 30% the previous year; however only one third of the world's population lives in NWFZs, while the nine nuclear weapons states have 28% of world land area and 48% of world population.

NWFZs do cover most territories belonging to nuclear weapons states that are situated inside NWFZ boundaries; all are small islands except for French Guiana. However, the U.S. signed but has not ratified Protocol I to the Treaty of Rarotonga which would apply to American Samoa and the U.S. and Britain dispute the African NWFZ's applicability to Diego Garcia which is an American military base.

There have been NWFZ proposals for other regions where there are few or no nuclear weapons states: the Middle East (e.g. Nuclear program of Iran#Nuclear Free Zone in the Mideast), the Korean Peninsula, Central Europe, South Asia, and the Arctic.

## Boundaries

The Antarctic, Latin American, and South Pacific zones are defined by lines of latitude and longitude, except for the northwestern boundary of the South Pacific zone which follows the limit of Australian territorial waters, and these three zones form a contiguous area, though treaty provisions do not apply to international waters within that area.

In contrast, the Southeast Asian zone is defined as the territories of its members including their Exclusive Economic Zones, and the African zone is also defined as the countries and territories considered part of Africa by the OAU (now the African Union) which include islands close to Africa and Madagascar. An AU member, Mauritius, claims the British Indian Ocean Territory where Diego Garcia is currently a US military base.

## Geographical zones and NWFZs

Southern Hemisphere, High seas in blue. Because few prevailing winds cross the Equator, effects of nuclear explosions in the Northern Hemisphere might send less fallout to the Southern Hemisphere. (This fact was used in the book and film *On the Beach*, although there the Southern Hemisphere eventually succumbs as well.)

Together the five southern NWFZs cover the Southern Hemisphere except for the area north of the 60th parallel south, east of the 20th meridian west, and west of the 115th meridian east, but outside of African, Australian or Indonesian territorial waters.

There is less than 8000 km<sup>2</sup> of land in this area:

Addu, the southernmost of the atolls of the Maldives

Chagos Islands (British Indian Ocean Territory) including Diego Garcia (disputed by Mauritius)

Kerguelen, Crozet, Saint Paul and Amsterdam Islands, some of the French Southern Territories in the southern Indian Ocean

St. Helena and its dependencies Ascension Island and Tristan da Cunha, a British overseas territory in the South Atlantic

Bouvet Island, a Norwegian territory in the South Atlantic

In 1994 states of the South Atlantic Peace and Cooperation Zone issued a "Declaration on the Denuclearization of the South Atlantic" which the U.N. General Assembly endorsed but the U.S., U.K., and France still opposed.

## Tropics

The Latin American, African, South Pacific and Southeast Asian zones also cover most land in the tropics, but not some Northern Hemisphere areas south of the Tropic of Cancer. Most of their land area is in India and the Arabian Peninsula.

Little of the land area covered by the five southern Nuclear-Weapon-Free Zones extends north of the Tropic of Cancer: only northern Mexico, northern Bahamas, northern Myanmar, and North Africa. However, the Central Asian and Mongolian zones are entirely in the North Temperate Zone.

## Nuclear power and

## programs

Argentina, Brazil, Mexico, and South Africa, are the only countries in the zones using nuclear power for electricity, with two nuclear plants each. South Africa formerly had a nuclear weapons program which it terminated in 1994.

Argentina and Brazil are known to operate uranium enrichment facilities. Countries that had enrichment programs in the past include Libya and South Africa, although Libya's facility was never operational. Australia has announced its intention to pursue commercial enrichment, and is actively researching laser enrichment.

Another term, Nuclear-free zone, often means an area which has banned both nuclear power and nuclear weapons, and usually does not mean a UN-acknowledged international treaty.



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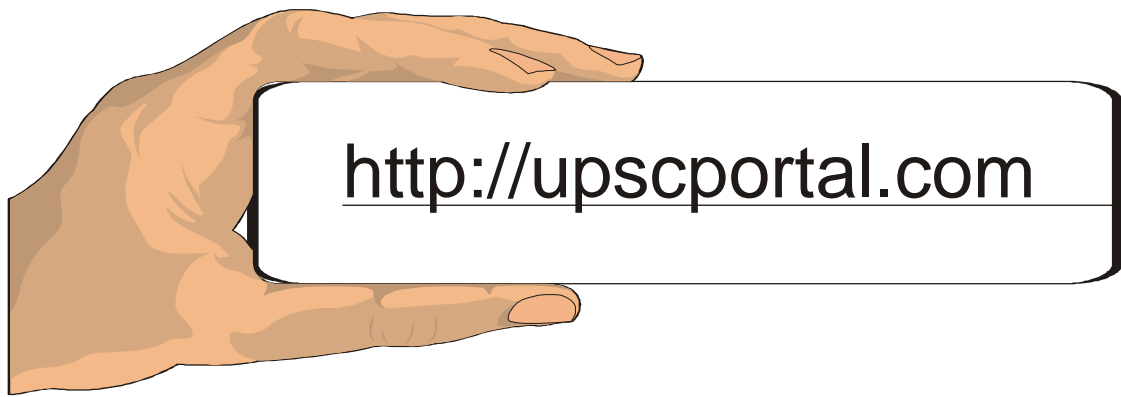
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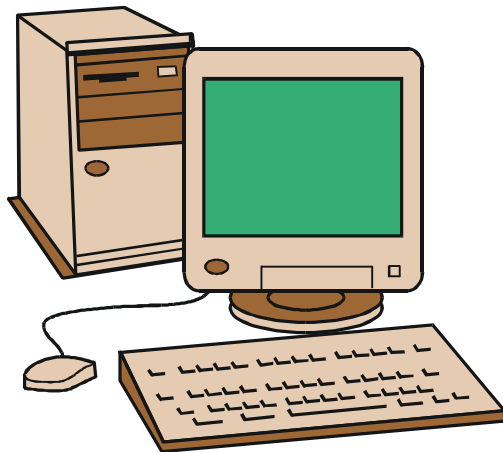
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