THE UNITED STATES AND START TREATY

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C E R T I F I C A T E

This dissertation entitled "THE UNITED STATES AND START TREATY" by Mr. A.S. James Hosannah for the Degree of Master of Philosophy is an original work and has not been previously submitted for any other Degree of this or any other University.

We recommend this dissertation to be placed before the examiners for evaluation.

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Union then, existing as a super power and a huge State. In that context, certainly START Treaty provide super powers strategic balance. The whole scenario had changed since the disintegration of the Soviet Union and emergence of Independent Republics united in a loose Federation called Commonwealth of Independent States (C.I.S.). The Soviet Union strategic missiles are now under the control of different Independent States with a larger number of strategic missiles located in the Russian Federation. The strategic missiles are also located at Ukraine, Kazakhistan, Uzbekhistan and Siberia. Under this scenario, the START Treaty appeared to have lost its relevance. The United States has emerged as the most powerful nuclear weapon state without having the compulsion to implement the limitations of the START Treaty. At the same time US and Western power are busy during the last one year suggesting plan to totally disarm, destroy or purchase of the erstwhile Soviet Union strategic weapons. Both credit and technological aid is offered as Carrot to entice the CIS to agree for disarming of the nuclear weapons. While this process is progressing the ratification of the START Treaty appears to have lost its relevance ever since the disintegration of the Soviet Union.

A C K N O W L E D G E M E N T S

After a long sympathetic study and discussions, this dissertation, entitled "The United States and START Treaty", under the supervision of Dr. Christopher S. Raj, have been able to finish within a short span of time. Without his cool and proper guidance, this work could not have been as it is in the form of today. So, first of all, big thanks to my supervisor.

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ABBREVIATIONS AND CONVENTIONS

ABM	-	Anti Ballistic Missile
ALCM	-	Air-launched Cruise Missile
BMD	-	Ballistic Missile Defence
FOFA	-	Follow-on Forces Attack
ICBM	-	Intercontinental Ballistic Missile
INF	-	Intermediate-range Nuclear Forces
MAD	-	Mutually Assured Destruction
MIRV	-	Multiple Independently Targetable Re-entry Vehicle
NATO	-	North Atlantic Treaty Organisation
NNSW	-	Non-Nuclear Strategic Weapons
NPT	-	Nuclear Proliferation Treaty
NTM	-	National Technical Means
PTBT	-	Partial Test Ban Treaty
SALT	-	Strategic Arms Limitation Talks
SDI	-	Strategic Defense Initiative
SLBM	-	Sea-Launched Ballistic Missile
SLCM	-	Sea-Launched Cruise Missile
SNDV	-	Strategic Nuclear Delivery Vehicle
SNF	-	Short-range Nuclear Forces
SOF	-	Strategic Offensive Force
SRAM	-	Short-range Attack Missile
START	-	Strategic Arms Reduction Talks
TTBT	-	Threshold Test Ban Treaty

P R E F A C E

The year 1972 and 1979 witnessed certain measures to control the nuclear arms race through the signing of SALT - I and SALT - II treaties between the US and the USSR. While SALT - I was ratified and arms control agreements implemented, the SALT - II was not ratified by the American Congress. Indeed, President Reagan's campaign speeches in 1980 included reasons for rejecting the SALT - II. The Reagan Administration, however, could not postpone the nuclear disarmament initiative, as the anti-nuclear campaign in Europe and the US had public support especially against the background of Euro-missile. Hence, the Reagan Administration came up with new formulation of seeking reduction of nuclear arms rather than the earlier objective of "limitation". Thus SALT was replaced by a new acronym START -- Strategic Arms Reduction Talks.

In his initial address on START in Eureka, Illinois, in 1982, President Reagan called for major reductions in US and Soviet strategic forces. After some hesitation, the idea of "deep cuts" was accepted by the Soviets in principle. At the 1985 Geneva "fireside Summit", the 1986 Raykjavik "mini-Summit" and the December 1987 Reagan-Gorbachev meeting in Washington, both sides agreed on 50 per cent reductions

in strategic forces and even on some specific numbers: launchers limit of 1,600; an overall warhead of 6,000; a ballistic missile warhead limit of 4,900; as well as an implicit ceiling on bombers, and air-launched cruise missiles (ALCMs) of 1,000.

The basic structure of the START agreement is similar to that of its unratified predecessor, the SALT - II treaty of 1979. An interlocking set of ceilings was intended in the case of START to reduce those weapons that the super powers might use to strike each other's territory in an all-out war. Essentially, these weapons are: intercontinental ballistic missiles (ICBMs), submarine-launched missiles (SLBMs) and long range bombers. The US objective of START had been to achieve not just a subtraction in the overall numbers of strategic arms, but preferential cuts in those systems that are most likely to be used to start a war. The presumption was that should the components of the two arsenals were reduced, automatically the danger of war itself would be reduced.

The START objectives certainly differed from SALT in certain specific count. The ultimate object of SALT was to reduce nuclear weapons. SALT only provided limits while it allowed, at the same time, a quantitative leap-frog in the nuclear weapons of the US and the USSR. The limitations of SALT are

reflective of the various shortcomings of the entire edifice of nuclear arms control hammered out by Partial Test Ban Treaty (PTBT) and Non-Proliferation Treaty (NPT). The currency of the prestige of the nuclear weapon and its use continued owing to allowance for underground nuclear tests and defective Non-Proliferation Treaty.

The START negotiations had an ambivalent progress and stalemate. However, prospects of START agreement being concluded increased with the signing of the Intermediate Range Nuclear Forces (INF) agreement in 1987. Indeed, the INF treaty signed in Washington was historical and a path breaker agreement on reduction of nuclear weapons and acceptance of inspection and verification measures.

Chapter One describes the history of arms control, tracing back to the Nuclear Test Ban Treaty (NTBT); Anti-Ballistic Missile (ABM) and the agreements and treaties of Strategic Arms Limitation Talks (SALT - I and SALT - II). The main focus of the chapter is in the changing over from "limitation to the "reduction" that is, from SALT to START, especially Reagan Administration's criticism of the SALT - II and proposing new formulation of reduction.

Chapter Two discusses the Reduction Agenda of the United States which includes main differences that

persisted between the US and the Soviet Union during the negotiations at various Summit. The last part of this chapter describes the signing of the START Treaty on July 31, 1991, and some unresolved issues.

Chapter Three deals in detail the verification scheme, which was one of the most debated issues for both the countries while negotiating the START Treaty. The last chapter contains some concluding observations.

C O N T E N T S

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Chapter I

FROM SALT TO START

Background:

After the second world war, both the United States and the Soviet Union emerged as the most powerful countries in the world. Significantly, the wartime allies soon developed during peace time differences on various issues including spheres of influence in Europe leading to tension, conflict and cold war. The cold war politics produced an era of arms race between the super powers -- the US and the USSR. Later the formation of rival alliances -- North Atlantic Treaty Organisation (NATO) and Warsaw Pact -- accelerated the arms race. The arms control or disarmament aspects were hardly receptive to super powers until early 1960s. All that was attempted in late 1940s and 1950s was a series of nuclear disarmament proposals by the Western nations led by the US which was rejected by the USSR, and its allies as they perceived the effort was towards achieving US nuclear monopoly.

The record of nuclear arms control negotiations is as chequered one and not very satisfactory. The first proposal in respect of nuclear arms control was put forth by the representative of the US

Bernard Baruch at the United Nations (UN) on June 14, 1946. They were rejected by the USSR. Thereafter, for about a dozen years the negotiations on arms control produced no results. In the late 1950s the self imposed moratorium on nuclear tests and the signing of the Antartica Treaty paved the way to some more agreements in the late 1960s - the Hot Line Agreement, the Limited Test Ban Treaty (1963), the Outer Space Treaty and the Non-Proliferation Treaty.[1]

The world wide revulsion in the 1950s to the nuclear testing resulted in the Partial Testing Ban Treaty (PTBT) in 1963. But the treaty only drove testing underground, without in anyway affecting the buildup of nuclear weapons.[2] Moreover, according to some critics the PTBT could be concluded easily mainly because both the super powers had reached a level of perfection and they no longer needed atmospheric test and at the same time wanted to prevent other countries conducting such test for achieving.

The Anti-Ballistic Missile (ABM) was signed in Moscow between the USA and the USSR on 26 May, 1972,

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1 C. Raja Mohan, "Nuclear Arms Control: Towards a Grand Compromise?", Strategic Analysis (New Delhi), vol. X, no. 7, October 1986, p. 763.

2 Ibid.

relating to nuclear arms control. Alongwith this, a protocol to the Interim Agreement, specifying numerical levels of modern ballistic missile submarines and ballistic missile launchers on submarines as well as replacements procedures was also signed.[3]

The Threshold Test Ban Treaty (TTBT) was signed in 1974 by the Presidents Nixon and Brezhnev, imposing a ceiling of 150 kilotons on the size of underground nuclear tests. Yet, often, it had been argued that the Soviets are cheats and have been violating the TTBT. Although US did not ratify the treaty at that time, both sides agreed to limit their nuclear tests to 150 kilotons. The Reagan Administration had charged that a number of Soviet nuclear tests had been above the 150 kilotons mark. But the Central Investigation Agency (CIA) investigation indicates that the Soviet testing had broadly remained within the limits imposed by the TTBT. Both sides were already moving towards smaller warheads as the military rationale for larger warheads in the megaton range declined. The US - Soviet compromise on nuclear testing once again sidelined the real issue: that the nuclear

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3 "Strategic Arms Limitations Agreement", SIPRI Year Book : World Armaments and Disarmament (New York: Oxford University Press, 1973), p. 1.

testing is the motor of the nuclear arms race and needs to be banned.[4]

The first arms control accords which had emerged from the 127 sessions of the Strategic Arms Limitation Talks (SALT) between the USA and the USSR held since their initiation in 1969.[5] The ABM Treaty, of unlimited duration was subject to ratification and enters into force upon the exchange of instruments of ratification. However, the Interim Agreement was for a duration of five years. But the Interim Agreement would come into effect only simultaneously with the ABM Treaty, and, if the situation deteriorates, the two may also lapse simultaneously. In a formal statement the United States made it clear that if an agreement providing for more complete strategic offensive arms limitations were not achieved within five years, US supreme interests could be jeopardised, and that, should that occur, it would constitute a basis for withdrawal from the ABM Treaty.

The agreements entered into force on 3rd October 1972, provided that both the United States and the USSR agreed not to deploy ABM systems for

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4 C. Rajamohan, "Nuclear Arms Control: Towards A Grand Compromise", Strategic Analysis (New Delhi), vol. X, no. 7, October 1986, p. 766.

5 SIPRI Yearbook : World Armaments and Disarmaments (New York), 1973.

the defence of the territory of the USA and the USSR; not to provide a base for such a defence of an individual region, except as provided for in the agreement. But they also agreed to conduct a research on as well as developed and test, ABM systems not limited by the treaty and strategic offensive arms.

The parties agreed not to deploy test or deploy ABM systems or components which are sea-based, air-based or mobile land-based. It was understood that the prohibitions on mobile systems apply to ABM launchers and radars which are not permanent fixed types.

The main restriction imposed on ABM systems had been the prohibition of their nationwide deployment and of "thick" regional defence. Permitted deployments will be limited to two widely separated areas in each country. To prevent the creation of a base for territorial defence, the types of ABM radars to be kept by the parties, their potential and location have been strictly defined.

Significantly, for the first time, the most powerful nations discussed the sensitive issue of nuclear armaments, while they consider central for their security, in concrete, technical detail, and reached a measure of understanding; that for the first time they consented to establishing ceilings on the

production of such armaments, overcoming the problem of verification which has plagued disarmament negotiations for years; and that for the first they agreed to accept limitations on their own military arsenals, without requiring sacrifices or contributions from the other countries.[6]

On 8 December, 1987, the most turbulent chapter in the history of East-West arms control culminated with the televised signature at the Washington Summit meeting with the treaty on Intermediate-Range Nuclear Forces INF Treaty its proper designatories is 'Treaty between the United States of America and the Soviet Union Socialist Republics on the elimination of their intermediate-range and short-range missiles.[7]

The ultimate successful outcome of the INF talks after long often dramatic negotiation probably resulted more from the emergence of a conciliation-minded Soviet leadership than from a particular western negotiating approach.[8] For the Soviet Union,

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6 SIPRI Yearbook: World Armaments and Disarmaments (New York, Oxford University Press, 1983), p. 1.

7 Jonathan Dean, "The INF Treaty Negotiations", SIPRI Yearbook: World Armaments and Disarmaments (New York, 1988), p. 375.

8 Jonathan Dean, "The INF Treaty Negotiations", SIPRI Yearbook : World Armaments and Disarmaments (New York: Oxford University Press, 1988), p.375.

the agreement marked the success of a long effort, begun in the late 1950, to prevent deployment in Europe of land-based medium-range US nuclear missiles capable of a rapid, destructive strike against vital targets in the western USSR, ultimately including Moscow itself, while keeping US strategic nuclear forces in reserve. This was a disadvantage which the USSR could not make good through weapon deployments of its own, although the further development of sea-launched cruise missiles brought countermove closer.

Yet one outcome of INF Treaty if already clearly established had been that the entire INF episode did more than nearly any other single development of the past 40 years to change the nature of the defence relationship between the United States and European members of the NATO alliance.[9]

The INF Treaty requires the United States and the Soviet Union to throw into history's waste-bin 2695 intermediate-range ground-launched missiles with ranges between 500 and 1000 kilometres. The USSR will have to scrap 1836 missiles, and the USA will have to destroy 867 missiles.

Although the Treaty does not require the elimination of any warhead per se, a result of the

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9 Ibid.

Treaty will nevertheless will be the removal of some 2,200 warheads from deployed missiles, including 100 US warheads on the 72 West German Pershing 1a missiles. These warheads will be returned to stock-piles or recycled in the United States or the Soviet Union. The Treaty rules out the right 'to produce, flight-test or launch any intermediate-range missiles'; any shorter-range missiles' or 'any stages of such misslies'. But it prohibits neither research nor development; thus on this point the INF Treaty is not comprehensive and radical.

The real value of the Treaty does not lie in its military significance. In fact, only a small percentage of delivery vehicle with nuclear charges, deployed in Europe by either side, will be removed. Even the INF Treaty put into effect, Europe will be far from being denuclearized. As Christoph Bertram has said: 'In comparison with other region, Europe remain, even after the removal of INF missiles, positively stuffed with nuclear weapons'.[10]

It was the Treaty's political values that matters most. And this was true for both its positive and negative aspects. Consequently, there are good reasons not to exaggerate the value of the INF Treaty.

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10 Christoph Bertram, "Europe's Security Dilemmas", Foreign Affairs (New York), Summer 1987, p. 951.

Yet, some of the positive developments it represents clearly outweight its shortcomings:

1. The Treaty represents a fundamental change in Soviet foreign policy towards the Atlantic Alliance in general and its West European component in particular.

2. Gorbachev accepted the fact that the Soviet Union had more to reduce than the United States, thereby acknowledging that it is capabilities that count rather than numbers. Although this results logically from the fact that the party had to sacrifice more, it was a new for a Soviet leader to subscribe to this rule, which had possible consequences for negotiations about conventional forces and armaments in Europe.

3. The acceptance of the most comprehensive verification regime, at the centre of which lie very intrusive and discriminative on-site inspection arrangements and the exchange of all available data, marks a genuine breakthrough in arms control. The INF Treaty proved that Gorbachev was prepared and ready under the Stockholm Document of September 1986 which deals with confidence-and-security-building measures to open, for the first time, Soviet territory to obligatory on-site inspections

was meant to be more than only a one-time concession.[11]

4. With the INF Treaty, Gorbachev had added substance to what he had already announced as a new policy during his first visit abroad (Paris in 1986) as General Secretary of the Soviet Communist Party. He abandoned, at least for the time being, the longstanding Soviet effort of his predecessors to get a handle on French and British nuclear weapons through negotiations with Washington. He had also given further credibility to his skill to satisfy western expectations from public policy, as long as there is no substantial risk involved for Soviet interest.[12]

In agreeing to the INF Treaty, Gorbachev could claim to have turned a major mistake of his predecessors into a maximum political advantage at minimal cost.

The Washington Summit meeting in December 1987, had ratified Gorbachev's strategy: It secured on SDI and ABM in that both sides settled for an

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11 "Document of the Stockholm Conference on Confidence-and Security-building Measures and Disarmaments in Europe", SIPRI Yearbook: World Armaments and Disarmaments (New York, 1987), pp. 364-7.

12 Wall Street Journal, 4 December, 1957, p. 1.

agreement to disagree while leaving the door open for a strategic arms control future through a Strategic Arms Reduction Talks (START) treaty to be signed either with the Reagan Administration or his successors.[13]

SALT I - II:

The year 1972 and 1979 witnessed certain measures to control the nuclear arms race through the signing of SALT - I and SALT - II Treaties between the US and USSR. While SALT-I was ratified and arms control agreements implemented, the SALT - II was not ratified by the American Congress. Indeed, President Reagan's campaign speeches in 1980 included reasons for rejecting the SALT - II.

The SALT - II, although never ratified by the US Senate, eventually expired on December 31, 1985. The US Secretary of Defence, Caspar Weinberger had favoured a complete "breakout" from the treaty on the grounds that the Soviets had already made several violations of the treaty. For some years, the two parties had agreed to maintain an overall ceiling limit of 2,500 on the total number of launch vehicles. The agreement also specified that the total number of missiles that could be MIRVed should not exceed,

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13 Walther Stutzle, "The INF Treaty," SIPRI Yearbook : World Armaments and Disarmaments (New York, 1988), pp. 3-8.

1,200, out of which no more than 820 could be land-based.[14]

The Reagan Administration, however, could not postpone the nuclear disarmament initiative as the anti-nuclear campaign in Europe and the US had public support especially against the background of Euro-missile crisis. Hence, the Reagan Administration came up with new formulation of seeking reduction of nuclear arms rather than the earlier objective of "limitation". Thus SALT was replaced by a new acronym START - Strategic Arms Reduction Talks.[15]

President Reagan himself was elected to the White House on a platform of vigorous opposition to SALT - II. The basic criticism of SALT - II propounded by the Reagan Administration was that the large land-based ICBM force of the Soviets - with its increased accuracy allowed under SALT - II posed a threat to American land-based ICBM force. This "Window of vulnerability" would allow the Soviets to launch a disarming first strike wiping out American ICBMs. The Soviets would also be in a position to derive global political advantage based on this nuclear "superiority".

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14 R.R. Subramanian, "SALT-II Inching Towards Breakout", Strategic Analysis (New Delhi), vol. IX, no. 5, August 1985, p. 503.

15 C. Rajamohan, "START Suspended: A Set back to Nuclear Arms Control", Strategic Analysis (New Delhi), vol. VII, January 1984, pp. 822-23.

It should be recalled that SALT - I was the initial consumation of an on - off super power arms control process that could be traced without difficulty to 1958.[16] Recognising the political nature of arms control should have been a common place "working truth" in the 1920s, and the 1960s and the 1970s, but the historical record shows that it was not. Some of the disarmers of the League of Nations were bent upon abolishing "aggressive armament" (rather than disciplining the aggressive acquirers and potential users of armament)[17] in the great forum - twelve years in the preparation - of Geneva in 1932. Three and four decades later, many American officials and supposed strategic experts sought through SALT to legislate the conditions for a more "stable" strategic balance.[18]

Admittedly, SALT - I appears to be an ambivalent case in that American stability theory, even

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16 J.J. Holst, "Strategic Arms Control and Stability: A Retrospective Look", in Holst and William Schneider, Jr., eds., Why ABM? Policy Issues in the Missile Defensive Controversy (New York, Pergamon Press, 1969), pp. 245-84.

17 J.H. Morgan, "A Size of Arms: The Disarmament of Germany and Her Rearmament (1919-1939), (Oxford University Press, New York, 1946).

18 J. New House, Cold Dawn: The Story of SALT (New York, 1973).

ideology, helped to drive the U.S. (but not the Soviet) negotiating position and was employed to explain the outcome of all but zero defense and a supposedly "caped" offense. The truth is a little more complicated. It takes two to secure an agreement and the other high contracting party in 1972 most emphatically did not endorse American ideas on stability. Also, the technical case for the safeguard ABM system in the early 1970s was a genuinely debate - worth as it was quite evident at the time that the U.S. Congress would not fund anything even approximating the full scale of the proposed deployment.

SALT - I signed in 1972 (see Table - I) simply placed a "freeze" on the numbers of existing ballistic systems on both sides. One leg of the nuclear Triad, bombers was not even mentioned. The only limit imposed by SALT - I was on launchers or Strategic Nuclear Delivery Vehicles (SNDVs), as they are in arms Jargon. This rule indirectly encouraged placing as many Multiple Independent Re-entry Vehicle (MIRV) warheads per launcher as possible since there were no restrictions on penalties.

The conclusion was that in terms of disarmament in the immediate effects of the first SALT agreements, described by the parties as "historic" one less than impressive. The agreements may

of course, be interpreted as admission on the part of the USA and the USSR of rough parity in the distinctive power contained in the opposing arsenals (a precise equality being, in any event difficult to achieve if not impossible, given differences in geography, technology and strategic philosophy) as well as adoption of a no-damage limiting posture.

However, from an alternative perspective, SALT - I can be seen as at best, an opportunity for restraint in the acquisition of arms or at most, as a cruel disappointment. Many SALT - I's critics would discount heavily the likelihood that the US 12-site ABM programme would be funded by Congress in the absence of the agreements, and also that Soviet ABM and offensive missile levels would increase as projected by Administration spokesmen. Some would go further and argue that, without SALT, Soviet ABM defences might have been limited to the single site around Moscow instead of the permitted two, and the U.S. ABM defences might have been limited to a single site or none.

The SALT - II dies legally when the US Senate declined to submit it to a floor debate and vote. The treaty was a victim of the cumulatively severe deteriorations in Soviet - American political relations in the second half of the 1970s and the early 1980s. Informally, if arguably illegally in

the U.S. case, however, the super powers elected to abide by the terms of SALT - II as if it had entered legally into force by ratification. This strange phenomenon becomes more understandable when one recognises that neither side was not convinced noticeably by the treaty's terms and that even a newly elected President Reagan with true working majorities in both houses of Congress (though nominally only in the Senate) - could pour scorn on arms control symbolism only for a six to nine period in 1981. Public "SALT addiction" was not addiction to any particular treaty, but it was addiction to the psychological reassurance of official commitment to an arms control process (which is all too confused with peace).

SALT - II signed in 1979 (see Table II) was atleast for the United States, also a "freeze".[19] According to the accord reached between the US and Soviet Union, the Soviets would have had to retire some 200 of its older system, which undoubtedly was one of the best features of the SALT - II agreement. Launchers were still the basic counting device, but some important sublimits were also set. MIRV

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19 J.L. George, "The 'Two-Track' Dilemma in the START Negotiations", Strategic Review (New York), vol. XVI, no. 1, Winter 1988, p. 37.

systems were placed in a new sublimit and bombers were added. Those bombers with air-launched cruise missiles (ALCMs) were placed in the MIRV sublimit. The basic counting device under SALT - II was still SNDVs, with MIRVed warheads only indirectly counted in the sublimits. And again, the agreement did little more than "freeze" the status quo.

The SALT - II agreement, signed by President Carter and President Brezhnev on 18 June 1979 in Vienna, had three components: a treaty lasting until the end of 1985; a protocol that runs until the end of 1981; and a joint Statement of Principles and guidelines for subsequent SALT negotiations. Also included are a commitment by the USSR about the Soviet Backfire bomber and a memorandum listing the numbers of strategic weapons deployed by both sides in various categories as of 18 June 1979.

SALT - II was hardly a significant disarmament measure, even though 300 or so obsolete strategic delivery systems will have to be dismantled. It had some qualitative restrictions on the development and deployment of new types of nuclear weapons. But these are relatively minor. These restrictions have no effect whatsoever on current plans for development or deployment of ballistic or cruise missiles.

From SALT to START

The switch over from SALT to START was that neither the SALT - I Agreements nor the (unratified) SALT - II Treaty have had a truly profound effect on U.S. and Soviet strategic forces, for one basic reason: both were in essence, "freezes", especially for the United States.

The SALT agreements of 1972 and 1979 depended on a trade off between strategic offense and defense: Under the SALT - I Anti-Ballistic Missile (ABM) Treaty of 1972, the United States and the Soviet Union agreed on an open-ended prohibition against nationwide antimissile defenses while they set about first to limit, then to reduce offensive forces.

By the time Reagan Administration was in office, the assumptions underlying SALT were officially in doubt if not in disgrace. What many experts believed to be the looming vulnerability of the United States to a Soviet first strike was the perception that there had been an undermining of American confidence in deterrence which stimulated fresh interest in strategic defense.[20]

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20 S. Talbott, "Why START Stopped", Foreign Affairs (New York), vol. 67, no. 2, Fall 1988, p. 53.

In his initial address on START in Eureka, Illinois, in 1982, President Reagan called for major reductions in US and Soviet strategic forces. After some hesitation, the idea of "deep cuts" was accepted by the Soviets in principle. At the 1985 Geneva "fireside Summit", the 1986 Reykjavik "mini Summit" and December 1987 Reagan - Gorbachev meeting in Washington, both sides agreed on 50 per cent reductions in strategic forces and even on some specific numbers: Launcher limit of 1,600; an overall warhead of 6,000; a ballistic missile warhead of limit of 4,900, as well as an implicit ceiling on bombers, and air launched cruise missiles (ALCMs) of 1,000.[21] (see Table 3).

A START accord, however, promises to be quite different - a difference that is already reflected in the name change from SALT "limitations" to START "reductions", and these would not just be reductions but very "deep cuts". The second major change is that now both launchers (SNDVs) and warheads would be counted. Thus, the MIRVed warheads that were indirectly encouraged in both SALT - I and SALT - II (since they did not count) would incur penalties and severe problems.

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21 James L. George, "The "Two-Track" Dilemma in the START Negotiations", Strategic Review, vol. XVI, no. 1, Winter 1988, pp. 35-56.

Thus, the changing over from SALT to START mainly was that the first two treaties of SALT had already reached its climax, making new conditions for nuclear arms race. The two important reasons are:

(a) the nuclear arms race control regime built up had been always partial and left sufficient loopholes for continuation of arms build-up at various levels; and

(b) the nuclear arms control regimes never attempted to put brakes on the technological momentum which continually brought about a new possibilities in the development and use of nuclear weapons.

Thus, the substance of what has been negotiated in SALT on strategic offensive arms had not much mattered because the terms of the agreement (1972) and the treaty (1979) have been very liberal.

Table - 1

SALT LIMITATIONS

Delivery System	U.S.	USSR
ICBMs	1.054 (1,000)	1,618 (1,408)
SLBMs	656 (710)	740 (950)
Submarines	41 (44)	42

Note: Bracketed numbers represent allowable limits

Source: James C. George, Strategic Review (New York), vol. XVI, no. 1, Winter 1988.

Table - 2

SALT II LIMITATIONS

- 2,400 equal aggregate limit on all delivery systems (includes ICBMs, SLBMs and bombers)
- 1,320 equal aggregate limit on MIRV missiles and heavy bombers with cruise missiles
- 1,200 sublimit on MIRV ballistic missiles (120 implied limit on heavy bombers with cruise missiles).
- 820 sublimit on MIRVed ICBMs.

Source: James C. George, Strategic Review (New York), vol. XVI, no. 1, Winter 1988.

Table - 3

START LIMITATIONS

• SNDVs	1,600 ceiling on ICBMs SLBMs and heavy bombers.
• Warheads	6,000 ceiling to include ICBM and SLBM warheads, long-range ALCMs (heavy bombers carrying gravity bombs and SRAM counting as one warhead).
• Sublimits	4,900 ballistic missile warheads (ICBMs and SLBMs) 1,540 warheads on 154 heavy missiles (1,100 implied sublimit on bombers and ALCMs)

Source: James C. George, "The "Two-Track" Dilemma in the START Negotiations", Strategic Review, vol. XVI, no. 1, Winter 1988.

Chapter II

REDUCTION AGENDA OF UNITED STATES AND SOVIET RESPONSE

From the outset of the START negotiations in 1982, the US objective had been to promote stability through deep reductions primarily in strategic capabilities that pose the greatest threat to stability - namely, fast-flying (and consequently short warning) ballistic missile systems. While seeking deep cuts in those systems most suitable for carrying out a first strike, it had promoted the retention of adequate retaliatory capabilities by proposing more permissive limits on strategic forces that are inherently less destabilizing - namely, slow-flying bombers and cruise missiles.

The U.S. policy on START had emerged gradually in accordance with the influence that each Administration had exercised. The START concept began with the first Presidency of the Reagan Administration. It continued into his second Presidency which witnessed intensive US - Soviet negotiations symbolised by a Joint-draft with a lot of brackets signifying issues of disagreement, The Bush Administration has added some more areas of concern to the draft it had inherited.

The concept of START ironically seems to be in line with SALT since it was mentioned there

that the ultimate objective of SALT is to reduce nuclear weapons. SALT only provided limits while it allowed, at the same time, a qualitative and quantitative leap-frog in the nuclear weapons of the US and the USSR. The limitations of SALT are reflective of the serious shortcomings of the entire edifice of nuclear arms control hammered out by the Partial Test Ban Treaty (PTBT) and Non-Proliferation Treaty (NPT). The currency of the prestige of the nuclear weapon and its use continued owing to allowance for underground nuclear tests and defective NPT.

The START Treaty represents a nearly decade long effort by the United States and the Soviet Union to address the nature and magnitude of the threat that strategic nuclear weapons pose to both countries and to the world in general. The fundamental premise of START is that, despite significant political differences, the United States and the Soviet Union have a common interest in reducing the risk of a nuclear war and enhancing strategic stability.

Reduction Agenda of the United States

The United States had several objectives in the START negotiations.[1]

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1 George Bush, "START Treaty Sent to Congress", US Department of State Dispatch (Washington D.C.), December 9, 1991, p. 881.

First, the US consistently held the view that the START Treaty must enhance stability in times of crisis. The strategic nuclear forces remaining after implementation of START - as well as during the period when weapons are reduced - should be such as to reduce Soviet incentives to provoke a crisis or to strike first during crisis. Stability in times of crisis will remain important even in the post Cold War era, no one can predict the future, and the purpose of this Treaty had been to regulate the strategic threat for many years to come. Among the many measures US sought to fulfil this objective, the most important were the preferential treatment given to stabilizing systems, such as bombers and cruise missiles, the stringent limits on deployed ballistic missiles and their re-entry vehicles, and the special, restrictive limits on heavy ICBMs, the most destabilizing weapons in existence.

Second, US sought an agreement that did not simply limit strategic arms, but that reduced them significantly below current levels. A successful combination of this objective with that of a stabilizing force structure was perceived would serve for many years as a linch - pin in shaping our strategic posture, and if appropriate, could serve as a basis for future agreements that would lead

to further reductions. Moreover, in order for the Treaty to work smoothly over many years the US sought for terms that would be precise and unambiguous and that neither party should have any doubt as to the limitations and obligations that would be imposed by the terms of the Treaty.

Third, US sought a Treaty that would allow equality of US relative to those of the Soviet Union. Again, the emphasis was to reach equality in order that the levels would be stabilizing.

Fourth, the United States placed great emphasis during the negotiations in seeking an agreement that would be supported by the Americans and allied publics. This objective meant that US policies regarding strategic forces must not only sustain deterrence, but to ensure the American people and allied publics that the risk of war and crisis instability would be low and was being further reduced.

The basic structure of the prospective START agreement was similar to that of its unratified predecessor, the SALT II treaty of 1979.[2] An interlocking set of ceilings and subceilings was intended in the case of SALT to limit while in the

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2 Strobe Talbott, "Why START Stopped", Foreign Affairs, vol. 67, no. 2, Fall 1988, p. 51.

case of START was to reduce those weapons that the super powers might use to strike each other's territory in an all-out war. The reduction was attempted in strategic weapons essentially : inter-continental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs) and long range bombers of particular concern which had the capability of carrying out a preemptive and disarming first strike. The objective of arms control had been to achieve not just a subtraction in the overall numbers of strategic arms, but preferential cuts in those systems that are most likely to be used to start a war. The presumption was that should those components of the two arsenals were reduced the danger of war itself will be reduced.

From the American standpoint in both SALT and START, the principal purpose of strategic arms control had been to "constrain Soviet ICBMs, especially the USSR's so-called heavy ICBMs".[3] These weapon system are larger than any missiles on the American side, and each is armed with as many as ten warheads or multiple independently targetable re-entry vehicles (MIRVs). Its preponderrence of highly accurate land-based MIRVs gave the Soviet Union its most threatening advantage over the United States.

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3 Ibid.

Thus, an important American criterion for judging progress in arms control had been the extent to which the process blunts the cutting edge of the Soviet Strategic Rocket Forces (SSRF). By that standard, START had already produced the makings of a promising agreement by the beginning of 1988. Twin ceilings of 1,600 launchers (intercontinent bombers, ICBMs, and SLBMs) and 6,000 warheads had been agreed upon over a year before, at the Reagan-Gorbachev meeting at Reykjavik in October 1986. The Washington Summit of 1987 yielded a subceiling of 4,900 on all ballistic missile warheads (i.e., both land and submarine based). Two additional features were especially welcome to the American side. These were mandated 50 per cent cuts in heavy missile warheads, where the Soviets had a monopoly as well as in Soviet ballistic missile throw - weight (the cumulative capacity to warheads at the enemy), where they had an advantage.

Another salutary feature of the prospective agreement was a formula whereby bombs and short-range missiles on intercontinental bombers would be discounted - that is, treated less stringently than ballistic missile warheads. The discount on bombers

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4 Strobe Talbott, "Why START Stopped"?, Foreign Affairs (New York), vol. 67, no. 2, Fall 1988, p. 52.

weapons constituted an incentive for the two sides to retain forces that were better suited for retaliatory missions rather than ballistic missiles, which pose the threat of a first strike.

The Reagan Administration's evaluation of the existing "window of vulnerability" especially in land-based missiles vis-a-vis the Soviet Union has been one of the main reason for his announcement of Strategic Defence Initiative SDI. In his famous address of 1983 to the nation, he noted that during "the past decade and a half, the Soviets have built up a massive arsenal of new strategic nuclear weapons - weapons that can strike directly at the United States".[5] He went on to uphold the vision "what if free people could live in the knowledge that their security did not rest upon the threat of instant US retaliation to deter a Soviet attack, that we could intercept and destroy strategic and ballistic missiles before they reached our own soil or that our allies?" In support of this vision, he upheld the prospects of the new technologies. He said, "America does possess now the technologies to retain very significant improvements of our conventional

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5 Ronald Reagan, Address to the Nation on National Security on March 23, Weekly Compilation of Presidential Documents, vol. 19, no. 12, March 1983, pp. 423-466.

non-nuclear forces. Proceedingly boldly with these new technologies, we can significantly reduce any incentive that the Soviet Union may have threaten attack against the United States or its allies". SDI which was announced subsequently cliamed to be based on "defensive" technologies.

The Reagan Administration viewed the utilisation of defensive technologies in a space-based shield within the framework of deterrence. SDI is an attempt to forge a new architecture of anti-ballistic and anti-satellite defence from space, air and ground with the help of defensive weapons.

The Reagan Administration excluded SDI from the any discussion on the arms reduction talks. The Soviet response to SDI was differentiated from the start. It opposed publicly SDI laboratory research, and development and deployment of defensive technologies weapons. It adopted a more flexible attitude towards SDI in its negotiations on nuclear arms reduction. It began by insisting that progress in the START negotiations would be linked with observance of the ABM Treaty. The US position was initially that START negotiations could not be linked to the progress in defence and space talks. These were regarded by the US as outside the START negotiations. Paul Nitze told the House Armed

Services Committee in 1986, " ... the Soviets insisted on linking START reductions to a 15 year commitment of non-withdrawal from the ABM treaty. The United States rejected such a linkage".[6] The Bush Administration has remained within the confines of this thinking. The Baker-Shervardnadze meeting in 1989 reaffirmed this basic US position. They had agreed that the progress in START would not be linked to the progress in space and defence talks. While this shows flexibility in the arms reduction Soviet diplomacy "it is another proof of the continuity of the US START diplomacy from the days of the Reagan Administration".[7]

More fundamentally, the US insistence to exclude space-based technologies from any arms control negotiations showed the forty year or so continuity in the US approach to nuclear arms control and new technology. "Whenever arms control negotiations and measures reached a fruition, the latest scientific technological breakthroughs and their defence applicability always remained outside the parameters

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6 Paul H. Nitze, "Developments in NST Issue After Reykjavik", United States Department of State, Bureau of Public Affairs, Washington D.C., Current Policy No. 906, p. 2.

7 Rakesh Gupta, "US Policy Towards START", Strategic Analysis (New Delhi), vol. XIV, no. 5, August 1991, p. 516.

of these".[8] When the SALT agreements were hammered out, the Multiple Independent Re-entry Vehicles (MIRVs) were on the anvil. It was hoped by the US Administration that US superiority would be retained in the new-found devices. Similarly, today a number of studies in the US show that the Soviet Union would not be able to catch up with the SDI effort.

A RAND Corporation study says that the Soviet response to SDI would be influenced by a number of factors. "One such influence will be the prospects and limitations of Soviet Science and Technology". The study refers to a defence export report to say that "the United States is equal to, or superior to, the Soviet Union in the 20 most important areas of technology associated with space ballistic missiles defenses".[9] Another study shows that Soviet Union efforts under perestroika may not be enough for the Soviet Union to compete with the West in high technology areas in the 21st century".[10]

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8 George Kennan, "The Nuclear Delusion: Soviet-American Relations in the Atomic Age" (New York, Pantheon, 1983).

9 G. Hindelhart, "SDI and Soviet Defense Burden", RAND Corporation, 1988.

10 Simon Kassel, "Soviet Advanced Technologies in the era of Restructuring", RAND Corporation, April 1989.

The strategic thinking that went into the suggestions of START was the Soviets had an advantage in the ground launched ballistic missiles. The US did not raise the issue of sea-based and air based arsenals. The US carried the day with its western allies since it convinced them that the Soviets had the advantage of numbers and thus this symmetry offered to them first strike capability, and the US only had a retaliatory capacity. It was argued by the US particularly, that given the number accuracy and yield of warheads on ICBMs, the Soviet Union is capable of destroying over 90 per cent of hardened silos and control centres of US ground based ICBMs. Whereas US ground based missiles have much less capability in this respect. SLBMs, heavy bombers and cruise missiles of various basing modes in which US superiority had been openly recognised in the west cannot destroy Soviet Silo-based missiles; SLBMs cannot do this because of insufficient accuracy and unreliable radio communication with command centres which make it difficult to coordinate such strike. The heavy bombers and cruise missiles cannot because of a long flight time of targets, which makes it difficult to deliver a surprise nuclear attach, and because of their supposed vulnerability to the Soviet air attack.[11] This line of thinking predomi-

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11 Caspar Weinberger, (1987) Annual Report to the Congress, February 1988, Washington D.C., pp. 62-63.

nated the Washington establishment at the time of negotiations of START in 1982-83. The Geneva talks had the same line of reasoning. The US approach had thus raised the issue of quantity and quality in any strategic corelation of forces along with the possibility of the first strike.

Speaking at Eureka college on 9th May, 1982, President Ronald Reagan announced that the United States would propose a "practical shaped reduction plan" in the START talks with the Soviet Union. According to Reagan, the US goal in START would be to achieve ceilings at much lower levels of force, while reducing "significantly the most destabilising systems - ballistic missiles the number of warheads they carry and their overall destructive potential".[12]

It was suggested that in the first phase of START, ballistic missile warheads would be reduced to equal levels, at least one-third below current levels i.e. of the early 1980s. To enhance stability, no more than one-half of those warheads would be land-based. In the second phase of START the US would seek a ceiling on ballistic missiles throw-weight at "less than the current United States level".[13]

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12 Rakesh Gupta, "US Policy Towards START", Strategic Analysis (New Delhi), vol. XIV, no. 5, August 1991, p. 517.

13 Ibid.

On 12th May, 1982 a more specific phased reduction proposal was announced by the US President. In the first phase both sides were stipulated to be limited to 5,000 nuclear warheads deployed on no more than 850 ICBMs and SLBMs. No more than 2,500 warheads could be deployed on land based ICBMs. In the second phase, both sides would achieve equal aggregate throw - weight at a level no greater than that of the current US forces.

Reagan made a departure from SALT in that he opted for Partial and not over all limits, leaving apparently bombers and cruise missiles out in the first phase; a stronger focus on ballistic missile warheads in addition to missiles as the unit of account; substantial reductions in ballistic missile launches and warheads, particularly the land-based components; proposals for equal limits on throw-light also designed to reduce the Soviet land-based threat; and a strong emphasis on more effective verification measures.

According to Stockholm International Peace Research Institute (SIPRI) analysis[14], the exclusion of other aspects of the triad was determined by the fact that in case the Soviet Union raised the issue

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14 SIPRI Year Book, World Armaments and Disarmaments, New York, 1983, p. 60.

of inclusion of bombers and ALCMs along with SLBMs, then the USA could point to the Soviet Backfire bombers, air defences and short-range Soviet SLCMs. The US was willing to have reduction of the Trident and the MX. The US also proposed verification measures as part of START which would include "on-site inspection".

In November 1982, Reagan announced some confidence - building measures relating to notification of ICBM/MRBM test launchings, advance notice of military exercises, exchange of data on strategic nuclear forces and possible improvements in the "hotline" communications systems between Washington and Moscow.

Soviet's Response

The proposals made by Reagan were at the beginning rejected by the Soviet Union since they would have implied a greater reduction on the part of the USSR; (b) restructuring the Soviet strategic nuclear forces; (c) that these did not include the air and sea wings of the triad and so were, in the opinion of the Soviets, determined to the interest of the geography and history of the Soviet Union; and (d) the USA could pursue its own modernisation programmes.

Yet the Soviet Union welcomed the willingness to resume talks on strategic arms reductions as a

step in the right direction. Leonid Brezhnev defined Soviet conditions for arms control negotiations: firstly, talks to resume real reduction and not be a cover negating US - Soviet parity; secondly, that mutuality of security interest of the two sides needs to be recognised by pursuing the principle of equality and equal security; and finally he suggested that START could be built upon SALT and not be regarded as a negation of the latter.

The Soviet proposals had suggested a freeze and reduction of forces to 1,800 missiles and bombers each, with the proviso that the US should not deploy new missiles in Europe. An authoritative enunciation of the Soviet proposals indicated that these proposals were similar to the ones made by the Carter Administration. The Soviet proposals (as given in SIPRI Year Book 1983) details were: (a) phased reduction of heavy bombers, land-based and sea-based ICBMs to a total of 1,800 on each side; (b) reduction of warheads to an equal agreed level; (c) a freeze on further deployment of US forward based systems (FBS) within range of Soviet territory; (d) the prohibition of all cruise missiles with a range in excess of 370 miles (the 600 cruise missile range limit established in the SALT - II protocol); (e) a ban on heavy bombers and air-craft

carriers in a agreed zones adjoining the territories of the two sides; (f) prior notification of large-scale exercises of heavy bombers and FBS aircraft; and (g) safe zones for submarines in which ASW activities would be prohibited.

The US and Soviet positions showed a chasm on issues, yet an area of agreement was that both wanted reduction. The main distinction between negotiating positions of the two sides thus stated: the US was particularly concerned with the threat from Soviet heavy land-based missiles and wanted an agreement which would lead to sizeable reduction in their number. In addition to the reduction of warheads and launchers, this could be through special provisions limiting total throw - weight. However, in the course of the provisions, the US adjusted its position, seeking not to regain equality in throw-weight but a reduction in the disparity. Initially, the US proposed that the first stage of an agreement should not include bombers or cruise missiles; later it agreed to their inclusion. The Soviet Union wanted an argument on the lines of the SALT - I and SALT - II agreements, primarily setting overall numerical limits significantly lower than the limits set by SALT - II allowing each side the freedom to mix as it thought best. It agreed in the course of negotiations as well as launchers as primary

counting units. It also indicated a willingness to consider verification measures which were intrusive. The talks broke down.

At the Geneva Summit in 1985, the United States and the Soviet Union agreed in principle to 50 per cent reductions in strategic offensive systems though each side differed on the structuring of the reductions. The US called for limits of 1,2500 - 1,450 ballistic missiles, with 4,500 ballistic missiles warheads, 3,000 ICBM warheads, a 50 per cent reduction in throw-weight below Soviet levels, and 1,500 ALCMs on, almost, 350 heavy bombers. The Soviet proposal for 50 per cent reduction cuts in these strategic systems but included, as well as US began longer-range INF in Europe and all US dual-capable aircraft in Europe and Asia and on aircraft carriers, wherever located, while excluding equivalent Soviet systems from cuts on their side. The Soviets accepted the concept of sub-limits, proposing that there be a warhead limit of 60 per cent on any one leg of the triad.

The Soviets inaugurated the dawn of the new year (1986) with their new proposals for ridding the world of nuclear weapons by 2000 A.D. on the basis of the principle of equality, equal security and

sufficiency.[15] The package, if anything showed the difference between the visions of the two leaders. First, Reagan had proposed SDI as a space-based shield against Soviet ICBMs to secure the West from nuclear missiles, while Gorbachev had suggested a nuclear weapons-free world. The Reagan vision would allow for (in the immediate and ultimate phase) continuation of nuclear weapons. This was a position whose rock bottom could not be objected to even by the most radical of the arms control lobbyists. From that point of view, the US position did present a consensus inside the USA. The Soviet position implied a certain utopian element in the world of nuclear arms control and not evolving strategic scenario.

The Main Differences of US and Soviet Union

The differences on START between US and Soviet Union can partly be explained on the basis of these differing visions as also their respective security perceptions. The US approach[16] emphasised

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15 Rakesh Gupta, "US Policy Toward START", Strategic Analysis (New York), vol. XIV, no. 5, August 1991, p. 521.

16 Paul H. Nitze, "Development in NST Issues After Reykjavik, Statement on Arms Control Matters before the Defense Policy Panel of the House Armed Services Committee, United States Department of State Bureau of Public Affairs, Current Policy (Washington D.C.), no. 906, December 1986, p. 2.

on -

- a reduction in the total number of ballistic warheads;
- within this ceiling, sub-limits on ICBM RVs; and
- a corresponding reduction in overall ballistic missile throw-weight.

Before the Reykjavik Summit, the following issues separated the two countries:

(a) the Soviet Union insisted that gravity bombs and SRAMs be included in the aggregate weapon limit. The United States proposed that they be limited only directly through the 350 heavy bomber sub-limit, since these systems are less destabilising and since air defence against the bombers are unconstrained;

(b) the United States wanted to ban mobile missiles unless the Soviets could show how verification and stability concerns could be met;

(c) the Soviets refused to consider codification of the 50 per cent throw-weight reduction;

(d) there was inadequate progress on verification, especially of the SLCMs and mobiles;

(e) the Soviets insisted on linking START reductions to a 15 year commitment of non-withdrawal from the ABM Treaty. The United

States rejected such a linkage.

At the Reykjavik, the two reached an agreement in principle to reduce, in 5 years to 1,600 SNDVs and 6,000 strategic nuclear warheads, consisting of ballistic missile warheads, ALCMs, and heavy bombers armed with gravity bombs to count as single warhead. The Soviets refused to agree to the US proposed sub-limits on these systems and, in addition dropped their own proposal for sub-limits. The US, however, preserved the right to raise the issue of sub-limits in the future, and the Soviets acknowledged that right. The Soviets did agree that reduction would involve significant cuts in Soviet heavy missiles. In addition, both sides agreed to seek mutually acceptable limits on nuclear-armed SLCMs, separate from SNDV and warhead aggregates. The Soviets insisted that their agreement to these reductions remain linked to defence and space agreement.

By May 1987, the USA and the Soviet Union submitted their draft treaties on 50 per cent reduction at the Geneva meetings. A comparison of the two drafts revealed areas of convergence and divergence. The USSR's draft treaty differed with reference to unwinnability of the nuclear war. The other differences consisted in the deciphering of many terms. Certain concepts were obtained in

the draft documents of one side and absent in the other. They included "launcher", "deployed ICBM", "deployed SLBM", "non-deployed ICBM", "non-deployed SLBM", "non-deployed SLAM", "heavy ICBM", "heavy SLBM", "launch-weight", "throw-weight", "launcher designed for testing", "war head", "rapid load", "ICBM-producing facility", "site for conversion", "dismantling or destruction", "testing ground", "space craft launch facility", "space launch centre", etc.[17]

There was considerable discrepancy in understanding what was meant by heavy bomber. In this category the US draft included the following types of heavy bombers; for the USSR, TV-95 (Bear), Myasichev M-4 (Bison), TV-22 M (Backfire) and TV - 160 (Black Jack) bombers; for the USA; B-52 and B-1 bombers. The Soviet draft included TV-95, TV-160 bombers for the USSR, and B-52 and B-1 bombers for the USA.

The US draft while defining the strategic offensive forces (SOF) included ICBMs and SLBMs, heavy bombers and their warheads and armaments. The Soviet draft included ICBM and SLBM launchers as well as missiles themselves (both deployed and non-deployed), SLCMs, heavy bombers, ALCMs, or other nuclear weapons carried by heavy bombers (deployed

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17 R. Gupta, "US Policy Towards START", Strategic Analysis, vol. XIV, no. 5, August 1991, p. 524.

and non-deployed).

As for the quantitative limits, the documents of both countries contained equal post-reduction ceilings for the total number of SNDVs (launchers) of ICBMs, SLBM and heavy bombers (16,000 units) and for the total number of warheads (6,000 units). The counting rules for heavy bombers equipped with bombs and short range missiles also coincided: one such aircraft was counted as one SNDV and one warhead.

There was disagreement on the sub-levels. The US had this as follows: a sub-level of 4,800 warheads for deployed ICBMs and deployed SLBMs, a sub-level of 3,300 warheads for deployed ICBMs as well as sub-level of 1,650 warheads for deployed ICBMs except for the warheads on silo-based ICBMs that are not heavy ICBMs and are equipped with six or fewer warheads (in other words, the limit was set for stationery land-based ICBMs that carried more than six warheads). The US also included in continuation of its earlier held positions, limitations on the total throw-weight of ICBMs and SLBMs to a level making up 50 per cent of the highest one at the disposal of both sides as of 31 December, 1986, The USA also proposed equal interim ceilings to be observed in the course of reduction until pre-arranged dates.

This was interpreted by the Soviet Union as interfering with the Soviet force structures and so the idea of sub-limits was not acceptable to the Soviet Union.

Both documents coincided with respect to the commitment not to test ICBMs having more than 10 warheads. Both agreed that there was to be discontinuation of telemetry encryption during missile test flights. Both provided for exchanging of data of SOF composition. Also, both admitted the possibility of on-site inspection, including the enterprises producing strategic weapons.

The US proposed that neither side should produce novel or modernised types of ICBMs; nor should either side conduct flight tests or deploy them. The USA also envisaged a bilateral renunciation of deploying additional heavy ICBMs of the existing types and a ban on test launching of such ICBMs. This also applied to heavy SLBMs and the modernisation and requirement of their launchers.

The US document contained a ban on production, testing and deployment of mobile ICBMs, and envisioned the elimination of mobile launchers of ICBMs. This also applied to heavy SLBMs and the modernisation and reequipment with their launchers. A ban on

flight test of SLBMs having more than 14 warheads was also suggested. Both sides agreed on prohibition of quick-reload mechanism for the launchers. The USA has suggested the minimum term of reload as more than 20 hours after the launching of a missile, while the USSR had put this at much less.

At the first Washington Summit, a major step was taken to jointly instruct the US and the Soviet delegations in Geneva to prepare a treaty on the reduction and limitation of strategic offensive arms in compliance with the ABM treaty and nonwithdrawal from it over an agreed period of ABM time, so that this treaty could be signed during the visit of the United States President to Moscow in the first half of 1988. In accordance with the Washington agreements, Shultz visited Moscow to discuss the central problem of 50 per cent reduction in SOF as well as the preservation and the consolidation of the ABM treaty regime.[18]

While meeting with Shultz, Mikhail Gorbachev agreed to limit the number of warheads in certain SOF types of the USSR and the USA. This was a Soviet concession to the US position of sub-ceilings. The Soviet Union proposed that within the total

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18 R. Gupta, "US Policy Towards START", Strategic Analysis (New Delhi), vol. XIV, no. 5, August 1991, p. 525.

level of 6,000 warheads, ICBMs should carry no more than 3,000-3,000 warheads; SLBMs no more than 1,800-2000 warheads; and ALCMs no more than 800-900 warheads. The US side expressed the view that such sub-level would force it to effect substantial changes in the structure of remaining SOF, as well as in the programme for that the modernisation and development of new weapon systems. At the same time, having summed up the lower limits of the sub-level brackets for ICBMs and SLBMs warheads the US representative noted with satisfaction that the aggregate ceiling for these two components (4,800 units) accorded well with one of their draft key provisions.

The START Treaty

The Soviet President, Mikhail Gorbachev and the US President, George Bush, signed the "historic" Strategic Arms Reduction Talks (START) on July 31, 1991 at Kremlin to cut their nuclear arsenals by 30 per cent and indicated that they were working to create an insurmountable barrier to other countries nuclear and missile technology.

Both hailed the signing of the 700-page treaty as signalling an end to five decades of mutual suspicion.

The Soviet leader said it would create an absurd situation if some move in the direction of a

non-nuclear world and some other start producing nuclear weapons.

Mr. Bush and Mr. Gorbachev signed the treaty at the Kremlin with pens made from the metal of missiles destroyed under the INF treaty of 1987.

The START caps over nine years of intense negotiations. The implementation of the treaty will begin after the US senate ratifies it with a two-third majority.

The two sides will set up a joint commission on verification and inspection. The treaty is valid for 15 years, unless superseded by a subsequent agreement. If the sides agree, the treaty may be extended for successive five year periods.[19]

The basic elements of the START treaty are summarised below:

6000 Warhead Limit

Each side would have to reduce its strategic nuclear arsenal, currently about 10,000 warheads a piece, to 6000 total warheads. In fact, as it was written, the treaty allows for 6,000 counted and about 8,000-9,000 actual warheads: it counts each bomber that carries gravity bombs or short-range

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19 The Times of India (New Delhi), August, 1991.

attack missiles (SRAMs) as one warhead no matter how many such weapons they actually carry, a loop-hole in the 6,000 limit. As two analysts (Edward Warner III and David Ochmanek) of the treaty have concluded, if either side deployed 200 bombers carrying bombs or SRAMs, each with 14 weapons, "it could field a force carrying 5,800 ICBM and SLBM RVs (warheads) and ALCMs plus 2800 bomber weapons (200 x 14), for a total force of 8,600 actual weapons".[20] This method of counting ALCMs might be changed, however, in the final START agreement.

Sublimits on ICBMs and SLBMs

START would also restrict each side to 4,900 combined ICBM and SLBM warheads. It therefore requires each side to deploy at least 1,100 warheads on bombers (including ALCM carriers) or similar non-ballistic missile systems. The treaty also calls for an effective cut of 50 per cent in Soviet heavy missiles: it places a sublimit of 1,540 on heavy ICBMs (i.e. ICBMs with large throw-weight only the SS-18 is currently so classed), forcing the Soviets to dismantle half of the 308 SS-18s they currently have deployed. This would "likely reduce overall Soviet missile throw-weight form 5.6 to approximately

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20 Edward L. Warner III and David Ochmanek, Next Moves: An Arms Control Agenda for the 1990s (New York, Council on Foreign Relations, 1989), p. 24.

2.4 million kilograms.[21]

Limit on Delivery Vehicles

START will place a cap of 1,600 on the number of delivery systems (missiles and bombers) that each side can deploy. This requirement, when combined with the warhead limits, has ambiguous implications for crisis stability; by allowing each to field 6,000 (in fact really almost 9,000) weapons and only 1,600 targets, it institutionalises the unstable warhead: target ratios delivery vehicles might pose severe verification problems (to determine how many warheads each carried) and in any case the category 4: 1 warhead: delivery vehicle ratio imposed by START is not as bad as the 10: 1 ratio present in some modern systems, including the MX, D-5 and SS-18 missiles. (see Figure)

Unresolved Issues

A number of issues remain to be resolved. First, the Soviet Union continues to demand a ten year reaffirmation of the ABM Treaty and the United States continues to resist. A possible compromise has been opened, however, by the appointment of

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21 Warner and Ochmanek, Next Moves: Arms Control Agenda for the 1990s (New York: Council on Foreign Relations, 1989), p. 24.

Brent Scowcroft as National Security Adviser (NSA); before his appointment, Scowcroft had commented that such a decade-long ban on deployments of missile defences would not substantially impair the SDI programme. Indeed, Soviet Union Foreign Minister Eduard Shevardnadze in 1989 meetings with Bush Administration arguably delinked SDI from START, though the implications of the Soviet statements were somewhat unclear. It does, however, appear as if SDI no longer stands as a firm barrier as an accord.

Second, there is the issue of sea-launched cruise missiles. US negotiations have so far opposed any limits on the weapons in START, considering an SLCM cap to be unverifiable. The two sides agree at the Washington Summit of December 1987 to seek limits on SLCMs outside START. The Soviet side desires sub-limits on SLCMs with rangers over 600 miles of 400 nuclear SLCMs to be carried only on two classes of submarine and one surface ship, and 600 conventional SLCMs on agreed platforms. More recently they have suggested a total ban on all nuclear SLCMs.

Third, in regard to air-launched cruise missiles (ALCMs), the United States seeks to exclude all long-range conventional ALCMs from limits, and suggests that nuclear ALCMs must have a range of

over 1,500 miles to count. US negotiators have proposed a value of ten ALCMs arbitrarily assigned to all ALCM with a range of 600 milies or more counted, whether conventional or nuclear, and want maximum counting, not an arbitrary ten rule.[22]

Fourth, both sides are still discussing what they will do with non-deployed missiles (missiles in storage rather than deployed in silos). The Soviets apparently intend to use non-deployed missiles as reloadable, refirable weapons to give their silos a multiple-shot capability. Both sides have agreed to limit non-deployed missiles but are not yet certain how.

Finally, the US continues to suggest an additional sub-limit of 3,300 ICBM warheads. Viewing such fast, powerful weapons as inherently destabilising, the US side would like to reduce reliance upon them. The Soviets, however, while noting that they would not plan to deploy more than 3,300 ICBM warheads under START in any case, have objected to the separate sublimit and would prefer merely to formalise the limit of 4,900 ballistic missile warheads.[23]

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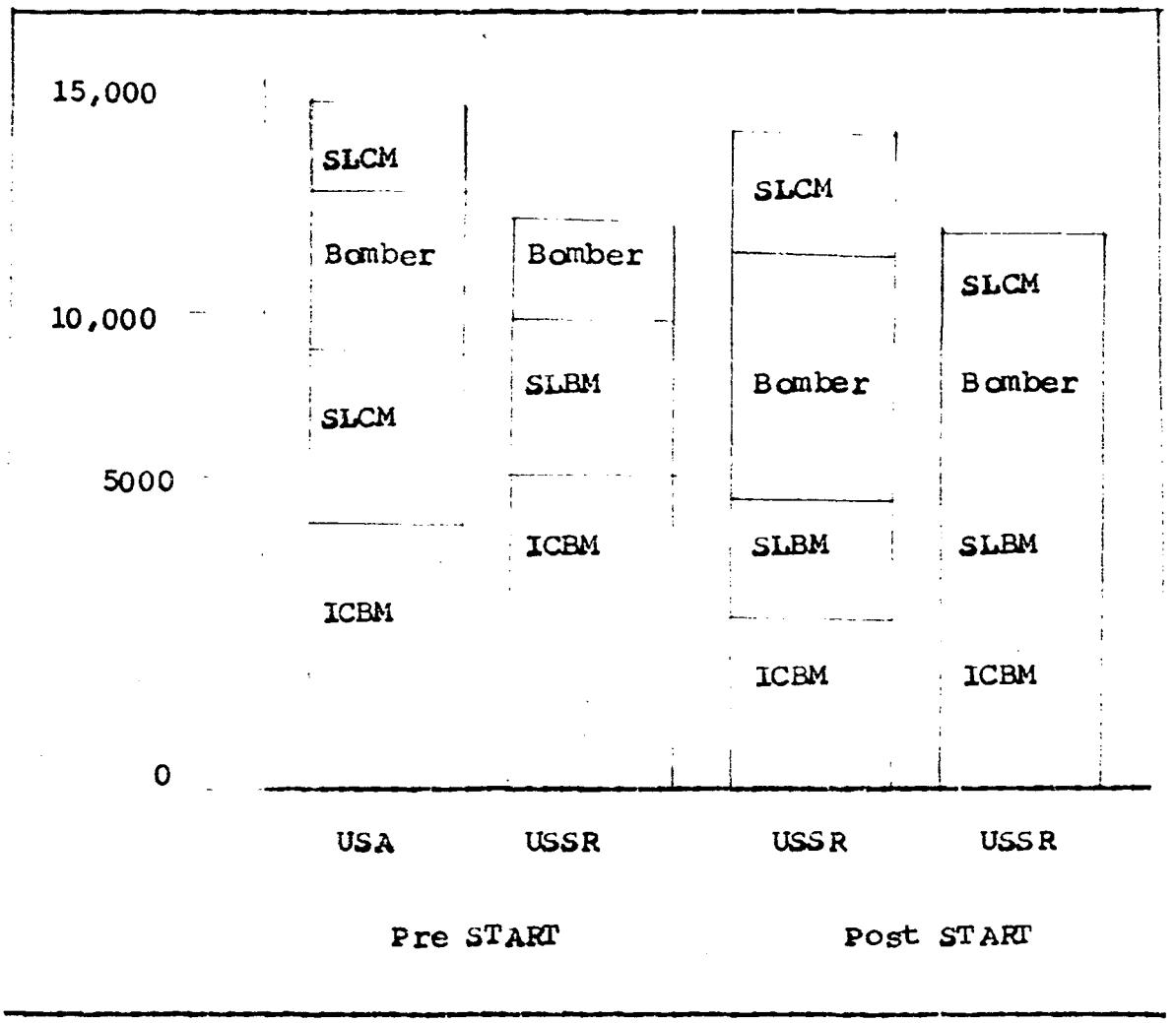
22 M.J. Mazarr, "START and the Future of Deterrence" (St. Martin's Press, New York, 1991), p. 8.

23 M.M. Kampelman, START Completing the Task, The Washington Quarterly (Washington), vol. 12, no. 3, Summer 1989, p. 7.

Figure – 1

Pre and Potential Post-START Treaty
Nuclear Warhead Holdings



Source: SIPRI Year Book: World Armaments and Disarmaments, Oxford University Press: New York, 1991.

Chapter III

VERIFICATION PROBLEMS AND RESOLUTIONS

Verification issue was one of the most debated and long negotiated aspect of the START. It involves a multitude measures for verification. On many of these, the United States should stic to its position. On others, it will need to alter its approach over time. Its objective must be an effectively verifiable treaty. This will require and sometimes highly intrusive measures. The United States must recognize that not all intrusive measures can be acceptable to itself (if they would give the Soviet Union access to highly sensitive US facilities and information or would unduly constrain US flexibility to structure US forces or operate them effectively). According to Max M. Kampelman, "No arms control agreement, therefore, can be perfectly verifiable. Trade - offs will have to be made between verification and other important U.S. objectives."[1] The key test will be whether particular trade-offs are justified and whether the resulting verification regime will protect US security by ensuring timely detection of any militarily significant violations.

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1 M.M. Kampelman, "START: Completing the Task", Washington Quarterly (Washington), vol. 12, no. 3, Summer 1989, p. 14.

Testifying before the US Senate in January 1988, American Secretary of State George Shultz said of the Intermediate-range Nuclear Forces (INF) Treaty: 'this agreement has the most stringent and comprehensive scheme of verification in the history of arms control'. Yet, on his way to a February meeting in Moscow with the Soviet Union's Minister of Foreign Affairs, Eduard Shevardnadze, he referred to the process of INF verification debate as 'child's play' compared with the requirement for verifying the Strategic Arms Reduction Talks Treaty (START).[2]

The limited progress in START negotiations since the Washington Summit in December 1987 was blamed in part on verification issues. There exist verification technologies and logistics to verify START. But START requires careful elaboration and analysis. In short, START agreement is verifiable provided if it does not place too much of burden on technology and logistics.

Problems Compounded

Three main enduring problems are there to be compounded for the compliance of START treaty's verification.

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2. Jeremy K. Leggett and Patricia M. Lewis, Verifying A Start Agreement: Impact of INF Precedents, Survival, September/October 1988, p. 409.

1. Onsite inspection of ICBM and SLBM warheads, as well as of ALCMs, would have to be extremely "intrusive". The problem might not be too severe with respect to a fixed-site missile in a stationary silo, but verifying any mobile system would be a nightmare. The missile could be inspected at one place and then be moved to another, in the process being armed with a new warhead.

2. There would thus be a tremendous incentive to cheat, especially with respect to mobile systems. A mobile missile whether an ICBM or SLBM is by definition difficult to locate; it easily could be slipped into some covered shed, where warheads are switched. A constant and comprehensive verification of SLBMs, and especially air craft carrying ALCMs, would be virtually impossible.

3. Changing the verification procedures seems to violate that basic principle often as KISS - "Keep It Simple, Stupid". As we know from repeated Soviet violations of SALT, in making missile tests by encryption, relatively simple monitoring system can present problems. Moving to a system requiring constant monitoring would be virtually impossible. Predictions are always risky to make in this turbulent world, but a count - down could almost be started from the day any such agreement was signed, before

cries of "cheating" would come from many quarters.[3]

American official noted that START includes a wide variety of very demanding verification measures, including:

- a ban on the denial of telemetry data during missile flight tests, which the official called "a real breakthrough".
- detailed data exchanges on numbers, locations, technical characteristics of weapons system which will be periodically updated.
- a ban on concealment and measures that impede verification.
- a series of cooperative measures to assist in monitoring mobile ICBMs, including short - notice inspections and displays of mobile launchers.
- Comprehensive baseline and short - notice inspections of ballistic missile to count the actual number of warheads on them.
- continuous monitoring of the production facilities for mobile ICBMs.
- mandatory suspect - site inspections of places of where ballistic missiles could be illegally

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3 J.L. George, "The Two Track Dilemma in the START Negotiations", Strategic Review (New York), vol. XVI, no. 1, Winter 1988.

assembled.[4]

The US official acknowledged that mobile missiles, by their nature, are more difficult to count than silo-based missiles. Nevertheless, officials were confident that there were whole series of provisions in the START Treaty that are explicitly tailored for verification of mobile missiles, thereby giving confidence to the US that it will be able to verify the limits on mobile ICBMs.

Under START, the United States will be allowed to download the Minuteman - III, which has three warheads, down to one or two. The Soviet SSN-18, a submarine-launched ballistic missile, already had been converted from seven warheads to only three. This change will be treated as downloading.

START Verification Scheme Agreed in Principle

The present shape of the START verification scheme dates back to the Washington Summit in December 1987, when the Joint US-Soviet Summit statement spelt out a detailed verification package which the two sides believe they can negotiate in principle. That scheme extended previous drafts in several key areas, notably concerning warheads - per - missile and SLCM.

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4 USIS, New Delhi, 27 July, 1991.

Limited additional progress on air-launched cruise missiles (ALCM) and mobile missiles was made at the Moscow Summit in May-June 1988.[5]

According to the agreed scheme, data exchanges are to include the number and location of strategic weapon systems, and specified facilities for production, final assembly, storage, testing and deployment. Baseline inspections are to be carried out to verify this data, and elimination inspections will be conducted as the two sides reduce to the agreed level of 6,000 warheads and 1,600 delivery vehicles, and the particular ballistic missiles warhead sublimits (which have yet to be agreed). Continuous perimeter portal monitoring will be carried out at a number (to be decided) of critical production and support facilities. These, plus the challenges on - site inspection (OSI) of declared facilities (again, a number of OSI and a number of such facilities still to be decided) would be conducted on the same principles as those for the INF Treaty.[6]

A critical departure from the INF precedent is that short -notice challenge inspections will be

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5 Hans Binnedijk, 'START: Down the Homestretch', Washington Quarterly (Washington), Autumn, 1988, pp. 5-18.

6 Jeremy K. Leggett and Patricia M. Lewis, 'Verifying a START Agreement: Impact of INF Precedents', Survival (London), Sept./Oct. 1988, p. 414.

allowed at locations, not listed in advance, where either side believes covert deployment, production, storage or repair of strategic offensive arms could be occuring. There is still uncertainty within the US delegation over the scope of such OSI, and of the number of facilities which will have to be continuously monitored in the manner of votkinsk. According to the former CIA Director William Webster, 'we find substantial concern, even opposition, among the military'. Those who voice concern, cite the problems involved in fencing off facilities and shutting down production lines during inspections.[7]

In this respect, the history of deliberations over OSI in the run - up to the completion of the INF Treaty is interesting and pertinent of START. A verification annex tabled by the US on 12 March 1987 stressed short - notice on-site inspections. Americans privately said the US envisaged assigning 200 Soviet inspectors to between six and fourteen facilities where American missiles were produced, assembled, stored and maintained.[8] A Department of Defence verification expert told the Washington Times: 'We're not afraid of the Soviets saying yes. I'd like to see Gorbachev apply his glasnost policy to arms

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7 Arms Control Reporter, 10 May, 1988.

8 Los Angeles Times (Los Angeles), 16 March, 1988.

control'.[9] When the USSR tabled a draft treaty for the removal of INF from Europe on 27th April, 1987, verification suggestions included inspections of factories and not just at gates but inside. A Pentagon official quoted in the Los Angeles Times said: 'It is remarkable the extent to which the Soviets had adopted American concepts in their treaty language of verification'.[10] Later, on 21 July, 1987, General Secretary Gorbachev announced that the Soviet Union was adopting the Global 'double zero' concept for SRINF and long-range INF. On 25th August, 1987, the US tabled new verification proposals. According to the State Department, these responded to the changed circumstances of a global 'double zero' treaty: suspect site OSI were now to be confined to certain ground-launched ballistic facilities. However, other Administration officials said the move reflected considerable objections and Department of Energy to Soviet inspectors having widespread access to sensitive military facilities.

The Bush Initiative of June 1989

In order to intensify efforts to define and clarify verification provisions even while the negotiations for a START treaty were being conducted,

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9 Washington Times (Washington D.C.), 13 March, 1987.

10 Los Angeles Times (Los Angeles), 3 May, 1987.

President Bush launched a new verification initiative in June 1989.[11] After initially criticizing the initiative (largely on the basis that it might delay the conclusion of a START treaty), the USSR formally joined the initiative at the Wyoming meeting of foreign ministers in September 1989. The resultant Agreement on verification and stability pleasures provides for so called 'Pilot trails' that would ascertain whether particular START provisions could be verified to the satisfaction of both sides. Following these pilot trials, more specific verification provisions would be negotiated and included in the text of the START Joint Draft treaty. In an indirect acknowledgement that a START treaty might be declared by a lengthy verification trials, the Wyoming agreement stated that these measures must not slow down work on the START treaty 'in any way whatever'.[12] Indeed, both sides had moved swiftly in their joint attempts to implement the Wyoming mandate. On December 1989, at the end of the 12th round of the START negotiations, the USA and the USSR had reached agreement on such specific verification as the tagging of ballistic missiles, and the inspection

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11 J. Rubin, 'As START resumes, Bush Pushes early Verification', Arms Control Today (Washington D.C.), vol. 19, no. 6, August 1989, pp. 24-25.

12 'The Wyoming Papers', Arms Control Today (Washington D.C.), vol. 19, no. 8, October 1989, p. 25.

of strategic bombers and ballistic missiles warheads'.[13]

In late November and early December 1989, the two START delegations together with technical experts from both the USA and the USSR, met in Geneva to exchange information and demonstrate techniques for ballistic missile tagging. The USA demonstrated its 'reflective particle tag'. This tag is made of plastic material with reflective crystals of random shapes and sizes which after it was attached to missiles of a particular type provides unique identification features. The USSR demonstrated its tagging technique and both sides found that their approaches were rather similar, suggesting that their demands concerning reliability, durability and non-removability of the tags were also similar.

The trial inspections of strategic bombers would focus on each side's ability to distinguish between bombers carrying ALCMs and those that do not. Under the agreement, 10 observers from each side will visit on operational airbase in the other's country. They will then be shown three bombers, two carrying ALCMs - and one carrying bombs. On the basis of a list of differentiating features supplied by the

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13 F. William, 'START makes little progress on big issues', The Independent, 9 December, 1989.

exhibiting side, the observing side will determine its ability to identify distinguishing features such as ALCM mountings and weapon bays large enough to carry ALCMs. A period of eight hours had been alloted to each exercise, which includes a tour of the respective base. The base tour is important in that it provides information on where bombers might be located during a genuine inspection. The USSR would host first trial inspections of strategic bombers. The USA would inspect two versions of the Bear bomber which would be followed by Soviet inspections in the spring of 1990 on a date to be announced.

The trial inspections of ballistic missile warheads serve the purpose of verifying the declared number of warheads on different types of missile. Each side would demonstrate inspection procedures for two of its strategic missiles. The USA would exhibit an MX ICBM and a Trident II SLBM. The USSR will exhibit an SS-18 ICBM and an SS-N-23 SLBM. The first trial inspection will be of the MX ICBM. The entire concept of verifying the number of warheads inside a missile nose-cone is completely new. Indeed, that the two sides could even agree to conduct trial verification of missile warheads at all was, in itself remarkable. However, the acceptability of the suggested measures will depend upon how each side judges the reliability of as yet untried sensor technology.

Significant progress in establishing common ground for verifying some of the most crucial provisions of a START agreement had been achieved. The three agreements of December 1989 testified to a willingness on the part of the USA and the USSR to tackle complex and sensitive verification issues in a spirit of cooperation. The extent to which improving relations between the two sides facilitates agreement on verification issues and perhaps even lessens the demands upon a verification system cannot be determined at this time. The success of trial verification and other START verification measures yet to be agreed will tell.

Verification of Counting Rules

Perhaps the central requirement for verifying a START agreement would be monitoring the number of strategic nuclear warheads of each type of each Super Power's arsenal. Because most missiles have a number of MIRV, and bombers could carry more than one missile, it was always easier to monitor the number of missiles/bombers rather than the number of warheads. SALT II tackled this problem by assuming the maximum possible number of warheads per delivery vehicle. The agreed statements on counting rules in the START negotiations do not adpot this solution. Instead, it was proposed that each delivery vehicle is deemed to carry an agreed 'typical' operational

load. Therefore, even in the event of deep cuts in the strategic arsenal, unless the two sides are sure that the counting rules are valid, there could be hundreds of unaccounted warheads. Verification of these counting rules needs to be carefully considered.[14]

The agreement to define a number of warheads on each deployed missile type had the advantage of making the issue of sublimits easier to resolve. Critically, the number of warheads agreed for the Trident D-5 missile was eight, which reflects the US view of strategic stability by allowing a larger number of Trident Submarines than if the SALT counting rule had been applied. For SALT, warheads on particular missiles counted according to the maximum number with which the missile had been flight - tested. The 'penalty' was that by allowing smaller numbers of warheads than the capacity, still more intrusive cooperative measures of verification will have to be agreed.

Although missiles and launching vehicles can be seen by satellite, it was not possible to determine the number of warheads on the missiles with existing satellite technology. On-site inspections, however, will allow the determination of the number of nuclear

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14 Jeremy K. Leggett and Patricia M. Lewis, 'Verifying a START Agreement: Impact of INF Precedents', Survival (London), September/ October 1988, p. 419.

radiation emitters, or 'hot spots' contained within the front and of a weapon. A March suggestion for inspections of weapon sites by the US experts inspectors to be able to select missiles at random, and count the installed warheads once the nose-cones have been removed. These inspectors will not necessarily have to see below nose-cones, but they will need to be able to hold sensors over open missile tubes to assess the number of warheads in place below nose-cone. One idea being aired in this respect was to use a drape to cloak warheads after the nose-cone had been removed. 'State - of - the - art' nuclear radiation detectors can be held above the nose-cones. The signals derived as they scan, which could be analysed on the spot, will reveal whether or not the warheads contain fissile material and how many warheads there are per missile.

This form of OSI may be viewed as over-intrusive, even if a shroud on cover was placed over the exposed nose-cone. The political and military sensitivities involved with the concept of teams of inspectors being very close to the warheads may be too contentious. In that event, one way around the problem was to scan the front ends remotely, so that large numbers of inspectators do not have to go aboard ships. Remote scanning within a few metres of the warheads can be done by a robotic arm, of the

type used in many modern day factories, kitted out with a collinating nuclear radiation detector which transmits signals to the inspectors on shore. In order to check that the robot scans all of the required missiles, there could be one or two inspectors on board to reposition the scanner for each missile and to instruct its movement as it scans. In this way, the inspectors can be satisfied that the data required for verification of adherence to the counting rules is collected and the inspected side can be assured that the inspectors could not collect sensitive military data.[15]

In the case of verifying counting rules, National Technical Means (NTM) data will already have been used to acquire a check - list of how many of each type of missiles are deployed, and where they are stationed or which vessels they arm. This will have been compared with the data provided during the base-line number of delivery vehicles at any one time can be built to high levels. Therefore, much will depend on the OSI for warhead counting. During such an OSI if any of the missiles is found to contain more than the agreed number of warheads, then not only was that a violation -- with all the political

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15 O. Greene and P.M. Lewis, in F. Barnaby (ed.), Handbook of Treaty Verification (London: Macmillan).

consequences that entails -- but also every missile of that type will be deemed to carry that number of warheads. Under the terms of the treaty, the violating party would then be obliged to dismantle enough missiles to bring them into compliance, with the total agreed number of warheads. The likelihood of such a violation being detected would be high, and the consequences are dire - exactly the requirements of an effective verification regime.

The START, judging from the agreements that was signed last year in Moscow (1991), will be certainly verifiable. The difficulty lies in deciding exactly what is necessary for effective verification.

Because the reductions will include limits on mobile missiles, numbers of warheads on multiple warhead missiles and on nuclear sea-launched cruise missiles, verification using only national technical means will not be sufficient. The INF Treaty negotiations and subsequent early implementation has demonstrated that NTM can be successfully supplemented by OSI and it was these experiences which will be carried into verification of START.

The reduction (and hence elimination) of missiles under a START deal will enhance the confidence in estimates of the size of the stockpiles that are left at the elimination phase provided confidence is high

in the initial data. The real difficulty lies in monitoring the levels of limited strategic nuclear arms over the following years. Monitoring numbers of missiles leaving production facilities will certainly help in this respect, because the missiles will be limited, rather than totally prohibited, further checks will have to be made. In addition, the possibility of production at unknown sites cannot be overlooked.

However for the verification of land-based mobile missiles that technology had to be applied for checking the limits of nuclear SLCM. Of course, verification should not be the sole, or even the main, reason for a decision so fundamental to strategic planning. There are many other considerations, outside the scope, which lead analysts to conclude that nuclear SLCM should be totally eliminated, but the verification arguments do merit careful consideration in the SLCM debate.[16]

START verification should also be understood as a means to improve political relations and to promote Soviet reform.[17] There are important lessons to be

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16 Paul Nitze, in International Herald Tribune, 7th April 1988, and Ivo H. Dealder, Bring this pause on START, Time for Rethinking, International Herald Tribune, 17th June, 1988.

17 James P. Rubin, 'START Finish', Foreign Policy (Washington), no. 76, Fall 1989, p. 118.

learned from the negotiations leading to the INF Treaty, and from those which are now in progress for strategic reductions.[18] Not the least of these lessons is that it is vital to research verification technology and their implementation well in advance of the conclusion of treaties. Not to do so can lay governments open to accusations of lack of commitment to verification, and therefore to arms control.

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18 J.K. Leggett and P.M. Lewis, 'Verifying START Agreement; Impact of INF Precedents', Survival (London), September/October 1988, p. 427.

Chapter IV

CONCLUSION

The START Treaty which was signed on 31 July, 1991, in Moscow by the Presidents of United States, George Bush, and Mikhail Gorbachev of Soviet Union represents nearly a decade-long effort by the United States and the Soviet Union to address the nature and magnitude of the threat that strategic nuclear weapons pose to both the countries and to the world in general. The general euphoria of START had been that, the United States and the Soviet Union despite many political differences both had a common interest in reducing the risk of nuclear war and enhancing strategic stability.

The START treaty heralds a new, possibly final stage in the nuclear competition, a stage in which the military utility of nuclear weapons was firmly rejected and in which both sides recognised the basic stability of a continuation of mutual vulnerability at much lower levels of weapons. Under START, each country would enunciate very restricted potential responses to a limited nuclear attack, thereby, building a credible bridge between peace and all-out war to help deter limited attacks.

START will be the first Treaty that actually reduces strategic offensive arms. START will lead

to stabilizing changes to the composition of and reduction in the deployed strategic offensive nuclear forces of both countries. The overall strategic nuclear forces of both countries will be reduced by 30 - 40 per cent with a reduction as much as 50 per cent in the most threatening systems. The Treaty will have a fifteen year duration, and can be extended for successive five year periods through the agreement of the parties.

START represents a critical watershed in super powers long-term effort to stabilize balance through arms control. Stabilization of the strategic balance will help cement one of the most fundamental tenets of our preferred world order - that conflict must not and shall not be resolved through the use of nuclear weapons.

US Senators are likely to be concerned about the fact that the negotiating policy of successive administrations presumed a corresponding relationship between arms control objectives and the procurement of strategic nuclear systems, many of which are not yet in the place and are likely to be deployed in the desire basing mode or in the number originally planned. While Congress itself has largely been responsible for procurement cuts and delays, the fact that the START treaty assumes a different kind of US

force structure than is likely to be in place when the treaty comes up for verification will be seen as a failure on the part of the Bush Administration to harmonize domestic constraints of force procurement with its stance at the negotiating table.

While START looks relatively good from the today's vantage point, its long term outlook is disturbing. Although it represents a marginal plus for stability when looked at in the present - as a snapshot -- in the run as a moving picture -- the trend leads to a greater strategic instability. START's failure to zero on heavy missiles will allow the U.S. and Soviets to maintain a dangerous first-strike capability into the indefinite future. START's failure to reduce adequately the concentration of warheads on MIRVed ICBMs ensure the existence of first strike for the US attempts currently doubtful in the Soviet case.

The negotiating positions and the understandings reached date strongly suggest that the USA and the USSR favoured a START agreement that allowed them to pursue their planned strategic modernization programmes. By the mid to late 1990s, the two sides would field modern strategic delivery vehicles and warheads of increasing accuracy. Many START prescribed force reductions would be met by

phasing out older weapons and platforms. START's combination of an overall limit on the number of strategic SNDVs, a sublimit on the number of ballistic missile warheads and a ceiling on the number of accountable warheads would serve to reassure each side that the forces of the other are not capable of launching a disabling first strike. Improvements in ICBM mobility, together with continued confidence in the opaqueness of the oceans would sustain the confidence of each side in the survivability of its forces.

Nevertheless, the largely positive impact upon strategic stability provided by a START could be potentially offset by military capabilities that remain uncontrolled or outside the agreement -- the failure of the USA to shift to mobile basing mode for a considerable part of its ICBM force (if the maintained based leg of the triad is to be maintained at all) and a verification regime that fails to provide effective verification of a treaty compliance.

The START Treaty has various limitations which could effect the Strategic Balance. All that the START Treaty tried to achieve was to reduce the first-strike capabilities of both the super powers and also the existing over-kill capability. When the START Treaty was concluded the United States was negotiating with the super power, the Soviet

Union then, existing as a super power and a huge State. In that context, certainly START Treaty provide super powers strategic balance. The whole scenario had changed since the disintegration of the Soviet Union and emergence of Independent Republics united in a loose Federation called Commonwealth of Independent States (C.I.S.). The Soviet Union strategic missiles are now under the control of different Independent States with a larger number of strategic missiles located in the Russian Federation. The strategic missiles are also located at Ukraine, Kazakhistan, Uzbekhistan and Siberia. Under this scenario, the START Treaty appeared to have lost its relevance. The United States has emerged as the most powerful nuclear weapon state without having the compulsion to implement the limitations of the START Treaty. At the same time US and Western power are busy during the last one year suggesting plan to totally disarm, destroy or purchase of the erstwhile Soviet Union strategic weapons. Both credit and technological aid is offered as Carrot to entice the CIS to agree for disarming of the nuclear weapons. While this process is progressing the ratification of the START Treaty appears to have lost its relevance ever since the disintegration of the Soviet Union.

Therefore, START's Treaty remains as a well documented strategic reduction exercise paper.

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