

CHALLENGES & OPTIONS FOR INDIA'S DIPLOMACY IN THE MISSILE NON- PROLIFERATION NEGOTIATIONS

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PREFACE

The change in the global political situation from that of two superpowers to that of one Superpower has reshaped diplomatic policies and political affiliations rather dramatically, obviating the need for vast strategic arsenals and making the possession of 'missile based deterrence' a paramount concern. In a dispensation where the larger the store, more the strength is the tacit rule, India's concern about developing indigenous missile system is only genuine. To aggravate its worries, China's formidable nuclear tipped missile capability, its frequent supplies to Pakistan, and co-operative enterprises with Iran, and Pakistan's blatantly truculent attitude, are enough reasons. This Indian concern was translated into the initiation of IGMDP in 1983. The launch of Rohini-1 in 1980, showed its potential for military use as well and on rolled IGMDP to the swelling unease of the G-7 nation and India's neighbours.

The 1987 MTCR restricts the flow of missile related technologies to themselves stopping the third-world countries from this, on the pretext of helping maintain regional peace and stability; and thereby preserving their military superiority. MTCR lacks international legitimacy, is inequitable and discriminatory, implicitly entitling the member states,

to modernize their systems whereas criticising the similar programmes of the non-member States. Expanded MTCR controls ban all missile export to the third world countries.

Exerting pressure on India on the pretext of the dual use capacity of these systems, the US led MTCR has been adamant to thwart all its indigenous programmes. But despite the stiff exports-control mechanisms India has sustained challenging industrial and security policies. India's successful deployment of Agni and Prithvi have sent ripples of alarm in the US-circles. Sustained anti-India campaigns by the US led MTCR has only encouraged India to develop a successful ballistic programme.

The proposed study is divided into four chapters. The first chapter deals with the proliferation of missiles and related technologies during 70s and 80s. It has also dealt with the structure and scope of the Missile Technology Control Regime.

In the second chapter, an attempt has been made to study the stages and capability of the Indian Missile programme. A brief survey of the Indian missile namely Trishul, Akaash, Nag, Prithvi, Agni developed under Integrated Guided Missile Development programme has also been done in this chapter. It has also tried to study the import of Missile Technology Control Regime on Indian missile programme.

The third chapter deals with the perceptions of big powers and neighbours like USA and China on Indian missile programme. This chapter is basically an attempt to understand and analyse the diplomatic contours of India's bilateral relations with reference to the MTCR.

This study ends with a concluding chapter on the diplomatic options for India with references to the missile non-proliferation diplomacy.

CHAPTER I

THE PROBLEM OF MISSILE PROLIFERATION

- * Missile Proliferation in the Third World:
Pattern of Acquisition
 - * The Missile Technology Control Regime:
Background, Structure and Scope
-

Every century throws up its potent weapon of war. The computer today has become central to all military technological developments. Television coverage of the US troops in the Gulf War, flipping open tiny "Trimpack" satellite receivers to give their bearings provided first clues to how deep this dependence on automation had penetrated into the military psyche. Perhaps they do, but as we enter the last five years of this century, it looks increasingly as if a foot soldier may soon be relegated to being a carrier of hightech hardware which will point him in the right direction and tell him what to do. The "Patriot" anti-missile system was the most talked about weapon system during the operation "Desert Storm". In its first engagement of war, a Patriot detected, intercepted and destroyed an Iraqi sent tactical battle missile in the sky.

The term missile evokes in the minds of most people the image of ICBM (Inter Continental Ballistic Missile) taking off from one continent to land in another, thousands of kilometers away. In actuality, missiles come in variety of sizes, designed to meet specific requirements, from the leviathans of the ICBM class to the tiny shoulder-fired missiles, which fly only a few kilometers and weigh only a few kilograms.

The collapse of the Soviet Union and Berlin wall in the beginning of the 90's created a turbulence in international strategic environment characterised by an extra emphasis on acronyms: NPT (Nuclear Non-Proliferation Treaty), MTCR (Missile Technology Control Regime). However, in the realm of nuclear non-proliferation, countries are now awash with all technical arguments and moves and counter-moves on the chess-board of diplomacy. Therefore, a proper definition of ballistic missiles is needed to understand the perspective of missile non-proliferation diplomacy. Despite its universal acceptance the term "Ballistic Missiles" is not easily defined. While assessing a problem involving dozens of programmes in many nations, a clear definition is needed to set the boundaries of the problem and to determine whether a particular programme is a source of concern.

Existing treaties and provisions of international law offer scant help. The first treaty to restrict ballistic missiles, the 1972 SALT-I agreement defines ICBM as "Ballistic missiles with a range of 5,500 Kilometers".¹ The unratified 1979 SALT-II treaty defines cruise missiles but adds nothing to the definition of ballistic missiles. The first general definition established in an agreement was in the

1. Stolckhom International Peace Research Institute, Oxford University Press, 1990, p.384.

1987 INF (Intermediate Nuclear Force) treaty. This states in article-II that the term ballistic missile means "A missile that has a ballistic trajectory over most of its flight path, meaning that a trajectory is arched by gravitational process".² This is similar to the US Defence department definition, but it is too broad for general use since it includes even the smallest rockets and some artillery shells. The 1987 MTCR also does not offer any general definition of ballistic missiles.

The definitions based on flight altitude or range can exclude important short-range systems. For example, long-range missiles pass through outer space, above an altitude of approximately 84 kilometers (52 miles or 1,75,000 feet). The missiles with a range of less than 300 kilometers including most third world ballistic missiles, stay within the atmosphere.³ Missiles with a range of less than 40 kilometers are usually considered artillery rockets.⁴ However, at least one ballistic system, the US "Honest John" with a maximum range of 37 kilometers and many other large artillery rockets can cover as far as 80 kilometers and reach

2. Ibid.

3. Ibid.

4. Ibid.

many major cities in any possible regional conflict.⁵

Until the definitional muddle is resolved, general analysis of ballistic missile proliferation will be imprecise, and arms control and disarmament, which rely on clear and mutually acceptable definitions cannot live up to that potential. For our purpose, "A ballistic missile is any unmanned self propelled weapon delivery vehicle that can be used in a surface-to-surface role and which sustains a ballistic trajectory through most of its flight without relying on aero-dynamic lift."⁶

Ballistic missiles use rockets to propel them in parabolic arcs in order to deliver payloads to great distances with fuel efficiency. They utilise solid or liquid fuel for propulsion and relatively advanced navigation, guidance and control technologies needed to deliver their payloads with accuracy. Missiles are considered more destructive than other types of delivery systems because of their speed. As a result, they are a stronger incentive for a nation to strike pre-emptively against its opponents and missiles tend to justify the acquisition of unconventional warheads. Missiles are likely to be preferred delivery systems in developing countries because of their synergy and similari-

5. Ibid.

6. SIPRI, 1992, p.362.

ty with space launch technology. Developing countries are often motivated into missile procurement by the regional rival acquisition. And finally, development of ballistic missiles is an indicator of technological advancement for a nation's military industry. Acquisition of even a few missiles with mass-destruction payloads immediately commands the recognition of other countries in world affairs.

During the 60's and the 70's very few third world countries had ballistic missile capabilities with limited range. The qualitative and quantitative increase in ballistic missiles raised the concern of nuclear and chemical weapons proliferation. Consequently, the 1980's witnessed the transformation of ballistic missile proliferation from a relatively minor international question to an issue at the top of the international disarmament agenda. The primary reason was the phenomenal growth in international trade in ballistic missiles. In the 1980's, there was a fundamental shift in the strategic military thinking in the third world countries and missile based defence systems were given a due or higher priority. Many third world countries also launched or started strengthening their space programmes resulting in many of them developing their own space launch vehicles (SLV's). During the Iran-Iraq war in the 1980's ballistic missiles were freely used. They also reportedly

freely used chemical weapons in this war. Thus, international concern related to missile proliferation began to grow.

Missile Proliferation in the Third World: Patterns of Acquisition

There are four basic ways in which a country can acquire ballistic missiles.⁷ Firstly, missiles can simply be purchased or are given "off the shelf" by foreign suppliers. Secondly, some large technical missiles such as surface-to-air missiles can be modified for greater range. Thirdly, growing number of countries are trying to develop and manufacture their own ballistic missiles. Withal, some of these countries are developing sub-orbital sounding rockets or space vehicles which can potentially be used as ballistic missiles. Thus, in some cases missile technologies have been developed from space programmes (Argentina, Brazil, India and Pakistan). However, in other cases like South Korea and Israel missile technologies predate space programmes. Both these countries are using the spin-off from their missile programmes for the benefit of the space programmes. In addition, another dimension of missile procure-

7. International Institute of Strategic Studies (London), Ballistic Missile Proliferation in the Third World, Adelphi paper no.252, p.47.

ment has been the possibilities of some of these third world countries themselves becoming the major exporters of missiles and missile-related technologies along with the prospect of extensive technology sharing and pooling of their resources and technical know-how. For example, Israel's aid to South African efforts to develop IRBM (Intermediate Range Ballistic Missile) and Brazil's massive export of rocket equipment worth millions of dollars were the pointers towards the emerging trends.

The region in which ballistic missiles have been used and are most likely to be used, is the Middle-East. Originally, the supply of missiles to Middle-Eastern countries came from the superpowers. The erstwhile Soviet Union supplied limited numbers of conventionally armed Scud surface-to-surface missile to Egypt, Iraq, Syria and Libya. The US supplied Israel with more advanced Lance missiles in the mid 1970's - as a compromise, when Israel requested purchases of the more advanced Pershing missiles.⁸ With the exception of Israel and South Korea the United States refused to transfer whole ballistic missiles system outside

8. Rodney Jones and Hardd Muller, 'Preventing a Nuclear Sarajevo', Arms Control Today, vol.19, no.1, (January/February); 1989, p.17.

NATO.⁹ In 1988, China made a conspicuous appearance in the ranks of ballistic missile suppliers by providing Saudi Arabia with conventionally armed CSS-II "East Wind" IRBM's (Intermediate Range Ballistic Missiles), with a 2,700 Km. range capable of reaching Israel.¹⁰ Saudi Arabia later tried to temper its potential threat to Israel by agreeing to sign the NPT. Indigenous development programmes in the region are abundant as well. Israel tested its Jericho-II missiles with a 1,450 km. range in 1989. A Pentagon report made public under the Freedom of Information Act also disclosed that Israel indigenously developed Jericho-I missiles armed with nuclear and chemical weapons.¹¹ The Iran-Iraq war also proved the missile capability of these two countries.

India also test-launched missiles of its own; its Agni, two-stage rocket was fired on May 22, 1989 with a range of 2,400 km.¹² This missile has sufficient range to hit all of

9. 'Look What I Found in My Backyard', The Economist, 27 May, 1989, p.45.

10. "David Ottaway, "Israel Reported to Test Controversial Missile", Washington Post (16 September 1989), p.17.

11. Norman Kempster, "Pentagon Discloses Israel Nuclear Missile", Los Angeles Times (15 November 1989), A5 and also see "NRDC Says Jericho IRBM is Nuclear, Chemical Armed", Jane's Defence Weekly (25 November 1989), p.1143.

12. n.9, p.44.

Pakistan as well as parts of China and Iran. The Agni launch followed that of Prithvi, a short range ballistic missile, in February 1988. India has had a specially successful indigenous space programme, initiated in 1963 by the US launch of a sounding rocket on Indian land.¹³ India benefited initially from joint rocket projects with the US in the 1960's and then later from transfers of French liquid technology from the Viking rocket motor and German guidance technology.¹⁴ Its first space launch vehicle programme, the SLV-III (Satellite Launch Vehicle - III) was initiated in 1973 and it launched its first satellite in 1980.¹⁵ The SLV-III's nine tonne booster was adapted into boosters of both the Agni missiles and India's ASLV (Augmented Satellite Launch Vehicle). A confirmed example of synergy between space and missile programmes, if converted into a missile system, the ASLV is expected to have inter-continental range. Competing with the ASLV is the PSLV (Polar Satellite Launch Vehicle), with a liquid fuel second stage, based on the Viking engine developed by France for Ari-

13. Gary Milhollin, "India's Missiles - With A Little Help From Over Friends, Bulletin of the Atomic Scientist (November, 1989), p.31.

14. Ibid.

15. Arthuer Manfredi Jr., 'The Third World Ballistic Missiles Threat Grows', National Defense, vol.71, no.426, March 1987, p.52.

aneroCKET. The PSLV is larger than the previous Indian rockets designed to lift payloads into distant orbits. Plans for an even larger geo-stationary SLV have become more coherent but uncertainty about the ability to develop adequate engines has delayed the final decision.

For its part, China detonated an atomic bomb in 1964 and has deployed a number of IRBMs, Inter-continental and sea-launched ballistic missiles (ICBMs and SLBMs).¹⁶ It exported a number of 'CSS II' IRBMs to Saudi Arabia in 1988, 'Silk Worm' Missiles to the Middle East. The M-series of short and medium range mobile missiles is allegedly much more advanced than China's 'East-Wind' and 'Silk Worm' missiles and is similar to the USA's Pershing. The M-9 reportedly has a six hundred km range while the M-11 has upto three hundred km range. The M family is also alleged to be the first missile series that China has designed specifically for export.¹⁷

16. "The Missile Tables, "Defense & Foreign Affairs, n. 12. (March 1989, pp. 31-39).

17. Tai Ming Chung, "China's Bargain Sale: Bangs for a Bulk", Far Eastern Economic review, 2nd June 1988, P. 23.

The Missile Technology Control Regime: Background, Structure and Scope

The rapid vertical and horizontal proliferation during the 1980s made the Western countries apprehensive that these ballistic missiles were capable of delivering chemical and nuclear warheads at long distances. The consequence of the proliferation of the ballistic missiles and the missile related technology among the third-world countries, presently about 21 of which prominent are Argentina, Brazil, Egypt, India, Iran, Iraq, Israel, Pakistan, South Korea, Libya, South Africa and Saudi Arabia and recognising the dangers implied by this development, the seven industrially developed countries (USA, UK, France, Germany, Italy, Canada and Japan) after almost four years of secret negotiations, mainly on the initiative of US, signed a multilateral agreement on 16th April, 1987 and established what they termed as Missile Technology Control Regime.¹⁸ This multilateral agreement announced a policy aimed at limiting the proliferation of missiles capable of delivering the nuclear weapons. The Western countries projected the danger of the third world ballistic missiles being used as the nuclear weapons delivery system. It was based on the fears of possible fusion of nuclear weapons and the ballistic missiles which

18. See Appendix - I.

it was assumed was definite to follow and would finally undermine the NPT regime in a significant way. The MTCR thus became the first multilateral step to include nuclear potential delivery systems under nuclear proliferation controls. It was thus the most significant system under multi-lateral non-proliferation efforts by the seven industrialized countries.

The decision to impose the technology denial and control regime is based on three important assumptions. These are :

1. These dually capable missiles have the potential of being developed into nuclear delivery systems. Many of these countries which are in possession of ballistic missile technology are likely to decide in favour or tipping their missiles with chemical, biological or even nuclear warhead in the not very far off future.
2. Some of these countries have acquired credible nuclear weapons development programme and others have the ambition to follow the forbidden path.
3. Most of these countries have endemic conflict with their neighbouring countries in the region which invites them to acquire and indigenously develop ballistic missiles technologies with an ultimate

objective to develop a missile based defence system. The possibilities of the emergence of such a situation were considered to be ripe in the Middle East, South Asia and Persian Gulf.

The primary objectives of MTCR are to coordinate the western strategy of restrictions on the 'transfer of key technologies to most of these countries and to limit the risks of nuclear proliferation by controlling transfers that "could make contribution to nuclear weapons delivery system or nuclear capable missiles other than the manned aircraft."¹⁹ Third World missiles proliferation, in the perspective of participants of MTCR would not only have serious implications for the global security environment but also threaten the regional peace, security and stability.

It was supposed to have resulted from their "mutual concern over the dangers of nuclear proliferation". They in common agreed to a "set of common guidelines and a common annex of items to be controlled, with the focus on delivery system rather than nuclear warheads."²⁰ The seven countries

19. Arton Karp "The frantic Third World quest for Ballistic Missile" Bulletin of Atomic Scientists (Chicago) vol.44, no.5, June 1988, p.16. Leonard S. Spector, The Undeclared Bomb, (Cambridge, Mass, Balling in 1988), p.36.

20. Frederick J. Hollinger, "The Missile Technology Control Regime: A Major New Arms Control Achievement", USACDA, World Military Expenditure and Arms Transfer (USACDA, Washington, 1987), p.25.

actually had been enforcing the new agreement for about two years prior to the announcement of the regime.²¹

The decision to take measures to control the missile technology proliferation was taken during early years of Reagan administration consequent to its concern that increasing number of countries might launch ballistic missile development programme that may ultimately lead to the development of nuclear capable missile systems. The US was startled at rocket and missile development programmes of many of these countries. Moreover, several of them were supposed to be engaged in activities which could help them develop nuclear weapons. The US objectives, therefore, were stated to be to "design controls on the export of US hardware and technology that would encourage appropriate cooperation in the field of space and minimise the contribution of such exports to a nuclear capable missile programme."²²

The need to rope in other advanced countries to adhere to the basic principles of MTCR was felt because of the fact that space and missile related technologies were available from other countries as well, and only unilateral measures,

21. Jane E. Nolan, *Trappings of Power: Ballistic Missiles in the Third World*, (Washington D.C. Brookings Institution, 1991, p.7.

22. n.19, p.25.

probably would not succeed in achieving the objectives.²³

Its initiative got a positive response from the other six countries and they agreed to enter into negotiations as they also showed concern about the dangers inherent in the proliferation of nuclear capable missiles.²⁴

Though the active initiative was taken only during the Reagan Administration, the necessity of restraining the proliferation of missile production technology was felt during the late 1970s itself when doubts were being raised about the adequacy of existing US export control mechanisms.²⁵ Though, the US Arms Control Act prohibited the direct export of complete missiles, missile components, and missile production technology, the components of ballistic and cruise missiles were much in common with the components of civilian space rockets and remotely piloted vehicles. The US ACDA (United States Arms Control and Disarmament Act), had established in the late 1970s that US technology which could be directly used for missile production could be purchased component by component, apparently for

23. n.19, p.25.

24. Ibid.

25. Adelphi paper no. 252, n. 1, p. 48.

civilian purposes through uncontrolled civilian export licensing procedure.²⁶

During the 1960s and 1970s the issue of controlling the spread of missiles to the Third World countries was not the issue on the agenda in the multi-lateral arms control negotiations, mainly because third world missile development programmes were few, ranges were short, and the focus was more on NPT and not on the delivery systems. Probably, the US did not distinguish between missile capabilities and conventional arms. Moreover, there was very little transfer of ballistic missiles to client-States by the US and the erstwhile Soviet Union themselves and those supplied were of short range. In addition, the US and the Soviet Union themselves had not acquired tactical ballistic missile system until 1970s and 1980s.

India's peaceful nuclear explosion in 1974 at Pokhran was considered partly instrumental in the establishment of London suppliers group in 1975, an agreement among nuclear suppliers to control certain types of nuclear material and equipment to non signatories to the NPT. It was a common policy for nuclear exports especially relating to enrichment and reprocessing technologies. The London suppliers group

26. Ibid.

was not an international treaty but an informal agreement among seven countries whose membership now has gone up to 26.²⁷ The London suppliers guidelines/nuclear suppliers group actually became a model for MTCR. The US government later recognised that MTCR was nothing but the logical corollary of the nuclear supply guidelines.²⁸

In 1970s itself, it was felt that concerns about nuclear proliferation must be accompanied by concern with regard to conventional delivery system which resulted in the distinction being made between the transfer of conventional arms and delivery system. In 1976, in a proposal to a Committee of the Conference on Disarmament, the US representative singled out missiles and manned aircrafts to conventional arms control purposes. The US accordingly subsequently followed a policy of certain regions. In the 1970s and the 1980s the proliferation of more capable ballistic missile systems delivery a nuclear ordnance, and the emergence of domestic missiles development programme according to the West necessitated stronger controls on missile systems. The launching by India of SLV III in 1980 alerted the US of proliferation of space technologies. They started

27. Adelphi Paper no. 171 (London IISS, 1981), also see K.D. Kapur Soviet Nuclear non-proliferation Diplomacy and the Third World Konark, New Delhi, 1993.

28. See Appendix I.

projecting the problem of controlling the transfer of civilian technologies for military research purpose.

The fact of the matter is that during the hey days of cold war ballistic missiles and related technologies including space technologies have flown to third world from both the East and West in pursuit of the economic, political and ideological goals. However, it was the US military technology transfers to its cold war clients which impelled their regional rivals to look to the erstwhile Soviet Union for supply of military equipment. The procurement of arms by the third world which included the ballistic missiles as well was the result of US-Soviet arms aid diplomacy. However, with radical changes in the Soviet Union and with Gorbachev coming to power and signing of the disarmament agreement like INF and START I, the US view of the third world arms development underwent a radical change. Its concerns about the third world procurement and development of ballistic missiles became more vocal.

The Missile Technology Control Regime unlike the Nuclear non-proliferation treaty is neither a treaty nor an executive agreement with no new organization formed to administer it. It is a voluntary agreement among the signatories to follow guidelines to prevent the transfer of technology and equipment contributing to the proliferation

of nuclear capable missiles. The guidelines for sensitive missile related transfer agreed on April 16th, 1987 clearly state that the basic objectives of MTCR guidelines is "to limit the risks of nuclear proliferation by controlling transfer that could make a contribution to nuclear weapon delivery systems other than manned aircraft."²⁹ The MTCR also ensures to develop universality among the adherents relating to export controls.

The Third World countries argue that the West's control over the transfer of military technology would reduce the West's military advantages, which has led to the emergence of new strategic doctrine like the Global Protection Against the Limited Strikes (GPALS). The MTCR assumes that some countries have a right to possess missile technology while others should be denied. The perpetuation of a world order divided into missile technology 'haves' and 'have nots' is simply meant to defend their economic and technological interests from the emerging threats of the Third World, which in their view are irresponsible and unable to control nuclear weapons or long range missiles. The US enthusiasm to control the proliferation of ballistic missiles also stems from its perception that any vertical and horizontal

29. See Appendix-I.

proliferation of ballistic missiles would provide capabilities to many countries to target United States and Europe in the future; threaten US facilities and bases abroad, pose security threats of its friends and allies in North East Asia, South Asia and Middle East; and threaten world peace and military stability. All of them are likely to augment global demands for militarisation and in turn, for weapons of mass destruction.³⁰

The MTCR signatories drew a line between military and civilian space programmes and declared that "it was not designed to impede national space programmes as long as such programmes could not contribute to nuclear weapon delivery system".³¹ However, the control over either the civilian or military space programmes will have adverse effect on the other's progress because of technological overlapping. The MTCR is modelled in accordance with the Co-ordinating committee on the East-West technology transfer or the London Nuclear Supplier Group and also represents an agreement to align national policies and consultation in cases of uncer-

30. Robert Shney, "Missile Proliferation: A discussion of US objectives and Policy Options", CRS Report for Congress, The Library of Congress, February 21, 1990, pp.78-79. Cited in Ravinder Pal Singh, "A Perspective of the Missile Technology Control Regime", Asian Strategic Review, IDSA, New Delhi, 1992, p.205 also see Appendix - I.

31. Ibid.

tainty.³² At the same time, it lacks any enforcement mechanism or international agency to monitor non-compliance of its norms and guidelines. The case of violation of guidelines can only be adjudicated by the municipal laws of the signatories like the US National Defense Authorisation Act, 1990, which deals extensively with MTCR guidelines enforcement.³³ The lack of any collective method to observe the guidelines creates a diplomatic confrontation between the signatories and non-signatories. The signatories also resort to coercive diplomacy to seek observance of countries aspiring to develop their missile and space programmes.

The MTCR categorises the restrictions on the transfers of missiles and related technologies and relevant components into two. The first category comprises the items identifiably dangerous in the immediate context. In other words, items that could be assembled into functional missiles within a small span of time. A component enlisted in category-I is included in a system automatically draws the system itself in category - I except when the included items cannot be separated, removed or duplicated. The category-I items includes rocket systems capable of delivering at least

32. Aron Karp, "The Frantic Third World Quest for Ballistic Missiles", Bulletin of Atomic Scientist, vol. 44, No. 5, June 88, P. 16.

33. The details see Appendix-II

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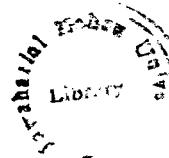
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500 k.g. payload (expected minimum weight of crude nuclear weapon) to a range of 300 k.m.³⁴ the payload is regarded as smallest, capable of delivering a warhead. The distance limit was understood to have been set in accordance with the prevailing situation in the Middle-East, where capitals are in close proximity. Items in this category also include major sub-assemblies, such as a whole rocket stages, rocket engines, guidance systems, re-entry vehicles and warhead parts. Export of ballistic missiles space launch vehicles, sounding rockets, cruise missiles, target dronies, cruise missiles systems, unmanned vehicle systems, reconnaissance dronies, rocket stages, solid fuel rocket, engine guidance sets, solid or liquid fuel engines, thrust vector controls, warheads safing, arming, fuzing and firing mechanism.³⁵ The transfer of the items included in the first category can be allowed only when an MTCR country gets counter-guarantees from the recipient country for the end-use of the component or technology for the purpose it has been given. Category - II items are primarily the basic or production technology that could help produce a country in mass production of

34. For details see Appendix-I

35. For details see Appendix - I and also Ref.to David M. North, "Seven Nations Curb Nuclear Weapon Launch Systems Export." Aviation Week and Space Technology (New York), Vol. 126, No. 16.

missiles. They include propellant, production equipment, avionics equipments, flight controls systems, missile computers, analogue to digital convertors, reduced observable technology materials, launch devices and ground support equipment facilities.

The MTCR requires the scrutiny of the end use of category - II items as well, subject to case by case review and not on presumption of denial. The decision to transfer the items enlisted in both the categories is dependent upon the licencing principles, local government regulations and political interests but ultimate decision lies with the judgment of the supporting country. The decision of the supplier country regarding the export of items takes into consideration factors such as nuclear proliferation concerns, the capabilities and objectives of missile and the space programmes of the recipient state, the significance of transfers in terms of the potential development of nuclear weapons delivery systems other than manned aircrafts. The supplier country also assesses the end use of the transfers on the conditions that the items will be used only for the purposes stated and also such use will not be modified or replicated without the prior consent of the government. Moreover, neither the items nor replicas nor derivatives thereof will be transferred without the consent of the

Government. In the MTCR, it was also agreed upon that the transfer design and production technologies directly associated with any items in the annex will be subject to as great a degree of scrutiny and control as will be the equipment itself in tune with the national legislation.³⁶

The MTCR announced by the seven countries is a set of identical policies having commonly agreed guidelines aimed at gaining counter-guarantee from the recipient state by the suppliers regarding the non use of exports towards military and logistics advancements. The MTCR excludes any possibility of group review or consensus and decisions regarding exports to be taken by individual countries. The MTCR guidelines were revised in November 1991 at the behest of the United States and have been made more comprehensive. The revised guidelines have extended the scope of the MTCR to include missiles capable of delivering biological and chemical weapons. MTCR members' meeting held in November, 1991 in Washington agreed on "extending the scope of regime to missiles capable of delivering all type of weapons of mass destruction".³⁷ Earlier it had been restricted to nuclear weapons. Now it includes all types of warheads

36. Refer to Appendix I.

37. USIS, Wireless File, November 7, 1991, P.6 "Need to Strengthen MTCR,"

irrespective of range. Now even Prithvi with a range of 250 k.m. would be covered by the MTCR as it is capable of carrying biological warhead. The expanded version would include air-to-surface or even ship-to-surface missiles as they have the capability to carry biological warheads. The revised MTCR guidelines have been agreed upon by 22 other partners in the agreement.³⁸ The revision of the earlier MTCR guidelines is based on the contention of the weapon suppliers that the technology and equipment for short range missiles can be transformed to develop longer range missiles as was demonstrated by Iraq's capability to double the range of SCUD missiles by reducing the payloads. The success of cruise missiles during the Gulf War and the technological competence of many third-world countries to acquire has heightened the concern of MTCR. Some of the third world countries are reported to be on the look out for such missiles are within the competence of many of these countries.³⁹ The United States National Defence Authorisation Act (USNDAA), 1990 has categorised the partners of MTCR between two categories. Firstly, MTCR "Adherents" are the countries that participate in the MTCR or those who pursue

38. The Hindustan Times February 2, 1993.

39. Michael wines, "US Arms, Dazzle the Third World", International Herald Tribune, April 3rd, 1991.

to an international understanding to which US is a party and controls MTCR equipment and the technology in accordance with the criteria and standards set forth in the MTCR. Russia, Argentina, Israel and China are termed as 'Adherents'. Secondly, the "participants" are the countries expected to participate in missile control regime building meeting. The original seven members US, UK, France, Italy, Japan, Canada and Germany fall under the 'Participants' - countries. The two categories 'Participants' and 'Adherents' have created some ambiguity. It raises the question as to whether an 'Adherent' to the MTCR guidelines only agrees to control transfer of technology contributing towards nuclear weapon delivery system or it itself also stops developing these missiles and the extent to which it would restricts its own missiles technology development programme. It is also unclear that the information regarding missile development will be extended to the 'Adherents' in accordance with the provisions and facilities of the MTCR. The scale of judgment for a 'Participants/Adherents' to the MTCR corresponds to its response to factors like refusal to provide missile and related technologies to high risk countries, denial of co-production and transfer rights to recipient countries for a missile system or technology assistance, observance of MTCR restraints on the export of missile

technology.⁴⁰ Operationally for a country to become an Adherent, it must first reach a kind of agreement with the US and evolve a national export control regime for items identified in the MTCR in accordance with the MTCR guidelines.

The US has been on the forefront in strengthening the MTCR from the day of its inception and has made all efforts to correct and update the list of technologies which need to be controlled in addition to roping in more and more countries into the MTCR framework.⁴¹ The US has been persuading other members of the MTCR to strengthen their respective export control mechanism and has made all efforts to correct and update the list of technologies which need to be controlled in addition to roping in more and more countries into the framework of the MTCR. It particularly succeeded in aligning Germany and Switzerland in tightening their export control regimes. In March, 1991, the meeting of MTCR members in Tokyo agreed to revise the equipment and technology annex of the MTCR and thereby took into account the

40. William Potter Adam Stulberg, "The Soviet Union and the Ballistic Missile Proliferation" Cited in p.13 "Missile Technology Control Regime: An Extension of NPT", by K.D. Kapur, Foreign Affairs Report Vol. XLII, No. 11 & 12, Nov-Dec. 1993.

41. William Rope. "US initiative in non-proliferation" USIS Backgrounder, New Delhi May 12, 1992.

technical advances made in the fields since the document was signed in 1987. In their meeting in Switzerland from November, 29 to December 2nd 1993 the 22 members of the MTCR again approved a new missile control policy which maintains that all the third world countries should be urged not to induct missiles into their armed forces. It has also updated the list of the items in the MTCR control list. It has also been decided to extend the scope of its efforts to include missiles capable of delivering weapons of mass destruction including chemical, biological as well as nuclear weapons.

The Missile Technology control Regime has come a long way from its inception in 1987. Its total membership has gone up from seven to twenty-five. The seven original Participants have already amended their national legislations in accordance with the MTCR guidelines. Sweden and Finland have passed national legislations in accordance with the MTCR regulations despite not being the members of the MTCR. The remaining Australia, Austria, Israel, Belgium Denmark, Norway, Switzerland, Netherlands, Luxemburg, New Zealand, Spain, China and Russia all have declared support to MTCR but none has taken any legislative action to incorporate these guidelines. Many of the "Adherent" countries do not have the capabilities to produce ballistic missiles

or the components listed in the MTCR. Many of the EC (European Community) countries were made to become "Adherents" on the apprehension of the chance of diversion of missile-related technologies to third parties through the non-MTCR signatories of the members of the EC after the formation of common market in 1992. This could be the probable reason for Belgium, Netherlands, and Luxemburg's decision to support MTCR. Greece and Portugal have also joined the MTCR as "Adherents" probably for the same reason. Argentina and Brazil have also agreed to extend support. Brazil is reported to have drafted the legislation required for the national export control regime.

One of the major drawbacks of the MTCR after it came into existence in 1987 was that the two most important missile and related technology supplier countries China and Russia were outside its formal group. However, now both the countries have informally joined the MTCR and have given their commitment to observe the guidelines.

There is no doubt that many of the third world countries who are on the threshold of missile and related technologies acquisition have inherited deep rooted regional conflicts and the possession of these missiles may add more elements to regional instability. However, most of the third world countries have expressed serious concerns and

apprehensions about the motives of the missile 'haves' in their effort to impose a hegemonistic and a highly discriminatory technology denial and control regime on the countries which are trying to develop technologies for their peaceful space programmes. Missile proliferation is the natural technological fall out of the conventional arms race and superpower arms transfer. The third world countries have also been trying to extricate themselves from military technology dependency and some of them have been trying to develop indigenous military equipment which could provide them a cost-efficient deterrence and failing that retribution. But should deterrence fail, third world leaders want the ability to strike back at regional rivals or superpower intervention.

CHAPTER II

INDIAN MISSILE PROGRAMME AND THE MTCR

*** IMPACT ON INDIA:**

EVOLUTION OF INDIAN MISSILE PROGRAMME

The new global environment shaped by the second half of 80's witnessed a series of events, hitherto unthinkable. This has altered the conventional norms of understanding international relations and strategic behaviour of different states. So far, the world had adjusted itself to bipolar divisions on ideological lines. The events in the erstwhile Soviet Union together with East Europe were nothing short of revolution. The parallel forces of superpower "detente" demolished the existing theories and perceptions leading to interpretations that ranged from the end of ideology to end of history.

In the new global environment which has altered the very concept of nuclear deterrence, the need for vast strategic arsenals has almost gone but the concept of possession of nuclear weapons to have a say in world has stayed. It still is a factor which governs the defense and foreign policies of the nations. In this context, India's perceived need for a missile based deterrent has been derived from genuine regional concerns. India confronts China and has made considerable efforts to neutralize the Chinese threat; yet the balance of conventional arms has only given

it an ability to keep a dissuasive posture overshadowed as it is by Chinese nuclear arsenal, which has the whole of India within its easy access negatively affecting India's military posture. China has been providing missile and nuclear assistance to Pakistan in an apparent strategy to build a countervailing power to tie down India, South of Himalayas. Chinese nuclear co-operation with Iran and presence of SS-19, ICBMs (Inter-Continental Ballistic Missiles) in Kazakhstan close to India's Northern frontier in the post cold war world have heightened India's security and strategic concerns in the post cold war world.¹

However, the contours of this predicament faced by India can best be drawn if a comparison with Pakistan's posture vis-a-vis India is also made. Pakistan is much smaller proportionately in terms of both area and population than India is to China, which has a military strategy banking on 'offensive-defense'.² This strategy is designed to take large-scale offensive on adversary's territory together with acquisition of nuclear capability. It is in this context the Indian integrated guided missile development

1. 'Warning Shots', The Economist, Vol. 323, lno. 7758 (9-15 May, 1992) p. 38.

2. 'Destroyer of Worlds : 'Concerns grow over nuclear arms potential', Far Eastern Economic Review, vol. 155, no.27 (30 April 1992) p. 52.

programme initiated in 1983 acquired importance. The motivations behind this decision were significant. The (Government of India) (GOI) felt that foreign arms suppliers were often reluctant to sell the kind of missiles demanded by Indian armed forces. Moreover, the costs of imported missiles were often prohibitive and the missiles themselves were invariably not of current generation. Even the country's foremost arms supplier, the Soviet Union, had refused to sell some of its more advanced and longer missiles. Manufacturers of large missile systems were not willing to sell to India because the country had successfully tested a nuclear device in 1974.³ Consequently, the GOI decided that not only would the indigenous missiles incorporate the very latest technologies but they would also not be dependent on the imports of critical parts. This fact was detailed to the Defense Research and Development Laboratories (DRDL) headquartered at Hyderabad. The GOI also wanted the design-production-deployment cycle to be drastically shortened. Normally a missile system takes anything between 10-15 years to develop. This was to be reduced to a period of 8-10 years. It was decided that the first missiles to be developed would be a short-range surface-to-air missile (SAM)

3. M.P. Mama, 'Progress on India's new tactical missiles' International Defense, Review, Vol. 22, no.7, (July 1989), p.963.

and a battlefield support-missile, both of which did not require great innovations in terms of design and construction. A longer developmental period was allowed for the Anti-tank guided missile (ATGM) and the long range Surface-to-Air Missile (SAM). Concurrently, it was decided that DRDL should also go ahead with the design and development of IRBM (Intermediate Range Ballistic Missiles) class launch vehicle.

So far, the only major item of military hardware India has been able to develop indigenously is the 105 mm field gun. The main battle tank has taken years to develop and there is no sign of it being mass produced as yet. The Light Combat Aircraft project is also in doldrums and it will be dependent on American engine. The Indian defence establishment has also not succeeded in providing an assault rifle for the Army as yet. as a result, the country continues to spend billions of rupees to buy expensive military hardware from the West and the Soviet Union.

In these circumstances, the Indian decision to carry on with IGMDP (Integrated Guided Missile Development Programme) can be considered a far-sighted rather than a provocative action. The IGMDP funded around the Rs. 780 Crores for a period of 10 years in 1983 was focused on providing the three wings of armed forces with a range of tactical mis-

siles. The IGMDP is the first attempt to indigenise a major class of frontline, state-of-the-art weapons system.

While it might be difficult to scientifically evaluate the outputs of IGMDP, unless they are actually used in battlefield conditions, but it can safely be asserted that the aims of the programmes, its organisational systems and the infrastructure created for it, constitute a major break through in the development of indigenous weapons systems. The Six missiles currently under development constitute only the first step. In the context of the IGMDP, it is important to assess the capability and development stages of the weapon system.

Trishul⁴

Name: Trishul

Type: Low Level, quick reaction SAM

Range: 500 meters to 9 Km.

Propulsion: Single stage solid fuel motor.

Guidance: Command guidance from a ground radar system.

Controls: Aerodynamic controls and an on-board, computerized control system.

4. Indian Defense Review, July 1990, p.32.

Warhead: A pre-fragmented warhead with a lethal radius of 20 meters, Set off by a proximity fuse.

Status: First launch in September 1985. Since then approximately 15 flights have been conducted.

Description: This SAM has been developed for all the three services. The army and the air force will use it against low flying aircraft, while the Navy will use a modified version against sea skimming missiles like the French Exco-cet and the American Harpoon. This missile is not a revolutionary advance on existing missiles in the inventory of the Indian Armed Forces. However, Trishul's designers claim that the missile has several advantages over the Soviet SAMs in the Indian inventory. For one, it is claimed that the Trishul's reaction time is significantly shorter than that of the latest Soviet SAMs (Surface-to-Air Missile) supplied to India and that its control system is superior, the missile being designed to turn through 360 degrees in just four seconds. This ability is critical considering that Trishul has to turn very fast to remain locked on a low flying aircraft. The missile also has better resistance to Electronic Counter Measures, (ECM), chiefly to a high-frequency, and narrow guidance beam. The frequencies used for guidance of the Trishul have apparently not as yet been developed by any other country.

Akash

Name: Akash.⁵

Type: Medium range SAM (Surface to Air Missile)

Range: Maximum 25 Km.

Propulsion : First stage solid fuel booster motor and second stage ramrocket sustainer motor.

Guidance: Command guidance from ground radar system and on-board precision homing system.

Control: Aerodynamic controls: Control surface are operated by pneumatic actuators.

Length: 6.5 metres.

Launch weight: 650 kg.

Warhead: Pre-fragmented (using specially developed high density alloys) warhead activated by proximity fuse.

Status: Seventh Test flight Carried out on April 22nd 1995.⁶

Description:

India is in a position to be the first country in the world to develop this class of integrated re-entry motor, homing missiles.

5. ibid.

6. The Hindu, April 23, 1995.

None of the Soviet made missiles in the Indian inventory are technologically comparable to the Akash though there is a superficial resemblance to the Kvadrat (SAM-6).

Nag

Name: Nag.⁷

Type: Third generation, 'fire and forget', ATGM.

Range: 4 km.

Propulsion: Solid propellant motor.

Guidance: Initial guidance launcher's target acquisition system and terminal guidance by on-board millimetric wave (active) or imaging infrared (passive) seekers.

Warhead: Tandem shaped charges.

Status: Flight test took place in 1990.

Description: This missile is being developed to counter contemporary advances in tank Armour - especially the composite and the reactive types. Once deployed, Nag will be one of the most advanced missiles of its class in the world and capable of meeting army requirements through the 1990s. The size of the missile will be no bigger than the existing ATGM's. The missile has the unique ability of top attack where the Armour protection is the thinnest.

7. n.4, p.32.

Prithvi, Battlefield Support SSM⁸

Prithvi is single-stage missile. It has two versions. One version has a range of 150 km and is capable of carrying a 1000 kg warhead and the second version possesses a range of 250 km and carries a warhead of 500 kg. Some speculate even a third version of Prithvi having a range of 40 km. It is believed that Prithvi has the best warhead-to-weight ratio of any missile in its class. Circular Error Probability (CEP) of Prithvi is regarded to have approached 0.1% of range. Numerous types of cluster munitions, etc. can be mounted on this missile. ON the basis of the throw weight of the missile, it is judged that missile is nuclear capable. All Technical formalities have been completed. Deployment of the missile is now dependent on the political decision.

The carbon-carbon ablative heat shield of the Agni and the Inertial Navigation System (INS) which both the Agni and Prithvi share are unique technological developments.⁹ The closed loop strap down INS installed in both the missiles uses accelerometers and gyroscopes which feed the On Board

8. Indian Defense Review October-December 1994, p. 76.

9. Sango Panwar. "India's Missiles. A New Dimension in South Asia", Vayu Aerospace Review, VI/1989, p. 22.

Computers (OBC) about the progression made on all the three axes. The OBC steers the vehicle along its charted path by correcting any anomalies in route. The strap down INS system that the Defence Research and Development Organisation (DRDO) has adopted is cheaper than the platform INS, in which gimballed gyroscopes are used, requiring complex precision engineering, but has succeeded in achieving very impressive Circular Error Probability (CEP) for both the Agni and Prithvi.¹⁰

Though usually due to gyro drift and uncertainties in gravitational field vectors, significant errors take place in the course of the ballistic missile flight path, yet, the first Agni test flight could achieve remarkable accuracy resulting largely due to possession of the position-correcting reaction control system, employing velocity trimming modules.¹¹

All in all, as a first development this missile is likely to prove powerful and accurate. One supposes that if the army deploys the missile (which it should), an army or corps commander will at last have a weapon of influence

10. Manoj Joshi, "Agni: Implications", Frontline, June 10-23, p.5.

11. See, 'An Embargo Cannot Throttle US', An interview with Dr. A.P.J. Abdul Kalam, Frontline, June 10-23, 1989, pp.14-15.

commensurate with his operational responsibilities both in attack and defence.

Agni

Of all the missiles under the IGMDP, the one that has caught the public imagination the most is the 'Agni' missile. This, it seems, is the ultimate missile. The test launch of the first 'Agni' missile last year evoked as much nationalistic fervor as did the 1974 nuclear explosion. All the same, 'Agni' is, in a sense, the least useful of all the missiles being developed by the DRDL, for Agni is merely a technology demonstrator. Unlike the other missiles, there is no programme to mass produce Agni or put them into use in the near future. The chief significance of Agni lies in the fact that it is the first step towards the development of the true ICBM. This is clear from the performance details of the missile

Name: Agni.¹²

Type: IRBM

Guidance: Strap down inertial navigation system using explicit guidance scheme with on board computer.

Length: 19 metres (1 metre maximum diameter).

Launch Weight: 14.2 tonnes.

Payload Maximum 1 tonne (no warheads designed).

12. n.4, p.33.

Agni, is a two-stage System with a maximum range of 2,500 km and a warhead capacity of 1000 kg. For the Indian government, it is a technology demonstrator. Even its CEP, in the very first testing in 1989, was found to be 0.1% off range. Different types of warhead can also be fixed on this missile. When it was first tested, the western countries feared tipping up of a nuclear warhead on it, although the then PM of India, Mr. Rajiv Gandhi said, that in chase the technology demonstrator is converted to missile, it would be used for non-nuclear warheads.¹³

The successful test launch of Agni attracted widespread interest because it is the first Indian missile in the true ballistic class. Almost all missiles of the class elsewhere in the world are armed only with nuclear warheads. Although the Indian government has not decided to mass produce Agni type missiles, the very success of the Agni launch has placed India in a jealously guarded. 5-member club of major missile producers (USA, USSR, China, France and U.K.).¹⁴ For the moment, however, the Agni programme is solely aimed at testing and demonstrating ballistic missile technologies. The first flight was meant for evalu-

13. n.8, p.76.

14. n.8, p.77.

ating the 're-entry' technology, the accuracy of the guidance system and the viability of a solid-liquid propulsion mix. The carbon composite heat shield, the propulsion and the guidance systems all worked as expected. The missile, on its first test launch, proved accurate', landing just about a metre from the predicted impact point.¹⁵

The Agni project, is truly a technology demonstrator. Specifically, its aim appears to develop technologies that would be relevant to the production of ICBMs in the future.¹⁶

However, attempts to discredit India's successful missile programme, particularly the Agni, by implying that it owes its origin to NASA's Scout rocket have come unstuck. Even the Arms Control and Disarmament Agency (ACDA) and the Central Intelligence Agency (CIA) have opined that the Indian missile development programme is rooted in indigenous technology.¹⁷ The Former CIA Director William Webster, is on record saying: "Little could be done to stop Indian and Israeli ballistic missile programmes because they largely

15. *ibid.*

16. *ibid.*

17. Garry Hilholin, "India's missiles with a little help from our friends", *The Bulletin of the Atomic Scientists*, November 1992, p. 31.

use technology developed indigenously." This is enough to take the wind out of these US analysts' sails.¹⁸

Agni's designers have proved that their re-entry technology works, that a hybrid propulsion system is viable, and that a strap down inertial navigation can be as accurate as a platform navigation system. The other major area where Agni's designers have achieved a major breakthrough is in telemetry capability. Today, all but one major hurdles to making true ICBMs have been crossed. The only system that requires to be developed is terminal guidance.

The successful design and development of the missiles has conclusively demonstrated the mastery which Indian missile technologies have gained for sustaining the country's Integrated Missile Development Programme. It provides convincing proof of the skills developed in such high technology area. Dr. Abdul Kalam, scientific adviser to the Defense Minister and Secretary for Defense Research and Development inaugurating a Symposium on "Science and Technology Policy and Economic Reforms" asserted, "It is time for India to declare independence from foreign technology in critical areas".¹⁹ He also said that in the face of the

18. *ibid.*

19. *The Hindu*, Mondy, March 6, 1995.

present scenario of "economic warfare", "Technology is the main building block for economic strength, national development and national security".²⁰

All the missiles developed by IGMDP have been successfully test-fired with the exception of "Agni" and which are in various stages of user trials for the army and eventual production. In the case of "Agni" the test successfully carried out by the Defence Research Development organisation fully qualify it for user trials and subsequent serial production for deployment by the Army if and when the need arises. However, the Defence Ministry's perception of "Agni" is that is it just a "technology demonstrator". Reactions to the Agni launch were varied and mostly on expected lines in foreign capitals. Barring Australia, few have bothered to look at the Indian compulsions and explanations fewer still have noted that fifteen years ago India had exploded a nuclear weapon "technology demonstrator" and left it at that. In Australia, in response to a question in Parliament, Gareth Evans, the Foreign Minister took some what relaxed view of the test. He said "while in general Australia was concerned about ballistic missile proliferation, his government had seen Rajiv Gandhi's statement that Agni was a R&D (Research & Development) vehicle and not a

20. *ibid.*

weapons system, nuclear or non-nuclear"²¹ The Pakistani reaction was along the expected lines but there were nuances that were interesting. Shortly before the launch, Gen. Aslam Beg, the Pakistani army chief of staff said that Agni's range was such that it would fly over Pakistan and that Pakistan was more concerned about the 250-km range Prithvi SSM (Surface-to-surface missile). However, the Former Pakistani Foreign Minister, Yakub Khan, speaking in the National Assembly roundly criticized the test launch. But for India, the key response is that of the US, which ramrods the western efforts to restrict the export of sensitive technology. The US had been fully aware of the Indian Missile programme. The US had also agreed, as part of the Indian requests in mid-1980s for technology to provide electro-optical instrumentation for the National Testing Range in Baliapal, Orissa. The equipment is already in place and was used to track Agni. The US must also be aware that many of the computers sought by the DRDO and supplied by US would be for the IGMDP. With its sophisticated intelligence network the US probably had full knowledge of the Indian programme. At the official level, however, the Deputy press Secretary of Bush administration, Roman

21. Frontline, June 10-23, 1989.

Popadivk said at a daily White House press briefing, a day after the launch that India's plan to test Agni was causing "concern to the administration." He pointed out that "In the past we have made our position clear to the Indian government that further proliferation of ballistic missiles would be regarded as highly destabilising development in the region."²²

Margaret Tutwiler, the Bush administration's spokesperson of the State Department told correspondents that "proliferation of missile systems particularly in areas of political tension undermines regional stability and peace"²³

A yet another element of US equation has also been very active. A small group of Congressmen, some genuinely concerned about proliferation, and some right-wing anti-Indian elements including the Pentagon hawks have been attempting to place an embargo on India, using the Agni launch as a pretext. The Pentagon hawks want to use the opportunity to cut-off the growing Indo-U.S. defense technology cooperation. The very issue of US sanctions in the context of Russian agreement to provide Cryogenic engines and technology for Indian space launch vehicles arose out of the

22. *ibid.*

23. *ibid.*

concerns over the proliferation of ballistic missiles, especially of the countries which are nuclear capable.

Though many American experts believe otherwise, the reality is that ballistic missiles are highly destabilising, primarily because their very short time of flight, steep trajectory over targets, and the absence of any creditable defence against them place the target country completely at the mercy of attacker. This is the most powerful factor promoting proliferation. It stands to reason, therefore, that a ballistic missile free environment would be favourable to Indian security interests. But the reality is that ballistic missiles already exist, in the arsenals of a number of countries from where they can reach targets in India. Ballistic missile proliferation therefore poses a far greater threat to Indian security than to the US or its MTCR partners. The Pakistani acquisition of Chinese missiles and recent Chinese test of Solid propelled DF-31 missiles with a range of 8000 kilometers cannot be ignored in India's security perception. Sources in India feel that the recent DF-31, ICBM tested by China may not be directed against India, but New Delhi cannot ignore its security implications. Defence experts say, "A capability has been created and intentions can change. We cannot wish this

away".²⁴ Defence experts also felt that India should engage China in a security dialogue on a bilateral and multilateral track, provided talks are backed by continuous efforts by New Delhi to improve long range missile and atomic weapon know-how. They said "we need to continuously upgrade the capability of Agni missile for it is the only projectile which can reach China".²⁵ They also maintained that "our contention that India's missile programme should not be seen in isolation but more clearly against the background of the recent Chinese test"²⁶

The Clinton administration has been pushing for a non-weaponised deterrence regime in the subcontinent from the outset. John Mallot, when he was the head of the South Asian Bureau of the US state department laid down the fundamentals of US policy in the Asian sub-continent, while testifying before the House Foreign relations Committee in April 1993. According to the senior Clinton administration functionary, the two top priority goals were "first and foremost to prevent war and spread of weapons of mass destruction and their means of delivery and to support-economic reforms and obtain greater access for US trade and

24. The Hindu, June 5th, 1995.

25. *ibid.*

26. *ibid.*

investment and improved intellectual property rights protection".²⁷ Washington has registered strong successes in the field of economic reforms and related areas and now the screws are being tightened on India's nuclear and missile programme. Senior US officials and defence and foreign policy experts have been arguing that missile race in South Asia constituted the greatest threat to the stability of in the region. According to the US administration, this could provide an impetus for the deployment of nuclear weapons.

In the escalation of its demands against the Indian missile programme, the Clinton administration has cautioned India not to begin the serial production of the short-range Prithvi missile. The Clinton administration had repeatedly said over the last year that the deployment of missiles by India and Pakistan would further destabilise the security situation in the sub-continent. The Assistant Secretary of State, Ms. Robin Raphel expressed concerns about a potential ballistic missile race between India and Pakistan and called for India and Pakistan "to avoid any escalatory step and to commit not to be the first to deploy such missiles." In his recent visit to US, the external affairs Minister, Mr.

27. Frontline, June 3rd, 1994.

Pranab Mukherjee spelled out that "Pritivi's induction in armed forces will be done as per India's security needs."²⁸

IMPACT ON INDIA:

The greater concern to a state like India is the MTCR's effort, despite its disclaimer to thwart civilian space programmes. The MTCR guidelines require member of the MTCR to consider the capabilities and objectives of missile and space programmes of the recipient state and also the general concerns about proliferation of weapons of mass destruction. These export controls have indeed forced Indian planners to revise project time-tables and delay number of programmes but the end result has only been to encourage Indian research and development agencies to build at home, what they cannot purchase abroad.

Two specific cases of denial, one involving an item sought by the Indian missile programme and another, technology needed for civilian space launch services can be cited in this regard. First the Agni test prompted US to deny India 1.2 million dollar, Combined Acceleration Vibration Climatic Test System (CAVCTS) used to test re-entry vehicle components for the ability to withstand the heat and stress of light. The CAVCTS was supposed to have force level

28. The Hindu, March 21st, 1995.

capability of 545 kgs, well below the MTCR's limit of 10,227 kgs.²⁹ Internationally, the test had an immediate political fall out. Since, the Agni was launched just about two years after the MTCR was publicly unveiled, it raised serious concerns in the West over the effectiveness of the regime. The flight test coincided with a political uproar in the US congress and the media over a Japanese-American fighter programme called fighter support experimental or FSX.³⁰ The Agni and the FSX agreement highlighted the deteriorating ability of the United states to dictate or even to influence significantly the industrial and security policy of the emerging powers despite export controls. It was against this background that the US government pressured India not to produce missile system contending that restraint in the development and deployment of destabilizing weapons system such as Agni was essential to deter missile race. US department of state spokeswoman, Margaret Tutweiler added, "The US believes that the proliferation of missile systems, particularly in the areas of political tension undermines regional stability and peace."³¹ Initially, criticism focused on Agni; however, there has been a subsequent shift

29. The Washington Post, July 17, 1992.

30. The Washington Times, October 12, 1992.

31. Frontline, June 5, 1992.

to the Prithvi. The reason for this is that while US pressure has been successful in delaying in Agni programme, the Prithvi programme has proceeded to the development and indeed deployment stage. US deputy secretary of state, Strobe Talbott reportedly urged the government of India not to deploy the system during his visit to India on August 6th 1994. Later in the month, Lee Hamilton, chairman of the powerful US foreign affairs Committee speaking to the Asia Society on Indo-US relations argued that "the deployment of Prithvi could mark a watershed in South Asian strategic environment."³²

The second case of denial was the cryogenic engine technology combining super cooled liquid hydrogen and oxygen to form a rocket fuel with minimum lift-off power. The denial of Cryogenic engine technology to India by pressuring Russia by the US to break a binding contract was a major triumph for the US led MTCR non proliferation diplomacy, which was backed by the threat of unilateral sanctions and military interdiction of ships in international waters. Russia was the second country to be successfully persuaded by the US not to sell Cryogenic technology to India after France. Russia's decision in July 1993 to break a 75 mil-

32. Frontline, June 3, 1994.

lion dollar contract with India climaxed two years of sustained US pressure that included trade sanction against Russian Glavkosmos Agency and ISRO (Indian Space Research Organisation). So, the Western export denial have impelled the India space and Research scientist to develop locally the components and equipments denied to them even at additional cost. Hence, MTCR controls are not only prompting Indian self reliance in an array of strategic technology but also the ballistic missile programme has flight tested five separate missile system in barely seven years after its establishment.

However, American pressure and their ability to influence the India missile programme cannot be undermined. They have been able to delay Agni programme or have created a kind of defensiveness in the minds of Indian policy planners over the deployment of Prithvi which the government is unable to counter effectively. Therefore the challenge for India is not only to overcome the rigors of the Western export control but also to withstand political and economic pressure now being directly mounted by the major suppliers in conjunction with technology control.

The security challenge posed by the ballistic missile proliferation around India can be met in two ways and both must be pursued single-mindedly. The more desirable one,

with a greater assurance of security, is the total elimination of ballistic missiles. This is also more difficult to achieve because countries such as the U.S., Russia, China, and even Pakistan are highly unlikely to give up their missile capabilities. Even a country like Australia believe that the MTCR is the "only line" in constraining missile proliferation. But this only means India must press even harder for the abolition of ballistic missiles and as an interim step the universalisation of the Intermediate-range Nuclear Forces (INF) treaty, with the lower range criteria reduced to 50 km, should be considered. This would eliminate all ballistic missiles except the Inter-Continental Ballistic Missiles (ICBMs).

Such disarmament, even if accepted in principle, is sure to take a long time to implement. Meanwhile, there is no option but to work for creating a missile capability to provide defence through deterrence.

CHAPTER III

INDIA'S RESPONSE WITH REGARD TO THE MTCR RELATED NEGOTIATIONS

Introduction

MTCR, US and India

MTCR, China and India

Pakistani Perceptions of Indian Missile Programme

Introduction

Several prominent features of the post-Cold war international system are emerging to cast a pall over the optimistic pronouncements of the early 1990s about a manageable New World Order. One of the most significant features that has attracted world's attention is the proliferation of ballistic missiles and weapons of mass destruction (WMD), including nuclear, chemical and biological weapons.

This important feature of the emerging world order is an indicator of regional instability and security concerns of the nation-states. Against this background, South Asia has been characterized as a potential zone of conflict. In fact, the geographical location and size of India has given her a relative strategic dominance over other countries of the region. And the Indian-Pakistan conflict over Kashmir raises all kinds of speculations with a real possibility of nuclear war. The other non-regional actor is China which is continuously supplying missiles to Pakistan despite being an 'Adherent' of MTCR. This is being viewed as a threat to India according to Indian defense experts.

So, in this context, it is important to examine the negotiation capability of India with the countries having

the membership of MTCR with regard to its bilateral relations.

MTCR, US and India

The American concern over Indian development of Indian ballistic missiles should be viewed at two levels. The first level concern is with global proliferation of advanced weaponry and ballistic missiles and the effect or restraints it can impose on the US force projection interests, and more specifically, it looks at the impact of emerging Indian potential on the Indian Ocean region in general and the US regional clients in particular. The second level of concerns related to a perceived future Indian capacity to graduate from an IRBM (Intermediate Range Ballistic Missile) technology demonstrator to a nuclear capable ICBM (Intercontinental Ballistic Missile). So, the US perception of Indian missile programme is based on the following points:

- (a) South Asian management through highlighting Pakistani apprehensions (the cornerstone of the US arms aid and consequent downstream benefits),
- (b) It also relegates Indian concerns about China to invalidate the logic of its missile development, which if allowed its natural course can even disbalance the Sino-American equations,

- (c) It generates doubts about the status and the intent of the Indian unclear programme; and
- (d) It justifies denial of Western origin technology, which requires seeming apprehension not only amongst the COCOM partners but also in the vast bureaucracy serving the US administration, the Congressional staff and the think tanks operating in Washington's inner circles of power.

So, the tunnel vision which ascribes that the Indian security planner's only obsession is with Pakistan, gets handicapped by self-serving disinformation. Although, the more objective Western observers note that Indian interest in developing long range missiles stems more from its security concerns with China than Pakistan.¹ Some commentators suggest that developing countries may soon be able to strike the continental United States² and such fears have become the primary public justification for tightening

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1. Janne Nolan; "Trappings of sovereignty: Ballistic missiles in the Third World"; Monograph submitted to the Brookings Institution; Washington D.C. January 22, 1990, p.168. Cited in Ravinderpal Singh, "Indian Ballistic Missiles Developments: Possibilities And Potentialities", p.115
 2. For example, the Chairman of the Senate Armed Services Committee, Sam Nunn has argued in favour of developing an anti-ballistic missile system, Sam Nun. 'Needed: An ABM Defense'. New York Times, 31st July, 1992 pp. 3.

the export control regimes like MTCR and development of anti-missile systems.

However, testifying before the Senate in January 1992, Robert Gates, stated that "only China and the Commonwealth of Independent States have the missile capability to reach US territory directly. We do not expect increased risk to US territory from the special weapons of other countries in a conventional military sense for at least another decade".

The response to the current ballistic missile threat to US security is an export control or proliferation management regime, along with a search for a 'technological fix' in the form of anti-missile systems.³

It is against this background that the Missile Technology Control Regime (MTCR), initiated in 1987 with seven members has grown to include 23 western industrialized countries. Several additional countries including Russia, China and Israel have pledged to abide by MTCR export guidelines but for various reasons (including reportedly concerns about the inadequacy of their export controls and the sensitivity of sharing intelligence with them) have not been invited to become formal members.

3. Arms Control and Contemporary Security Policy, vol. 14, No. 1, April, 1993 p. 208.

While the MTCR has gone a long way toward creating a norm against ballistic missile proliferation among suppliers, it has several shortcomings. As the regime has evolved, its goal has seemingly grown to one of preventing the spread of ballistic missiles with the goal of preventing developing countries from gaining access to space through independent space launch programmes. A fact sheet on the MTCR issued by the US government, states that the guidelines "are not designed to impede national space programmes or international co-operation in such programmes as long as such programmes could not contribute to nuclear weapons delivery systems".⁴ The problem is that any space-launch vehicle (SLV) programme could by definition contribute to the development of a ballistic missile that could conceivably deliver a nuclear payload. This ambiguity is compounded by the fact that the agreement is not a treaty, but rather a set of guidelines that are implemented by each member/adherent through national legislation. Thus the regime is subject to differing interpretations of its restrictions and varying level of compliance. For example, the legislation implementing the regime in the US export control system draws no distinction between space-launch

4. See Appendix - I p. 1.

vehicles and weapons payload launchers. This was evident in the case of the Russian space Agency's sale of a Cryogenic rocket, booster to the Indian Space Research Organisation in May 1992. The United States considered the export of this technology to be prohibited under the terms of the MTCR, although India had provided necessary assurances to Russia that the booster was for use in its space programme. Nevertheless, the State Department termed the sale as a clear violation of the MTCR, and US export laws necessitated that sanctions against the two countries be invoked.⁵

The imposition of sanctions against Russia for cryogenic booster sale angered Russian military hardliners, who already complained that Russia was deferring too much to American arms control policy. If cash starved Russia cannot make sales of legitimate civilian space technology, it may be propelled to make less discriminate and more covert sales of surplus weaponry. The sanctions are also costly to US commercial aerospace and electronics industries. The Indian Space and Research Organisation and Glavkosmos, the Russian space Agency were both ineligible to buy space-related technology from US industry for two years costing US industry at least \$50 billion annually. While this was a small

5. Federal Register, 18 May 1992, 18 May 1992, p.p 21143-44 and Federal Register, 19 May 1992 p. 21319.

portion of the \$5 billion in space-related commerce expected for American industry in 1992,⁶ the chilling effect on the market for US industry could prove a much grater loss. Such loose application of sanctions may also under cut necessary industry support for the goal of containing ballistic missile proliferation⁷.

The US academy of Sciences in 1991 in a report recommended that the US should avoid unilateral application of export controls and focus on destinations of the greatest proliferation concern-countries that violate some norms of conduct. In order to be effective, proliferation controls must be focused only on prescribed military activities or items that are required directly for weapons systems and must include, to the extent

The MTCR also fails to take into account the particular industrial capabilities of recipient countries. In the case of cryogenic booster sale from Russia, India was not giving any new, militarily significant capability. The booster

6. Aviation Week and Space Technology, 29 June 1992, p. 68

7. A better approach for controlling export of missile or space launch relevant technology was out lined in a major study of export controls by the National practicable, verifiable end-users assurance. Lacking such specificity, efforts to control exports of proliferation related technologies created a risk of significant economic cost that may be disproportionate to their effectiveness cited in, executive summary: Finding common ground, Washington DC: National Academy press, 1991, p.p. 23-24.

employs liquid hydrogen fuel, which is non-storable and must be loaded at super cool temperatures, making it extremely difficult and expensive to maintain till its ready for launch. Because of this difficulty, no nation has ever used a hydrogen-fulled rocket engine in a ballistic missile. Liquid oxygen was used in early US and Soviet ICBM's and it would be reasonable to oppose this transfer if it was feared that India could obtain some significant technical advantage due to the similarity of two types of engines. But India had already experienced with hyperbolic fuels from previous work with France on liquid-fulled Viking rockets.⁸

The French Minister for Research and Technology reportedly defended the proposed sale of Cryogenic SLV technology to India, as well as Brazil, by saying the two countries already have 'the necessary expertise to develop these on their own. It is only a problem of time of money'⁹

India's interest in cryogenic engine came out from its desire to develop independent launch capabilities for large multi-purpose satellites being locally build in the INSAT-2 series. Such capabilities will make the country self-

8. Dan Revelle, 'US Muscle Misses the Mark', Bulletin of Atomic Scientists, Nov. 1992, pp. 10-11, 44.

9. 'French Cryogenic Technology for GSLV', The Hindu, 30 Oct, 1989.

reliant in space technologies and enable it to compete in a lucrative international space market. At present, India is heavily dependent on foreign launch services for lofting its indigenous satellites. Its latest satellite, INSAT-2B- whose total construction cost was \$25 million was placed in orbit aboard the Ariane rocket of the European space agency in 1993.¹⁰ India had to pay seven million dollars more to launch the satellite than to build it.

Indian efforts to develop independent launch capabilities in the post-MTCR era have encountered some major failures. The failure of (PSLV) project along with two launches of Augmented Satellite Launch Vehicle (ASLV) has been a serious setback to Indian space programmes goal of building powerful but cost-effective launch vehicles by 1997. It seems unlikely that India's indigenous cryogenic technology, which is still at an embryonic stage will be available for space missions in this decade.

Though, the export control mechanism has double edged effect, one to the disadvantage of India and other to its advantage. The MTCR controls have definitely retarded the pace of technological development, and at the same time, it

10. Neelam Jain, "Indian Satellite to Provide New Services", United press international, New Delhi, 23 July, 1993.

has helped India to develop key technology denied abroad. This has raised India's potential as a major second tier supplier

So, the US persistence on behalf of MTCR in erecting technology-trade barriers against India are counter productive and damaging to bilateral relations. Perhaps one explanation lies in the fact that technology controls, although, rooted in strategic concerns, are driven also by long-term American and developed world economic interests export controls reinforce existing technology monopolies and hence the dependence of developing states. The effort to protect long term American strategic and economic interests may explain the bipartisan US policy consensus on controlling the flow of advanced technology.

Therefore, the challenge for India is not only how to overcome the rigors of western export curbs but also to withstand the political and economic pressures now being directly mounted by major suppliers in conjugation with their technology controls. In an unprecedented action, the United States, France, Germany, Japan, Canada, Italy and Australia submitted separate but almost identical diplomatic notes to India in July 1993 urging to freeze the Agni project, halt the deployment of its short-range Prithivi missile, scrap its fast breeder project, stop further fissile material

production and accept full scope nuclear safeguards.¹¹ However, India's present economic problems have exposed it to pressure from external credit tenders and forced it to slash military spending. Also, India's current economic-liberalization programme aimed at integrating the world's most popular country with the global economy, needs western capital and technological assistance to succeed with its rich technical manpower and low-wage structures and now shown of its licensing controls, India has a potential to attract substantial western investment. An important challenge for Indian policy makers is to find ways to blunt western pressure without compromising the country's strategic and economic interests.

India's emergence as a potential major second-tier supplier of important space-related technologies has strengthened its diplomatic standing with the MTCR cartel. It is precisely due to this reason that Washington had employed its favourite Carrot-and-stick approach to help persuade India to adopt the export guidelines of multilateral regimes. India's publicly stated position opposed discriminatory and ad hoc regimes like the MTCR.

Today, through its export policies, India already is respecting the guidelines of the MTCR and Nuclear suppliers

11. United Press International, New Delhi, 28 Aug., 1993.

groups and to a lesser extent, the United States would like India to incorporate into its national law multi-lateral export-control standards, procedures, and lists commonly used by western suppliers.

The United States has been also trying to establish a linkage between the Indian missile programme and the nuclear proliferation issues. India being a non-signatory to the 1968, NPT (Nuclear non-proliferation treaty) has been criticized for its missile programme by the policy planners in the US. The present US Ambassador to India, Frank Wisner cautioned India against deploying the Prithivi and said that it was "exactly the kind of thing you would build if you had a primitive nuclear weapon to deploy."¹²

In fact, the myth of co-relation between nuclear weapons and missiles has been falsified by the reality. Starting with the second world war nearly 5,000 missiles have been fired in various wars and all of them carried conventional warheads.¹³ The US itself plans to use increasingly ballistic missiles with conventional

12. Manoj Joshi, 'Prithivi May Be Deployed', The Times of India, 24 June, 1988.

13. Jasjit Singh, 'The Great Paradox: Civilian Space Effort and the MTCR', Frontline, 10 September, 1993, p.p. 39.

warheads.¹⁴ Given the circumstances, there is little incentives at present for India to lend support to a Cartel like the MTCR, New Delhi has informed Washington of its willingness to join the regime as a full member. However, the United States is ready to grant only an observer status to India. One can concede, therefore that the technology development strategies of major regional powers like India need to proceed on the basis that the suppliers Cartel is unlikely to crack in foreseeable future and high-tech export controls are going to remain a long term reality.

MTCR, China and India

Chinese ballistic missile developments were a natural corollary to building their nuclear weapons capability. Having exploded a nuclear device in 1964, the Chinese delivery capacity was the long range TU 24 bomber. By the early 1970s, they had several MRBMs (Medium Range Ballistic Missile) and less than 20 IRBMs,¹⁵ while the ICBM project was being developed concurrently.

The Chinese concern on Indian Missile Programme has been closer to indifference than apprehension. Having noted the Indian missile development capability, the Chinese

14. *ibid.*

15. *World Armaments & Disarmament, SIPRI Year Book, Stockholm, 1972, p.2.*

perception as reflected by a Beijing think tank on international security issues views the Indian missile development as its own national security matter that has no relevance to China.¹⁶ The Chinese wonder how they could be concerned by the Indian missile when they did not feel any apprehension even from the American missiles during the height of the period of encirclement by the US (1950s and 1960s). How can a large and as populated a country as China feel threatened by the Indian ballistic missiles development, Whereas the American scholars are rather concerned about threats that Agni or its successor can pose to Beijing.¹⁷ And consequently, their writings and testimonies are leading to the belief that the development of Indian missiles might lead to Chinese reaction to target India, which will trigger an era of unprecedented nuclear tensions between the two Asian giants.¹⁸

China's declaratory policy on ballistic missile export has been its periodic affirmation that it does not intend to

16. Jerrold F. Elkin and Brian Fredricks; "Military implications of India's space program", Air University Review, vol.34, no.4, May-June 1983, p.61. Cited in Ravinderpal Singh, "Indian Ballistic Missile Developments: Possibilities And Potentialities", Strategic Analysis, January 1991, p.116.

17. Ibid.

18. Janne Nolan, no.1.

sell missiles of greater range, barring the exception of the sale of CSS-2 to Saudi Arabia in 1981-82. The exception was justified as having contributed to the establishment of diplomatic relations between China and Saudi Arabia.¹⁹

In December 1989, the US expressed concern over the sale of M-I missiles to Syria: the latter had reportedly signed an agreement with China even before the maiden test flight in 1988.²⁰ The missiles supplied to Syria by North Korea were also developed by Chinese assistance under a deal signed in 1989-90 worth \$1,000 million.²¹ China has also been assisting Pakistan's missile development efforts since the latter's maiden test flight. In February, a Pakistani defence official Dr. A.Q. Khan disclosed that Pakistan was seeking missile technology guidance from China.²² However, in 1991, the US banned the sale of satellite components and high-speed computers to China because it had sold M-11 missile components to Pakistan. The sanctions were lifted after the Chinese government issued a statement saying it "would respect the MTCR guidelines upon the lifting of the

19. Hua Di et al, "Beijing Defense Establishment", International Security, Spring 1991, vol. 15, No. 4, p. 97.

20. Hua Di, "Ballistic Missile Exports to Continue", Asia Pacific Defense Reporter, February-March 1992, p. 30.

21. Asian Defense Journal, July 1991, p. 108.

22. Nation, Lahore, 25 February, 1980.

ban on American high-tech exports to China".²³ This marked a significant change in China's attitude since China had opposed the MTCR framework. Senior officials had argued that China could not be expected to accept guidelines that had been negotiated without its participation and that a proper control regime should be worked out "through overall and equal consultations among all countries".²⁴

But in the wake of sanctions imposed on Pakistan and China for the sale of M-11 missile components to the former by the latter, China said "the Chinese government has been left with no alternatives, but to reconsider its commitment to the MTCR."²⁵ Obviously, such statements by Chinese leaders were astuteness of diplomacy. China has reportedly again supplied 30 M-11 medium-range ballistic missiles to Pakistan.²⁶ Disclosures about shipments of M-11 missiles from China to Pakistan and the unwillingness of the Clinton administration of the same influenced by its perception of one country as a still valued client and other as an emerging major economic power which it has to cultivate

23. Asia Pacific Defense Reporter, 1993, p. 700 B. 145.

24. Pande Savita, "India, China and Export Control Regime: A Study in Approaches" Strategic Analysis, vol. XVII, No. 5 Aug. 94 p.p. 549.

25. Arms Control Reporter, 1993, p.700 B.145.

26. The Hindu, 7 July, 1995.

should make few things clear to India. US reluctance to call Pakistan and China to account for what is clearly a violation of MTCR only demonstrates its return to its ways during the cold war that led to the aggression of tensions in the Indian sub continent.

Therefore, India and China, fall on opposite sides of the imaginary line which the west has sought to draw over a period of time within the non-proliferation as well as export controls regimes. This can be exemplified as:

- (a) China is a declared nuclear weapon power and India is not a declared nuclear weapon power.
- (b) China is party to NPT and India is not.
- (c) The Chinese behaviour in the export control regime is that of a nuclear supplier although it considers itself 'a target' and consumer and that of India as recipient. Again, while China and India are both considered as second tier supplier states, the status of China is better as compared to India.
- (d) The national export controls in the two countries are regulated by different outfits, depending on the infrastructure. Thus, while the Chinese exports are controlled by agencies under the military, in India, the job is done by Ministry of Defense. This could also be the reason why the Chinese dealings are more secretive.

So, the assessment of threat perception by India from its neighbours like China and Pakistan makes it imperative for India to keep itself in a state of readiness to meet the eventualities implicit in the situation. So, in the light of the above discussion it is obvious that India must renew its efforts and investment for development of indigenous space launch capabilities. This is necessary even from the point of view of simple economics, since each launch may cost \$40 to 70 million.

Pakistani Perceptions of Indian Missile Programme

Unlike the Chinese, Pakistan, because of its traditionally antagonistic posture in relation to India has voiced the American concerns more vociferously. Besides the history of three Indo-Pakistan conflicts and tensions over Kashmir, it is the absence of confidence that often transgresses the realms of reality. While General Aslam Beg, the Pakistan Army Chief of Staff, attempted to place these developments in a more balanced perspective but the Press has usually been alarmist, more for the fact that this time India has been able to introduce an advanced technology in the region earlier than Pakistan.²⁷

27. Dawn, Karachi, 20 May, 1989 and Dawn, Karachi, 31 August, 1990.

According to Gen. Beg, given Pakistan's proximity to India and limited depth of its territory, the 250 km range Prithvi is more menacing than the 2500 km range Agni.²⁸

Curiously, not one commentator has thought about analysing the costs and benefits to the South Asian military balance by Pakistan's nuclear weapons and Hatf missiles or its follow on generations. There is a need to look at Indian and Pakistani missile programmes with a sense of proportion, rather than emotion, which more often than not clouds any analysis of India-Pakistani security equilibrium.

As regards the MTCR, India should in the interim offer to join it only as a full member, that is as a 'participant', and not as an 'Adherent'. Being an adherent will simply not solve any problem, but will add new ones.²⁹ There are a number of technology export control instrumentalities, such as the nuclear Non-Proliferation Treaty (NPT), the MTCR, COCOM, and so on, which aim to control and deny the flow of technology to non-members. The membership of these *ad hoc* groups - what some people have called the "white man's cartels" - is restricted.

28. The Times of India, New Delhi, 26 May, 1989.

29. For difference between 'Adherents' and 'Participants' within MTCR refer to Chapter I, p.26.

Regimes such as COCOM were designed to control the transfer of technology to the Eastern bloc. But the mechanism had been lying dormant for more than decade. The new thrust of technology-denial, making it an instrument of foreign policy, is selective. If India were to become a mere adherent, it will be subject to the decisions and interpretations of the main participants, without any say in the management of the regime. However, there is a need to try and establish a more comprehensive and viable missile non-proliferation regime which will serve the needs of the 21st century.

CHAPTER-IV

CONCLUSION

The 1987 Missile Technology Control Regime is the only multinational mechanism to restrain the proliferation of ballistic missiles. But the missile proliferation trends demonstrate that the MTCR is not an effective tool in restraining export of missile relevant technologies due to the contradiction in the basic approach. Firstly, the legitimacy of the basic approach of discrimination of transfer of technology is challenged by developing states. They argue that export controls do nothing about the thousands of nuclear tipped ballistic missiles in the inventories of the MTCR members. Some of them like India have been driven to acquire a missile based deterrence because of genuine national security concerns.

The second problem with the MTCR is its restriction on membership. All countries are free to implement the MTCR controls, but all are not able to become members of the regime. Although, it has not been mentioned explicitly in the guidelines but transfers of the listed and restricted technologies are permitted to MTCR 'members' and 'adherents.

Theoretically, then, any country could claim to be an 'adherent' to the regime and restrict its export of missile technologies, in order to be eligible to import missile

technologies from other Countries. But, under the State Department's interpretation of the US implementation law, only countries that sign a bilateral agreement with the United States are considered 'Adherents'. Thus only developing Countries that the US decides may become an adherent like, Israel may import relevant technologies for missiles and space launch programmes. This discrimination between 'good proliferators' like Israel and 'bad proliferators' like India does little to help make the MTCR and its goals more comprehensive and acceptable to larger number of developing Countries.

Probably the greatest weakness of the MTCR is that it is only a suppliers' cartel and does nothing to address a demand for missiles, born of regional political tension and arms races. The developing world views the effort with suspicion and hostility. They view it as an attempt by the developed countries to hinder their entry into peaceful space activities. Like the nuclear non-proliferation treaty, the MTCR is seen as another discriminatory regime in which the North is allowed a certain Category of weaponry, whereas South is denied. In other words, the MTCR encourages vertical missile proliferation simultaneously discourages horizontal missile proliferation.

It is in this Contest, the perceptions, potentialities and portends of the Indian missile programme acquires an extra importance. Till now India had to content only with the threat posed by Chinese ballistic missiles which cover the whole of the Country. The ballistic missile capability of Pakistan has further accentuated the threat.

In addition to it, in the unipolar world order Russia's retrenching from the external military commitments of the former Soviet Union has doubled India's security concerns. This implies that in the changed scenario dependence on Russia should be minimized.

One of the main cause of India's heightened concern about its security is Pakistan's constant quest to achieve military parity with India. This is reflected by Pakistan's instant reaction to any military modernization by India, even when it may not directly impinge upon Pakistan's security concerns. In such efforts, China has been a military partner.

Apart from the above statement an assumption has gained currency that Indian military advantage vis-a-vis Pakistan has contributed to the last two decades of peace. Gen. Sundarji's enunciation of the strategy of 'dissuasive-defense' rested on the assumption that overwhelming military advantage in armour and air would deter potential

adversaries from restoring to military adventure. And in that the Indian missile force should be interpreted as defensive in intent.

Therefore, if deterrence is defensive in its philosophical interpretation then ballistic missile capability can also provide cost-effective deterrence against powers that could not inimically to the Indian interests countries, who although may not be direct threat to Indian security but nevertheless by allowing safe havens or temporary basing facilities to naval ships or aircraft against Indian security interests would be deemed hostile 'Agni' has a role in imposing a sense of caution or deterrence against such indirect but overt third party activities against India. Therefore, the more that justify the Indian Missile programme.

The US argument against India deploying its missiles is that it would destabilise the situation in South Asia. It would apparently lead to Pakistan unpacking the M-11s and deploying them. In fact, the real U.S. concern is not jeopardising its trade with China. It knows that Pakistan will not be hurt any more than it already is under the Pressler amendment. In any event, Pakistan is hardly in a position to initiate a war with India at this stage.

The US is in the unenviable position of being subjected to pressures by three nations. Pakistan by deploying its M-11 missiles can jeopardise US-China relations because China has supplied missiles to Pakistan. India by deploying the Prithvi could trigger off such a reaction on the part of Pakistan. China which is already annoyed with the US on the issue of the Taiwanese President, Mr. Le Teng Hui's visit to the US and the lifting certain curbs on high technology transfer to Taiwan could well supply more missiles to Pakistan. In other words, the MTCR which is touted as a great US initiative in curbing missile proliferation is now causing it headaches.

India is not likely to embarrass the US as long as the latter does not make unreasonable demands. India has been able to contain the covert war in Kashmir engineered by Pakistan over a period of six years and there are encouraging signs that it will be able to control reasonably the Kashmir situation in the coming year. Pakistan beset as it is with the Mohajir problem cannot take India on now and if it does so, it is aware of the consequences.

The US has therefore, no reason to worry about therefore, no reason to worry about India deploying the Prithvi as a nuclear weapon carrier. The same however, cannot be

said to Pakistan. Though they initiated three wars in the past the Pakistanis have always done so with a certain minimum rationality calculations which went wrong. For more than two years, the missiles they had already in their possession at a time when India was still developing the Prithvi. It would therefore be irrational to do so now and legitimise the operational forwards deployment of the Prithvi.

India has also to insure against Pakistan acquiring sophisticated state of the art fighter bomber aircraft. The US administration has been hinting now and again about efforts to repeal the Pressler amendment and supplying Pakistan advanced F-16 aircraft. Pakistan is also known to be negotiating with France for aircraft and they have an eye on Russian aircraft as well. If such acquisitions were to happen one of the alternatives India may have to examine is to increase its surface-to-surface missiles and use them in runway denial roles.

Therefore, instead of lecturing to India the US should take a long term view of the stability of the region in which China is a key player and has more influence on Pakistan than it has on India. Many American professional understand this as evident from the recent testimony of the Pacific, Admiral Macko, to the Senate Armed Services commit-

tee in which he emphasized India's concern to keep an appropriate balance vis a vis China.

The end of the cold war has led to a US sponsored national and multinational tightening of the reins on the flow of advanced technology to the developing world. There now appears greater consensus and cooperation among the advanced industrial states on issues of technology export controls. India is likely to remain a major target of such controls in the years ahead. But the MTCR, while hindering several of India's space and missile projects and driving up developmental costs, has only stiffened New Delhi's determination to develop an indigenous capacity. It is significant that the main progress in the development of India's ground-to-ground missiles occurred after the cartel was formed. Universalized technology-control strategies can never work as a long-term solution to perceived regional security problems. Moreover, problems of international legitimacy are going to continue to plague the MTCR since it lacks the support of a central, validating treaty. The cartel places no restrictions on vertical missile and non-missile states, and unabashedly seeks to keep critical space, missile, and aerospace technologies in the hands of a few states. Above all, it conspicuously discriminates against Third World civilian space programs.

What, then, does the future hold for the MTCR? As a suppliers cartel designed to protect an oligopoly or perpetuate military superiority, the regime is on slippery ground. History bears testimony to the ineffectiveness of technology-control strategies. If the MTCR is sincere in seeking to prevent terrible arms races among countries that can scarcely afford them, then it should shed its "white-nations-only" image and co-opt countries like India that are willing to cooperate. The regime has succeeded in drawing the world's attention to missile proliferation but its own long-term future will be determined not by its coercive, technology-denial measures but by a shift to cooperative, demand-side-oriented arms control. Technical "fixes" can never resolve political problems. What is needed is a political, consensual approach to help establish a global, non-discriminatory missile regime.

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APPENDIX - 1

**MTCR : Guidelines for sensitive missile-relevant transfers
agreed on April 16, 1987**

1. The purpose of these guidelines is to limit the risks of nuclear proliferation by controlling transfers that could make a contribution to nuclear weapons delivery systems other than manned aircraft. The guidelines are not designed to impede national space programmes or international cooperation in such programmes as long as such programmes could not contribute to nuclear weapons delivery systems. These guidelines, including the attached annex form the basis for controlling transfers to any destination beyond the Government's jurisdiction or control of equipment and technology relevant to missiles whose performance in terms of payload and area exceeds stated parameters. Restraint will be exercised within the annex and all such transfers will be considered on a case-by-case basis. The government will implement the guidelines in accordance with national legislation.

2. The annex consists of two categories of items, which term includes equipment and technology category I items all of which are in annex items 1 and 2, are those items of greatest sensitivity. If a category I item is included in a system that system will also be considered as a Category I

except when the incorporated item cannot be separated, removed or duplicated. Particular restraint will be exercised in the consideration of Category I production facilities. The transfer of other Category I production facilities will not be authorised. The transfer of Category I items will be authorised only on rare occasions, and where the Government (a) obtains binding Government-to-Government undertakings embodying the assurances from the recipient government called for in Paragraph 5 of these guidelines and (b) assumes responsibility for all steps necessary to ensure that the item is put only to its stated end-use. It is understood that the decision to transfer remains the sole and sovereign judgment of the supplying government.

3. In the evaluation of export applications for annex items, the following factors will be taken into account.

A. Nuclear Proliferation Concerns;

B. The capabilities and objectives of the missile and space programmes of the recipient state;

C. The significance of the transfer in terms of the potential development of nuclear weapons delivery systems other than manned aircraft;

D. The assessment of the end-use of the transfers, including the relevant assurance of the recipient states referred to in subparagraphs 5A and 5B below;

E. The applicability of relevant multilateral agreements.

4. The transfer of design and production technology directly associated with any items in the annex will be subject to as great a degree of scrutiny and control as will be equipment itself, to the extent permitted by national legislation.

5. Where the transfer could contribute to nuclear weapons delivery systems, the Government weapons delivery systems, the Government will authorise transfers of items in the annex only on receipt of appropriate assurance from the Government on the recipient state that;

A. The items will be used only for the purpose stated and that such use will not be modified nor the items modified or replicated without the prior consent of the government.

B. Neither the items nor replicas nor derivatives thereof will be transferred without the consent of the Government.

6. In furtherance of the effective operation of the guidelines... the government will, as necessary and appropriate, exchange relevant information with other governments applying the same guidelines.

7. The adherence of all States to these guidelines in

the interests of international peace and security would be welcome.

The Guidelines were agreed upon in Canada, France, the federal Republic of Germany, Italy, Japan, the United Kingdom and the United States.

MTCR: Summary of the equipment and technology covered

Category I items include:

* Complete rocket system (including ballistic missile systems, space launch vehicle,s and sounding rockets) and unmanned air vehicle systems (including cruise missile systems, target drones, and reconnaissance drones) capable of delivering at least a 500 kg payload to a range of at least 300 km as well as the specially designed production facilities for these systems.

* Complete subsystems usable in the systems in Item 1, as follows, as well as the specially designed production facilities and production equipment therefore;

- individual rocket stages;
- reentry vehicles;
- solid or liquid fuel rocket engines;
- guidance sets;
- thrust vector controls;
- warhead saving, arming, fuzing, and firing mechanism.

Category II items include:

- * Propulsion components;
- * Propellants and constituents;
- * Propellant production technology and equipment;
- * Missile structural composites:production technology and equipment;
- * Pyrolytic deposition/desification Technology and Equipment.
- * Structural materials;
- * Flight instruments, inertial navigation equipment, software, and production equipment;
- * Flight control systems;
- * Avionics equipment;
- * Launch/ground support equipment and facilities;
- * Missile computers;
- * Analog-to-digital converters;
- * Test facilities and equipment;
- * Software and related analog or hybrid computers;
- * Reduced observables technology, materials, and devices;
- * Nuclear effects protection.

APPENDIX 2

US NATIONAL DEFENCE AUTHORISATION ACT FOR FISCAL YEAR 1991

Public Law : 101-510, November 5, 1990

Title XVII-Missile Technology Controls

Sec. 1701, Policy.

Sec. 1702, Amendment to the Export Administration Act of 1979.

Sec. 1703, Amendment to the Arms Export Control Act of 1979.

Sec. 1704, Report on missile proliferation.

Sec. 1701, Policy

It should be the policy of the United States to take all appropriate measures -

(1) to discourage the proliferation, development, and production of the weapons, material , and technology necessary to produce or acquire missiles that can deliver weapons of mass destruction;

(2) to discourage countries and private persons in other countries from aiding and abetting any states from acquiring such weapons, material, and technology;

(3) to strengthen United States and existing multilateral export controls to prohibit the flow of materials equipment, and technology that would assist countries in

acquiring the ability to produce or acquire missiles that can deliver weapons of mass destruction, including missiles, warheads and weaponisation technology, targeting, targeting technology, test and evaluation technology, and range and weapons effect measurement technology; and

(4) with respect to the Missile Technology Control Regime ("MTCR") and its participating governments -

(A) to improve enforcement and seek a common and stricter interpretation among MTCR member of MTCR principles; and

(B) to increase the number of countries that adhere to the MTCR; and

(C) to increase information sharing among United States agencies and among governments on missile technology transfer, including export licensing and enforcement activities.

Sec. 1702. Amendment to the Export Administration Act of 1979

(a) Missile Technology controls - Section of the Export Administration Act of 1979 (50 U.S.C. App. 2405) is amended :

(1) by redesignating subsections (k) through (p) as subsections (m) through (r) respectively; and

(2) by inserting after subsection (j) the following:

(k) Negotiations with other countries

(1) **Countries participating in certain agreements** : The Secretary of State, in consultation with the Secretary, the Secretary of Defence, and the heads of other appropriate departments and agencies shall be responsible for conducting negotiations with those countries participating in the groups known as the Coordinating Committee, the Missile Technology Control Regime, the Australia Group, and the Nuclear Suppliers Group, regarding the cooperation in restricting the export of goods and technology in order to carry out :

(A) the policy set forth in section 8(2) (B) of this Act, and

(B) United States policy opposing the proliferation of chemical, biological, nuclear and other weapons and their delivery systems, and effectively restricting the export of dual use components of such weapons and their delivery systems, in accordance with this subsection and subsections (a) and (I).

Such negotiations shall cover, among other issues, which goods and technology should be subject to multilaterally agreed export restrictions, and the implementation of restrictions consistent with the principles identified in section 5 (b) (2) (C) of this Act.

(2) **Other countries** : The Secretary of State in consultation with the Secretary, the Secretary of Defence and the heads of other appropriate departments and agencies shall be responsible for conducting negotiations with countries and groups of countries not referred to in paragraph (1) regarding their operation in restricting the export of goods and technology consistent with purposes set forth in paragraph (1). In case where such negotiations produce agreements on export restrictions that the Secretary, in consultation with the Secretary of State and the Secretary of Defence, determines to be consistent with the principles identified in section 2 (b)(2)(C) of this Act, the Secretary may treat exports, whether by individual or multiple licenses, to countries party to such agreements in the same manner as exports are treated to countries that are MTCR adherents.

(3) **Review of determinations** : The Secretary shall annually review any determination under paragraph (2) with respect to a country. For each such country which the Secretary determines is not meeting the requirements of an effective export control system in accordance with section 5(b)(2)(C) the Secretary shall restrict or eliminate any preferential licensing treatment for exports to that country provided under this subsection.

(1) Missile Technology :

(1) Determination of controlled items : The Secretary in consultation with the Secretary of State, the Secretary of Defence, and the heads of other appropriate departments and agencies :

(A) shall establish and maintain, as part of the control list established under this section, a list of all dual use goods and technology on the MTCR Annex; and

(B) may include, as part of the control list established under this section, goods and technology that would provide a direct and immediate impact on the development of missile delivery systems and are not included in the MTCR Annex but which the United States is proposing to the other MTCR adherents to have included in the MTCR Annex.

(1) Requirement of individual validated licenses : The Secretary shall require an individual validated license for-

(A) any export of goods or technology on the list established under paragraph (1) to any country; and

(B) any export of goods or technology that the exporter knows is destined for a project or facility for the design, development or manufacture of a missile in a country that is not an MTCR adherent.

(3) Policy of denial or licenses : (A) Licenses under paragraph (2) should in general be denied if the ultimate

consignee of the goods or technology is a facility in a country that is not an adherent to the Missile Technology Control Regime and the facility is designed to develop or build missiles.

(B) Licenses under paragraph (2) shall be denied if the ultimate consignee of the goods or technology is a facility in a country the government of which has been determined under subsection (j) to have repeatedly provided support for acts of international terrorism.

(4) **Consultation with other departments :** (A) A determination of the Secretary to approve an export license under paragraph (2) for the export of goods or technology to a country of concern regarding missile proliferation may be made only after consultation with the Secretary of Defence and the Secretary of State for a period of 20 days. The countries of concern referred to in the preceding sentence shall be maintained on a classified list by the Secretary of State, in consultation with the Secretary and the Secretary of Defence.

(B) Should the Secretary of Defence disagree with the determination of the Secretary to approve an export license to which subparagraph (A) applies, the Secretary of Defence shall so notify the Secretary within the 20 days provided for consultation on the determination. The Secretary of

Defence shall at the same time submit the master to the President for resolution of the dispute. The Secretary shall also submit the Secretary's recommendation to the President on the license application.

(C) The President shall approve or disapprove the export license application within 20 days after receiving the submission of the Secretary of Defence under subparagraph(B)

(D) Should the Secretary of Defence fail to notify the Secretary within the time period prescribed in subparagraph

(B) the Secretary may approve the license application without awaiting the notification by the Secretary of Defence.

Should the President fail to notify the Secretary of his decision on the export license application within the time period prescribed in subparagraph (C), the Secretary may approve the license application without awaiting the President's decision on the license application.

(E) Within 10 days after an export license is issued under this subsection, the Secretary shall provide to the Secretary of Defence and the Secretary of State the license application and accompanying documents issued to the applicant, to the extent that the relevant Secretary indicates the need to receive such application and documents.

(5) **Information Sharing** : The Secretary shall establish a procedure for information sharing with appropriate officials

of the intelligence community, as determined by the Director of Central Intelligence, and other appropriate Government agencies, and other appropriate Government agencies, that will ensure effective monitoring of transfers of MTCR equipment or technology and other missile technology."

(b) Sanctions for **Missile Technology Proliferation** : The Export Administration Act of 1979 is amended by inserting after section 11A (50 U.S.C. App. 2410a) the following:

Missile Proliferation Control Violations

Secl. 11B. (a) Violations by United States Persons :

(1) **Sanctions** (A) If the President determines that a United States person knowingly :

(i) exports, transfers, or otherwise engages in the trade of any item on the MTCR Annex, in violation of the provisions of section 38(22 U.S.C. 2778) or chapter 7 of the Arms Export Control Act, section 5 or 6 of this Act or any regulations or orders issued under any such provisions.

(ii) conspires to or attempts to engage in such export, transfer, or trade, or

(iii) facilitates such export, transfer, or trade by any other person, then the President shall impose the applicable sanctions described in subparagraph (B).

(E) The sanctions which apply to a United States person under subparagraph (A) are the following:

(i) If the item on the MTCR Annex involved in the export, transfer, or trade is missile equipment or technology within category II of the MTCR Annex, then the President shall deny to such United States person, for a period of 2 years, licenses for the transfer of missile equipment or technology controlled under this Act.

(ii) If the item on the MTCR Annex involved in the export, transfer, or trade is missile equipment or technology within category I of the MTCR Annex, then the President shall deny to such United States person, for a period of not less than 2 years all licenses for items the export of which is controlled under this Act.

(k) **Discriptionary sanctions** : In the case of any determination referred to in paragraph (1), the Secretary may pursue any other appropriate penalties under section 11 of this Act.

(1) **Waiver** : The President may waive the imposition of sanctions under paragraph (1) on a person with respect to a product or service if the President certifies to the Congress that -

(A) the product or service is essential to the national security of the United States; and

(B) such person is a sole source supplier of the product or service, the product or service is not available from any alternative reliable supplier, and the need for the product or service cannot be met in a timely manner by improved manufacturing processes or technological developments.

(b) Transfers of Missile Equipment of Technology By Foreign Persons :

(1) **Sanctions** (A) Subject to paragraphs (3) through (7) if the President determines that a foreign person, after the date of the enactment of this section, knowingly.

(i) exports, transfer or otherwise engages in the trade of any MTCR equipment or technology that contributes to the design, development, or production of missile in a country that is not an MTCR adherent and would be, if it were United States origin equipment or technology, subject to the jurisdiction of the United States under his Act.

(ii) conspires to or attempts to engage in such export, transfer or trade, or

(iii) facilitates such export, transfer, or trade by any other person, or if the President has made a determination with any foreign person under section 78(a) of the Arms Export Control Act, then the President shall impose on that

foreign person the applicable sanctions under subparagraph (B).

(B) The sanctions which apply to a foreign person under subparagraph (A) are the following:

(i) If the item involved in the export, transfer, or trade is within category II of the MTCR Annex, then the President shall deny, for a period of 2 years licenses for the transfer to such foreign person of missile equipment or technology the export of which is controlled under this Act.

(ii) If the item involved in the export, transfer or trade is within category I of the MTCR Annex, then the President shall deny for a period of not less than 2 years, licenses for the transfer to such foreign person of items the export of which is controlled under this Act.

(iii) If, in addition to actions taken under clauses (i) and (ii), the President determines that the export transfer, or trade has substantially contributed to the design, development, or production of missiles in a country that is not an MTCR adherent then the President shall prohibit, for a period of not less than 2 years the importation into the United States of products produced by that foreign person.

(2) Inapplicability with respect to MTCR adherents Paragraph (1) does not apply with respect to

(A) any export, transfer, or trading activity that is authorized by the laws of an MTCR adherent if such authorization is not obtained by misrepresentation or fraud; or

(B) any export, transfer, or trade of an item to an end user in a country that is an MTCR adherent.

(3) Effect of enforcement actions by MTCR adherents: Sanctions set forth in paragraph (1) may not be imposed under this subsection on a person with respect to acts described in such paragraph or, if such sanctions are in effect against a person on account of such acts, such sanctions shall be terminated, if an MTCR adherent is taking judicial or other enforcement action against that person with respect to such acts or that person has been found by the government of an MTCR adherent to be innocent of wrongdoing with respect to such acts.

(4) Advisory opinions: The Secretary, in consultation with the Secretary of States and the Secretary of Defense, may, upon the request of any person, come an advisory opinion to that person as to whether a proposed activity by that person would subject that person to sanctions under this subsection. Any person who relies in good faith on such an advisory opinion which states that the proposed activity would not subject a person to such sanctions, and any person who thereafter engages in such activi-

ty may not be made subject to such sanctions on account of such activity.

(5) **Waiver and report to Congress:** (A) In any case other than one in which an advisory opinion has been issued under paragraph (4) stating that a proposed activity would not subject a person to sanctions under this subsection the President may waive the application of paragraph (1) to a foreign person if the President determines that such waiver is essential to the national security of the United States.

(B) In the event that the President decides to apply the waiver described in subparagraph to (A), the President shall so notify the Congress not less than 20 working days before issuing the waiver. Such notification shall include a report fully articulating the rationale and circumstances which led the President to apply the waiver.

(6) **Additional waiver:** The President may waive the imposition of sanctions under paragraph (1) on a person with respect to a product or service if the President certifies to the Congress that —

(A) the product or service is essential to the national security of the United States; and

(B) such person is a sole source supplier of the product or service, the product or service is not available from any alternative reliable supplier, and the need for the

product of service cannot be met in a timely manner by improved manufacturing processes or technological developments.

(7) **Exceptions** : The President shall not apply the sanction under this subsection prohibiting the importation of the products on a foreign person —

(A) in the case of procurement of defence articles or defence services:

(i) under existing contracts or subcontracts, including the exercise of options for production quantities to satisfy requirements essential to the national security of the United States;

(ii) if the President determines that the person to which the sanctions would be applied is a sole source supplier of the defence articles and services, that the defence articles or services are essential to the national security of the United States, and/that alternative sources are not readily or reasonably available; or

(iii) if the President determines that such articles or services are essential to the national security of the United States under defence coproduction agreements or NATO Programme of Cooperation;

(B) to products or services provided under contracts entered into before the date on which the President publish-

es his intention to impose the sanctions; or

(C) to

(i) spare parts,

(ii) component parts, but not finished products, essential not United States products or production.

(iii) routine services and maintenance of products to the extent that alternative sources are not readily or reasonably available, or

(iv) information and technology essential to United States products or production.

(c) Definitions : For purposes of this section and subsections (k) and (l) of section 6:

(1) the term 'missile' means a category I system as defined in the MTCR Annex, and any other unmanned delivery system of similar capability, as well as the specially designed production facilities for these systems;

(2) the term 'Missile Technology Control Regime' or 'MTCR' means the policy statement, between the United States, the United Kingdom, the Federal Republic of Germany, France, Italy, Canada, and Japan, announced on April 16, 1987, to restrict sensitive missile-relevant transfers based on the MTCR Annex, and any amendments thereto;

(3) the term 'MTCR adherent' means a country that participates in the MTCR or that, pursuant to an interna-

tional understanding to which the United States is a party, controls MTCR equipment or technology in accordance with the criteria and standards set forth in the MTCR;

(4) the term 'MTCR Annex' means the Guidelines and Equipment and Technology Annex of the MTCR, and any amendments thereto;

(5) the terms 'missile equipment or technology' mean those items listed in category I or category II of the MTCR Annex;

(6) the term 'foreign person' means any person other than a United States person;

(7) (A) the term 'person' means a natural person as well as a corporation, business association, partnership, society, trust, any other nongovernment entity, organisation, or group, any governmental entity operating as a business enterprise, and any successor of any such entity; and

(B) in the case of countries where it may be impossible to identify a specific governmental entity referred to in subparagraph (A), the term 'person' means —

(i) all activities of that government relating to the development or production of any missile equipment or technology; and

(ii) all activities of that government affecting the development or production of aircraft, electronics and space

systems or equipment; and

(8) the term 'otherwise' engaged in the trade of means with respect to a particular export or transfer, to be freight forwarder or designated exporting agent, or a consignee or and user of the item to be exported or transferred.

Sec. 1703. Amendment to the Arms Export Control Act

The Arms Export Control Act is amended by inserting after chapter 6(22 USC 2795b et seq) the following new chapter:

Chapter 7 : Control of Missiles and Missile Equipment or Technology

Sec. 71. Licensing

(a) **Establishment of List of Controlled Items :** The Secretary of State, in consultation with the Secretary of Defence and the heads of other appropriate departments and agencies, shall establish and maintain, as part of the United States Munitions List, a list of all items on the MTCR Annex the export of which is not controlled under section 6(1) of the Export Administration Act of 1979.

(b) **Referral of License Applications :** (1) A determination of the Secretary of State to approve a license for the export of an item on the list established under subsection (a) may be made only after the license application is referred to the Secretary of Defence.

(2) Within 10 days after a license is issued for the export of an item on the list established under subsection (a), the Secretary of State shall provide to the Secretary of Defence and the Secretary of Commerce the license application and accompanying documents issued to the applicant to the extent that the relevant Secretary indicates the need to receive such application and documents.

(c) **Information Sharing:** The Secretary of State shall establish a procedure for sharing information with appropriate officials of the intelligence community, as determined by the Director of Central Intelligence, and with other appropriate Government agencies, that will ensure effective monitoring of transfers of MTCR equipment or technology and other missile technology.

Sec. 72. Denial of the Transfer of Missile Equipment or Technology by United States Persons

(a) **Sanctions :** (1) If the President determines that a United States person knowingly —

(A) exports, transfers, or otherwise engages in the trade of an item on the MTCR Annex, in violation of the provision of section 38 of this Act, section 5 or 6 of the Export Administration Act of 1979 (USC App 2404, 2405), or any regulations or orders issued under any such provisions.

(B) conspires to or attempts to engage in such export, transfer, or trade, or

(C) facilitates such export, transfer, or trade by any other person, then the president shall impose the applicable sanctions described in paragraph (2).

(2) The sanctions which apply to a United States person under paragraph (1) are the following:

(A) If the item on the MTCR Annex involved in the export, transfer, or trade is missile equipment or technology within category II of the MTCR Annex, then the President shall deny to such United States person for a period of 2 years —

(i) United States Government contracts relating to missile equipment or technology; and

(ii) licenses for the transfer of missile equipment or technology controlled under this Act.

(B) If the item on the MTCR Annex involved in the export, transfer, or trade is missile equipment or technology within category I of the MTCR, then the President shall deny to such United States person for a period of not less than 2 years —

(i) all United States Government contracts, and

(ii) all export licenses and agreements for items on the United States Munitions List.

(b) **Discretionary Sanctions:** In the case of any determination made pursuant to subsection (a) the President may pursue any penalty provided in section 38(c) of this Act.

(c) **Waiver:** The President may waive the imposition of sanctions under subsection (a) with respect to a product or service if the President certifies to the Congress that —

(1) the product or service is essential to the national security of the United States; and

(2) such person is a sole source supplier of the product or service, the product or service is not available from any alternative reliable supplier, and the need for the product or service cannot be met in a timely manner by improved manufacturing processes or technological developments.

Sec.78. Transfers of Missile Equipment or Technology by Foreign Persons

(a) **Sanctions** (1) Subject to subsections (c) through (g) if the President determines that a foreign person, after the date of the enactment of this chapter, knowingly —

(A) exports, transfers, or otherwise engages in the trade of any MTCR equipment or technology that contributes to the design, development or production of missiles in a country that is not an MTCR adherent and would be, if it

were United States origin equipment or technology, subject to the jurisdiction of the United States under this Act.

(B) conspires to or attempts to engage in such export, transfer, or trade or

(C) facilitates such export, transfer, or trade by any other person, or

if the President has made a determination with respect to a foreign person under section 11B(b)(1) of the Export Administration Act of 1979, then the President shall impose on that foreign person the applicable sanctions under paragraph (2).

(2) The sanctions which apply to a foreign persons under paragraph (1) are the following:

(A) If the item involved in the export, transfer, or trade is within category II of the MTCR Annex, then the President shall deny for a period of 2 years :

(i) United States Government contracts relating to missile equipment or technology; and

(ii) licenses for the transfer to such foreign person of missile equipment or technology controlled under this Act.

(B) If the item involved in the export transfer, or trade is within category I of the MTCR Annex, then the

President shall deny, for a period of not less than 2 years -

(i) all United States Government contracts with such foreign person; and

(ii) licenses for the transfer to such foreign person of all items on the United States Munitions List.

(C) If, in addition to actions taken under subparagraphs (A) and (B), the President determines that the export, transfer, or trade has substantially contributed to the design development, or production of missiles in a country that is not an MTCR adherent, then the President shall prohibit, for a period of not less than 2 years, the importation into the United States of products produced by that foreign person.

(b) Inapplicability with Respect to MTCR Adherents --
Subsection (a) does not apply with respect to :

(1) any export, transfer, or trading activity that is authorized by the laws of an MTCR adherent, if such authorization is not obtained by misrepresentation or fraud; or

(2) any export, transfer, or trade of an item to an end user in a country that is an MTCR adherent.

(c) Effect of Enforcement Actions by MTCR Adherents --
Sanctions set forth in subsection (a) may not be imposed under this section on a person with respect to acts described in such subsection or, if such sanctions are in

effect against a person on account of such acts, such sanctions shall be terminated, if an MTCR adherent is taking judicial or other enforcement action against that person with respect to such acts, or that person has been found by the government of an MTCR adherent to be innocent of wrongdoing with respect to such acts.

(d) **Advisory Opinions** : The Secretary of State in consultation with the Secretary of Defence and the Secretary of Commerce, may, upon the request of any person issue an advisory opinion to that person as to whether a proposed activity by that person would subject that person to sanctions under this section. Any person who relies in good faith on such an advisory opinion which states that the proposed activity would not subject a person to such sanctions, and any person who thereafter engages in such activity, may not be made subject to such sanctions on account of such activity.

(e) **Waiver and Report to Congress**: (1) In any case other than one in which an advisory opinion has been issued under subsection (d) stating that a proposed activity would not subject a person to sanctions under this section, the President may waive the application of subsection (a) to a foreign person if the President determines that such waiver is essential to the national security of the United States.

(2) In the event that the President decides to apply the waiver described in paragraph (1), the President shall so notify the Congress not less than 20 working days before issuing the waiver. Such notification shall include a report fully articulating the rationale and circumstances which led the President to apply the waiver.

(f) **Additional Waiver:** The President may waive the imposition of sanctions under paragraph (1) on a person with respect to a product or service if the President certifies to the Congress that —

(1) the product or service is essential to the national security of the United States; and

(2) such person is a sole source supplier of the product or service, the product or service is not available from any alternative reliable supplier, and the need for the product or service cannot be met in a timely manner by improved manufacturing processes or technological developments.

(g) **Exceptions :** The President shall not apply the sanction under this section prohibiting the importation of the products of a foreign person —

(1) in the case of procurement of defence articles or defence services:

(A) under existing contracts or subcontracts, including the exercise of options for production quantities to

satisfy requirements essential to the national security of the United States;

(B) if the President determines that the person to which the sanctions would be applied is a sole source supplier of the defence articles and services, that the defence articles or service are essential to the national security of the United States, and that alternative sources are not readily or reasonably available; or

(C) if the President determines that such articles or services are essential to the national security of the United States under defence coproduction agreements or NATO Programmes of Cooperation;

(1) to products or services provided under contracts entered into before the date on which the President publishes his intention to impose the sanctions; or

(3) to

(A) spare parts,

(B) component parts, but not finished products, essential to United States products or production,

(C) routine services and maintenance of products, to the extent that alternative sources are not readily or reasonably available, or

(D) information and technology essential to United States products or production.