

.b 4103683(E)

doc
CA1
EA365
2000M75
ENG

The MTCR and Missile Proliferation: Moving Toward the Next Phase

Jing-dong Yuan

Prepared for the
International Security Research and Outreach Programme
International Security Bureau

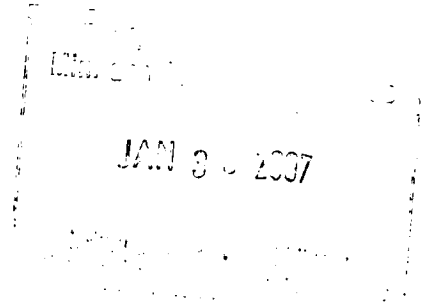
May 2000



Department of Foreign Affairs
and International Trade

Ministère des Affaires étrangères
et du Commerce international

The MTCR and Missile Proliferation: Moving Toward the Next Phase



17968637

Jing-dong Yuan

Prepared for the

International Security Research and Outreach Programme
International Security Bureau

May 2000

TABLE OF CONTENTS

Preface.....	iii
Executive Summary.....	v
Résumé.....	vii
INTRODUCTION.....	1
MISSILE PROLIFERATION: RECENT DEVELOPMENTS AND CONSEQUENCES.....	2
THE MTCR: SUCCESSES, LIMITATIONS, AND NEW CHALLENGES.....	7
The Growing Number of Potential Suppliers.....	9
Technological Changes and Diffusion.....	10
Globalization and Commercial Competition.....	10
Institutional Deficiencies.....	12
STRENGTHENING THE MTCR: LEADERSHIP AND STRATEGIES.....	15
UNDERSTANDING MOTIVATIONS FOR PROLIFERATION: THE ROLE OF CONFIDENCE BUILDING MEASURES.....	19
Causes of Proliferation.....	19
The Role of Confidence Building.....	21
TOWARDS AN INTERNATIONAL TREATY: EVENTUAL GOALS AND INTERIM STEPS.....	24
CONCLUSION.....	29
Table 1: Ballistic Missile Tests, Acquisitions, and R&D in Selected Country Areas.....	31
Table 2: The Missile Suppliers' Network.....	32
Table 3: Variables Affecting Missile Proliferation in Selected Countries.....	34
Table 4: Some Interim Steps and Likely Responses of Selected States.....	35

PREFACE

The views expressed in this paper are those of the author, and do not necessarily reflect the views or positions of the Department of Foreign Affairs and International Trade or of the Government of Canada.

The International Security Research and Outreach Programme commissioned a study to carry out the following tasks:

- i). Summarize current issues with regard to the proliferation of ballistic missiles;
- ii). Consider what a treaty designed to prohibit the proliferation of ballistic missiles would look like, together with what issues such a treaty might address, what mechanisms would be required for it to do so, and the appropriate fora for the negotiation of such a treaty;
- iii). Assess the interim steps which could be taken to move consensus toward such a treaty, and;
- iv). Consider the role of international bodies, states party to the MTCR and other third parties in supporting these options, together with an assessment of their feasibility. In particular, identify supporting conditions that need to exist before these options can be pursued and created.

The Department of Foreign Affairs and International Trade wishes to acknowledge the work performed under contract through the International Security Research and Outreach Programme in the preparation of this report by the author: Dr. Jing-dong Yuan.

(For other ISROP publications, please visit our website at <http://www.dfait-maeci.gc.ca/arms/>, and proceed to the page entitled "Publications List")

Department of Foreign Affairs and International Trade
125 Sussex Drive
Ottawa, Ontario, Canada

May 2000

EXECUTIVE SUMMARY

Ballistic missile proliferation continues to pose a serious threat to regional and international security. Recent missile tests by a number of countries, coupled with continued missile-related technology transfers to regions of ongoing and potential conflicts further undercut the international efforts at curbing missile proliferation. While the Missile Technology Control Regime (MTCR) has been instrumental in limiting the spread of missiles since its inception in 1987, the growing number of potential and actual suppliers not members to the control regime, the diffusion and changing nature of technology in an era of globalisation, and the changing international geo-strategic environment which makes consensus on export controls difficult to achieve, present daunting challenges to the MTCR and the international missile non-proliferation regime it embodies. The regime's inherent institutional deficiencies further slow if not prevent its adjustment and adaptation.

Renewed non-proliferation efforts and innovative arms control initiatives are needed to address the sources of missile proliferation from both the supply and demand sides. This report seeks to examine some of the conceptual and policy-relevant issues with a view to identifying the necessary and sufficient conditions for and the interim steps leading toward a broadly-based, politically-binding international treaty on missiles. Clearly, effective leadership is required to inject vitality into the MTCR whose continued activism is still required and indeed needs to be strengthened to play a more proactive role in preventing longer-range missile proliferation. At the same time, there are means by which the regime can be improved upon, including norm building and gap bridging, greater transparency in the regime's procedure so as to enhance its legitimacy, and a shift of focus from denial strategies to monitoring of end-use application of dual-use technologies.

Denial strategies alone can no longer stem missile proliferation. Both analysts and policymakers should strive for a better understanding of the potential and limitations of supply-control regimes in changing security environments, and seek to design and implement effective strategies. CBMs could be introduced to support MTCR objectives by alleviating some of the causes, either demand-pull or supply-driven, that underlie missile proliferation. The ultimate goal, though, is to look at the feasibility of an international treaty on missiles and practical venues for entering into negotiations. While treatification at the moment remains elusive, several steps perceptibly could be taken toward achieving that end. In this context, an enhanced MTCR, coupled with the introduction and implementation of regional CBMs would pave the way toward eventual drafting of such an international treaty that is based on the principle of universality and could be implemented through effective and fair verification.

RÉSUMÉ

La prolifération des missiles balistiques continue de faire planer une lourde menace sur la sécurité régionale et internationale. Les récents essais balistiques effectués par un certain nombre de pays, conjugués au transfert continu de technologie vers des régions qui sont actuellement le théâtre de conflits ou sont susceptibles de l'être, minent davantage les efforts internationaux visant à réduire la prolifération des missiles. Le Régime de contrôle de la technologie relative aux missiles a joué un rôle déterminant dans la limitation de leur prolifération; néanmoins, le nombre croissant de fournisseurs réels et potentiels qui n'adhèrent pas au Régime, la diffusion de la technologie et l'évolution de la nature de la technologie à l'ère de la mondialisation, ainsi que les changements de l'environnement géostratégique international qui rendent difficile l'établissement d'un consensus sur les contrôles à l'exportation, sont autant de défis de taille pour le Régime et pour les normes internationales de non-prolifération des missiles qu'il incarne. De plus, ses défaillances institutionnelles intrinsèques freinent, voire bloquent sa capacité de répondre à ces défis.

Un regain d'efforts en matière de non-prolifération et des initiatives novatrices dans le domaine du contrôle des armements sont nécessaires pour faire face à la dynamique de l'offre et de la demande, qui sous-tend la prolifération des missiles. Le présent rapport s'efforce d'examiner les conditions nécessaires et suffisantes, ainsi que les mesures provisoires essentielles à la mise en œuvre d'un Traité international de non-prolifération des missiles, qui ait un caractère universel tout en ayant force exécutoire, politiquement. Il faut manifestement faire montre d'un leadership efficace pour revitaliser le Régime, qui continue d'être un mécanisme nécessaire devant être renforcé si on veut qu'il joue un rôle plus proactif dans la prévention d'une future prolifération des missiles. Parallèlement, il existe des moyens permettant d'y apporter des améliorations, par exemple les efforts visant à établir des normes et à combler les lacunes, une plus grande transparence en ce qui a trait aux procédures prévues par le Régime, de manière à en renforcer la légitimité, et un changement d'approche qui, en lieu et place des stratégies de refus, serait plutôt axée sur le contrôle de l'utilisation finale des technologies ambivalentes.

Les stratégies de refus ne peuvent plus, à elles seules, contenir la prolifération des missiles. Les analystes, tout comme les décideurs, devraient s'efforcer de mieux comprendre les possibilités et les limites des régimes de gestion de l'offre dans l'environnement de la sécurité aujourd'hui, qui est en pleine évolution. Ils devraient également encourager la conceptualisation et la mise en œuvre de stratégies efficaces visant à contrecarrer la prolifération des missiles. Des mesures d'instauration de la confiance (MDC) pourraient être utilisées pour faire obstacle à la dynamique (qu'elles soient axées sur la demande ou sur l'offre) qui sous-tend la prolifération des missiles dans certaines régions. Le but final du présent rapport est d'analyser la faisabilité d'un traité international sur les missiles, ainsi que les modalités pratiques de négociation d'un tel traité. Bien que la perspective de conclusion d'un pareil traité demeure lointaine pour le moment, différentes mesures pourraient être prises pour y parvenir. Un Régime amélioré, qui s'accompagnerait de l'adoption et de la mise en œuvre de MDC au niveau régional, pourrait ouvrir la voie éventuellement à la rédaction d'un traité fondé sur le principe de l'universalité, dont la mise en œuvre serait assurée grâce à un mécanisme de vérification efficace et équitable.

THE MTCR AND MISSILE NONPROLIFERATION: MOVING TOWARD THE NEXT PHASE

INTRODUCTION

Ballistic missile proliferation has emerged as one of the most salient security issues since the end of the Cold War. The dramatic missile tests of the last few years by India, Iran, Pakistan, and North Korea, coupled with the nuclear testing in South Asia, seriously undercut international nonproliferation efforts and pose grave threats to global and regional security. Less visible but equally disturbing, from a nonproliferation perspective, are continued missile research and development programmes and growing qualitative improvements in domestic production capabilities in a number of countries. Furthermore, transfers of missile systems and related technologies remain a key proliferation concern. These developments are causing serious concerns among policy makers and analysts concerned with the consequences of missile proliferation for regional stability and crisis management (e.g., in South Asia and on the Korean Peninsula); the threat and potential use of missiles armed with weapons of mass destruction (WMDs) during conflicts; negative impacts on arms control and disarmament undertakings; and future prospects for international missile nonproliferation controls.¹

Against this background there have been both a growing interest in and specific suggestions on how to strengthen the international missile nonproliferation regime, including finding ways to enhance the Missile Technology Control Regime (MTCR)'s capabilities both as an export control mechanism (by expanding its coverage) and as a larger vehicle for arms control (by increasing the number of participating states, among other things). Examples are as diverse as bilateral launch notification measures (e.g., USA/Russia and India/Pakistan); public expression of interest by China in a multilateral missile treaty; agreement on greater activism by MTCR member states at its October 1998 Budapest Plenary, the June 1999 Köln G8 Summit Communiqué, and the July 1999 report of the Tokyo Forum.

Clearly, renewed nonproliferation efforts and innovative arms control initiatives are needed to address the sources of missile proliferation from both the demand and supply sides if we are to understand the potential and limitations of supply-control regimes in changing security environments, and to design and implement effective strategies. This report examines some of the conceptual and policy-relevant issues with a view to identifying the necessary and sufficient conditions for and the interim steps leading toward a broadly-based, politically-binding international treaty on missiles. Specifically, the report will address three issues:

¹ This report is prepared for the International Security Research and Outreach Programme, Non-Proliferation, Arms Control and Disarmament Division, the Department of Foreign Affairs and International Trade. The author would like to thank Evan Medeiros, Dinshaw Mistry, Phillip Saunders, and René Unger for their very helpful comments on earlier drafts. The author alone is responsible for the contents of the report.

1. to consider how and by what means the MTCR could be strengthened as a viable international instrument to curb missile proliferation;
2. to identify and review confidence building measures (CBMs) that could be introduced and implemented to support MTCR objectives; and
3. to propose and elaborate interim practical steps leading toward a global missile nonproliferation treaty.

The report begins with a brief account of the recent developments in missile proliferation and discusses their impacts on regional security and arms control. This is followed by a review of the MTCR's track record over the last decade and the challenges it faces today. The report then discusses those improvements that need to be undertaken to strengthen the MTCR, and how these goals can be achieved through effective leadership. The next section discusses synergetic approaches toward effective missile nonproliferation, together with a range of CBMs that could be used to build upon the MTCR in curbing missile proliferation. Finally, the report examines the feasibility of an international treaty on missiles, its venue for negotiation, and the difficulties inherent in such an undertaking. The report then concludes with some thoughts on where Canada can and should play a constructive and leadership role.

MISSILE PROLIFERATION: RECENT DEVELOPMENTS AND CONSEQUENCES

The threat of ballistic missile proliferation has been dramatically highlighted over the past few years by a growing number of countries that have tested short- to intermediate-range ballistic missiles.² These include India's Agni-I and Agni-II; Pakistan's Ghauri-I, Ghauri-II, and Shaheen; North Korea's Taepo Dong-I; China's Dong Feng-31 ICBM, and Iran's Shahab-3 (see Table 1 for a summary of these and other developments). Anxiety over North Korea's much anticipated launch test of the Taepo-Dong-II has caused intense diplomatic and military maneuvering.³ While the

² For media coverage, see Harinder Baweja with Zahid Hussain, "Ghauri: Fire in the Sky," *India Today* (20 April 1998), pp. 34-5; Manoj Joshi, "Deadly Option," *India Today* (4 May 1998), pp. 38-40; Raj Chengappa, "Boom for Boom," *India Today* (26 April 1999), pp. 28-31; "Agni-II joins nation's missile showcase," *The Hindustan Times* (12 April 1999) (<http://www.hindustantimes.com/nonfram/120499/detfro01.htm>); Steven Lee Myers, "Missile Test by North Korea: Dark Omen for Washington," *The New York Times* on the web, (September 1, 1998) (<http://www.nytimes.com/library/world/asia/090198nkorea-missiles-us.html>); "China tests new mobile missile," *The Times of India* (1 September 1999) (<http://www.timesofindia.com/today/01worl2.htm>); "North Korea: A Second Taepo-dong Test?," Center for Nonproliferation Studies, Monitoring Proliferation Threat Project (<http://www.cns.miis.edu/research/korea/taep2.htm>); Steve Rodan and Arie O'Sullivan, "Iran Test-Fires Shihab-3 Missile," *Jerusalem Post* (24 July 1998).

³ "S. Korean Defense Minister Seeks Support For Missile Test Halt," *Agence France Presse* (24 August 1999); Doug Struck, "U.S., N. Korea to Hold Talks on Missile Test," *Washington Post* (27 August 1999) (<http://www.washingtonpost.com/wp-s...te/1999-08-27/1161-082799-idx.html>); Steven Mufson, "Korean Missiles Push U.S. Defense

Berlin talks have led to an announced test suspension by Pyongyang, the key elements of North Korean missile programmes, including the DPRK's continued development and sales, remain unaddressed. Missile acquisition and developments efforts are also occurring in other regions of tension and instability, such as the Middle East, the Gulf, and South Asia. For example, Iran is developing the Shahab-4, Pakistan is moving ahead with the Shaheen-II, and Syria reportedly is acquiring Chinese M-9 missiles via Pakistan and North Korea.⁴

Ongoing transfers of missile systems and related technologies to other regions, in particular the highly contentious Gulf region and the Middle East, remain a serious proliferation concern. China and North Korea have over the years been charged with willingly supplying missiles, missile components, and relevant technologies to Third World customers. While China has pledged to abide by the MTCR guidelines since 1992 (and indeed Beijing's records in this regard have improved noticeably in recent years), there remain allegations that Chinese missile components and technology continue to be transferred to such countries as Pakistan and Iran. A recently released US intelligence report charges that China may have transferred medium-range missiles to Pakistan.⁵ Beijing has also had to contend with allegations that it has provided assistance to Iran designed to improve the latter's anti-ship missiles, thus violating a Chinese pledge to the United States not to engage in such activities.⁶

North Korea also serves as a source of missile proliferation and is reported to have played a prominent role in Pakistan's missile development.⁷ Indian authorities have recently intercepted a North Korean ship at Kandla port heading for Pakistan, with 177 crates of blueprints, manuals and

Plans," *Washington Post* (5 September 1999) (<http://www.washingtonpost.com/wp-s...te/1999-09/05/1841-090599-idx.html>).

⁴ "Missile Proliferation, 1995-97," in Rodney W. Jones and Mark G. McDonough, with Toby Dalton and Gregory Koblenz, *Tracking Nuclear Proliferation: A Guide in Maps and Charts, 1998* (Washington, DC: Carnegie Endowment for International Peace, 1998); Sharon Sadeh, "Israel Said To Be Testing Missiles In Lebanon," *Ha'aretz* (Tel Aviv) (<http://www.haaretz.co.il/eng>); Sue Lackey, "Missiles from China," *ABCNews.com* (23 August 1999) (<http://abcnews.go.com:80/sections/...DailyNews/syriamissiles990823.html>); "A Dangerous Race in a Multi-Axial World: The Missile Club in the Middle East," *Al-Wasat* (London), FBIS translation, (30 August 1999); Atul Aneja, "Pak. Begins work on Shaheen-II," *The Hindu* (27 September 1999) (<http://www.indiaserver.com:80/thehindu/1999/09/27/stories/03270005.htm>).

⁵ National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015* (September 1999); "U.S. may punish China over missiles," *Deseretnews.com* (15 September 1999) (<http://deseretnews.com:80/dn/view/1,1249,115009069,00.html>); Jonathan S. Landay, "Missile issues put chill on US-China thaw," *The Christian Science Monitor* (17 September 1999), p. 2 (Lexis-Nexis@Academic Universe).

⁶ "China denies missiles deal with Iran," *The Times of India* (31 August 1999) (<http://www.timesofindia.com/today/31worl12.htm>).

⁷ Joseph Bermudez, "A silent partner," *Jane's Defence Weekly* (20 May 1998), pp. 16-17.

machine tools for Scud missiles.⁸ Pyongyang's missile assistance and transfers to Iran are also a matter of concern.

These developments can have serious consequences for regional security and negative impact on arms control and disarmament. To begin with, they upset regional military balances (either perceived or real), thus potentially leading to strategic instability – for example, the potential for escalating existing rivalries. An obvious case is the tit-for-tat missile race between India and Pakistan that could complicate crisis management in times of escalating conflicts. This is particularly worrisome given the recent fighting in Kargil and continued confrontation over Kashmir. The two countries have already conducted nuclear tests and are in the process of inducting nuclear warheads into their weapons systems.⁹ This has led to concerns over command and control, and the risk of preemptive missile launches in crisis situations (“use them or lose them”). India's draft nuclear doctrine emphasizes the development of a “triad” strategic defence system and aims to achieve credible minimum deterrence.¹⁰ Pakistan, on the other hand, has never adopted a no-first-use posture and relies on the recourse to nuclear weapons as a form of deterrence. In both cases, missile development will remain high on the two countries' security agenda.

In addition, missile proliferation forces reactions and introduces elements of arms competition. The Japanese and South Korean reactions to regional missile threats are but two example of this reality. North Korea's August 1998 missile launch has already led to strong Japanese responses, including the suspension of diplomatic talks with the DRPK and the freezing of the Japanese financial contribution to the Korean Peninsula Energy Development Organization (KEDO). However, the real consequence of the DPRK missile launch has been to convince an hesitant Japanese government to proceed with allocating funds for joint R&D with the United States on a theatre missile defence (TMD) system. The missile launch was also pivotal in the Japanese decision to launch its own reconnaissance satellites by year 2002.¹¹ In August 1999, Japan and the United States signed an agreement to jointly study the design of a TMD system for Asia.¹² Similarly, Seoul has also responded by speeding development of its own short-range ballistic

⁸ "U.S.-N. Korea agreement skips help to Pakistan," *The Hindu* (15 September 1999). (Lexis-Nexis@Academic Universe)

⁹ Andrew R. Koch and W.P.S. Sidhu, "South Asia goes ballistic, then nuclear," *Jane's Intelligence Review* (June 1998), pp. 36-7.

¹⁰ D N Moorthy, "Ambiguity is India's new nuclear agenda," *Jane's Intelligence Review* (November 1999), pp.45-49; R. Ramachandran, "Unclear nuclear identity," *Frontline* 16(18) (28 August - 10 September 1999). (<http://www.the-hindu.com/fline/fl1618/16180160.htm>)

¹¹ Howard Diamond, "N. Korea Launches Staged Rocket That Overflies Japanese Territory," *Arms Control Today* (August/September 1998). (<http://www.armscontrol.org/ACT/augsep98/nklas98.htm>)

¹² Calvin Sims, "U.S. and Japan Agree to Joint Research on Missile Defense," *The New York Times* (17 August 1999). (<http://www.nytimes.com/library/world/asia/081799japan-us-defense.html>)

missiles (300-500 kilometre range). In April 1999, South Korea tested the Hyonmu missile: it flew 40 kilometres but may have a maximum range of 300 kilometres.¹³ This undertaking may well have violated a 1979 US-ROK moratorium under which South Korea undertook not to develop missiles with a range above 180 kilometres. Seoul has so far declined to participate in the TMD programme and probably would push for the 500 kilometre range so it could target major military installations in North Korea.¹⁴

Missile proliferation heightens concerns over ballistic missile threats. The recent missile developments have confirmed the findings of the July 1998 Rumsfeld Report, which in turn is further reinforced by the September 1999 National Intelligence Council report. Both predict that the United States could face the threats of ballistic missiles from Russia, China, and North Korea, probably from Iran, and possibly from Iraq between now and year 2015.¹⁵ There are serious concerns about the "coming North Korean ICBM." Some worry that it could be fitted with nuclear warheads using the enriched plutonium Pyongyang may have reprocessed prior to the signing of the October 1994 US-DPRK Agreed Framework.¹⁶ The Taepo Dong-II, for example, could have a range of over 4,500-6,000 kilometres, allowing it to reach western Alaska and parts of Hawaii. But perhaps by far the most serious response has been the American decision to develop and deploy both the national missile defense (NMD) and theatre missile defense (TMD) systems,¹⁷ which in turn will have far-reaching consequences for arms control and disarmament efforts at both the global and regional levels (for instance, the issue of ABM Treaty compliance and predictable responses from countries such as China).

Beijing has at least three objections regarding the American enthusiasm for TMD/NMD. One is that the Chinese government feels that TMD encourages and provides pretext for Japanese re-militarization.¹⁸ Beijing's suspicion of Japan is reinforced by Tokyo's reluctance to be forthcoming on its historical records; its ambiguity regarding its post-Cold War security perimeter

¹³ "Seoul's missile development gains momentum," *Korea Herald* (13 July 1999). (<http://www.koreaherald.co.kr>).

¹⁴ Shim Jae Hoon, "Cloudy Outlook," *Far Eastern Economic Review* (15 July 1999), p. 19.

¹⁵ Donald H Rumsfeld, et al, *Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States* (15 July 1998); National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015* (September 1999).

¹⁶ Larry Nikach, "North Korea's Coming ICBM," *PacNet Newsletter* no.5 (5 February 1999); Shawn W. Crispin and Shim Jae Hoon, "Buying Time," *Far Eastern Economic Review* (1 April 1999).

¹⁷ Sean Scully and Nancy E. Roman, "Democrats back plan for defensive missiles," *The Washington Times* (18 March 1999). (<http://www.washtimes.com/news/news3.html>)

¹⁸ Hong Yuan, "The Implications of TMD System [sic] in Japan to [sic] China's Security," paper presented at the Sixth ISODARCO Beijing Seminar on Arms Control, 29 October-1 November 1998, Shanghai, China.

(e.g., "situational vs. geographical"); its potent and potential military capabilities; and its potential involvement in the Taiwan issue.¹⁹

Second, Beijing is highly concerned with Taiwan's incorporation into the US-led regional TMD system. It regards recent American military sales to Taiwan, including an early-warning radar system, as a deliberate scheme to impede its national unification efforts.²⁰ It also strongly believes that Lee Teng-hui's remarks about special state-to-state relationship and the trend toward an open separatist movement are partly encouraged by the illusion that the island would be placed under the US-led missile defense umbrella.²¹ This perception has been reinforced by Taiwan's recently announced interest in TMD participation, something which Beijing warns could have serious consequences and would comprise the "last straw" in Sino-American relations.²²

Finally, the TMD/NMD issues could affect regional and global arms control and arms race prospects.²³ China, seeing its limited missile and nuclear capability under the threat of being neutralized, has warned that countermeasures would result from an American decision to develop such a system, something which would lead to renewed arms race in the region.²⁴ What has not been stated explicitly is the obvious response: the construction of more Chinese missiles to penetrate the shield. This alone would affect China's commitments to arms control treaties and negotiation, in

¹⁹ Paul Mann, "Summit Takes Up Japanese TMD," *AW&ST* (September 21, 1998), p. 29; "US-Japan TMD Cooperation Alarms China," *Disarmament Diplomacy* Issue No.33 (1998). (<http://www.gn.apc.org/acronym/33tmd.html>); Susan V. Lawrence, "Prickly Pair," *Far Eastern Economic Review* (22 July 1999), pp. 20, 22.

²⁰ "US Spy Satellites to Help Taiwan Intercept China Missiles," *Agence France Presse* (20 September 1999) (<http://taiwansecurity.org/AFP/AFP-US-Spy-Satellites-Help-Taiwan.htm>); Toni Marshall, "China warns U.S. not to include Taiwan in missile defense," *The Washington Times* (February 12, 1999) (<http://www.washtimes.com/international/international1.html>); "Trouble over Taiwan: China objects to change in American missile policy." *Foreign Report* (Jane's Information Group Limited, January 21, 1999 (LEXIS®-NEXIS® Academic Universe - Document); Jim Wolf, "Going Ballistic," *Far Eastern Economic Review* (18 February 1999), pp. 26-27.

²¹ Shawn W. Crispin with Susan V. Lawrence, "In Self-Defence," *Far Eastern Economic Review* (1 July 1999), pp. 22, 24.

²² Michael Laris, "Taiwan Seeks Place Under Missile Shield," *The Washington Post* (19 August 1999), p. A15 (<http://www.washingtonpost.com/wp-s...te/1999-08/19/1381-081999-idx.html>)

²³ Joseph Cirincione, "The Asian Nuclear Reaction Chain," *Foreign Policy* 118 (Spring 2000), pp. 120-136; James Clay Moltz, "Missile Proliferation in East Asia: Arms Control vs. TMD Responses," *The Nonproliferation Review* 4(3) (Spring-Summer 1997), pp. 63-71.

²⁴ Sha Zukang, "Some Thoughts on Non-Proliferation," Address given at the 7th Carnegie International Non-Proliferation Conference, January 11-12, 1999, Washington, DC. (<http://www.ceip.org/programs/npp/sha/html>); Erik Eckholm, "China Says U.S. Missile Shield Could Force An Arms Buildup," *New York Times* (11 May 2000).

particular the CTBT and the fissile materials cut-off treaty.²⁵ China has recently tested its DF-31, an ICBM with a range of 8,000 kilometres and carrying a 250 kiloton nuclear warhead. It might test a submarine version of the missile, the Julang 2, sometime later this year. The Chinese are also interested in developing decoy RVs to penetrate missile defense systems.²⁶ China may also decide to resume transfers of missile systems and missile technology to Pakistan and cruise missiles to Iran, thus breaking pledges that Beijing had previously made to Washington. This could also touch off a regional chain reaction, with India perceiving such a development not as an act of retaliation on China's part in a Sino-American context, but one that creates new complications for the Indo-Pakistani competition, particularly now that the India and Pakistan have crossed the nuclear threshold. The NMD system no doubt will undermine the ABM Treaty, something which in turn will almost certainly lead to the collapse of the START II process.²⁷ China's reactions could have a major impact on the current nonproliferation regime and future arms control prospects.

THE MTCR: SUCCESSES, LIMITATIONS, AND NEW CHALLENGES

Prompted by a series of events in the late 1970s and early 1980s, including South Korea's 1978 ballistic missile test and India's July 1980 SLV-3 tests, the United States and its key allies began negotiation on control mechanisms, something which led to the establishment on 16 April 1987 of the Missile Technology Control Regime and the release of its Guidelines. The MTCR's goal is to limit the risks of proliferation of weapons of mass destruction (i.e. nuclear, chemical and biological weapons) by controlling transfers that could make a contribution to delivery systems (other than manned aircraft) for such weapons.²⁸ Its original export controls focused on rocket and unmanned air vehicle systems capable of delivering a 500 kilogram payload to a range of 300 kilometres. The guidelines were revised in January 1993 to introduce export controls on any systems capable of delivering any payload to a range of 300 kilometres, or any range/payload with the

²⁵ Charles Furguson, "Sparking a Buildup: U.S. Missile Defense and China's Nuclear Arsenal," *Arms Control Today* 30(2) (March 2000). (<http://www.armscontrol.org/ACT/march00/abmr00.htm>)

²⁶ "China tests new mobile missile," *The Times of India* (1 September 1999) (<http://www.timesofindia.com/today/01wor12.htm>); Bill Gertz, "China develops warhead decoys to defeat U.S. defenses," *The Washington Times* (16 September 1999) (<http://www.washtimes.com/news/news3.html>); Seymour Johnson, "China Seeks Technology for Next-Generation Missiles," *Jane's Missile and Rockets* (May 1999) (<http://www.janes.com/geopol/geoset.html>).

²⁷ George Lewis and Theodore Postol, "Portrait of a bad idea," *The Bulletin of the Atomic Scientists* 53(4) (July/August 1997), pp. 18-25; Union of Concerned Scientists, "National Missile Defense: What's new? What's not? And, most important, does it make sense?" (February 1999) (<http://www.nyu.edu/globalbeat/usdefense/UCS0299.html>).

²⁸ Deborah A. Ozga, "A Chronology of the Missile Technology Control Regime," *The Nonproliferation Review* 1(2) (Winter 1994), pp. 66-73.

express purposes of delivering WMD.²⁹ The MTCR has expanded from its seven original members to 32 states today.³⁰ Some countries, such as China and Israel, while not members themselves, abide by the MTCR guidelines and therefore are considered “adherent” states.

Over the years, the MTCR has achieved noticeable results in fighting missile proliferation. It is fair to say that the regime has provided the necessary framework for limiting the spread of ballistic missiles. It has done so in large part by assisting states in identifying issues of common concern, facilitating the sharing of information, drawing up lists of key components and technologies to be placed under control, coordinating national policies, delaying of certain proliferation projects and making illicit acquisitions more expensive, and buying time for more appropriate strategies to be formulated. In particular, the regime has been successful in

- mitigating for either the cancellation or suspension of a number of ongoing missile programmes, including Brazil’s VLS project, Argentina’s Condor-2 missile, South Africa’s Arniston, South Korea’s satellite launch vehicle, and Taiwan’s Green Bee and Sky Horse missiles;
- supporting the expansion of its membership, including countries formerly on the list of proliferation concern (Argentina, Brazil, and South Africa); and
- persuading key supplier states such as China to abide by the MTCR guidelines.

The time these measures have bought has also proved valuable in that regime changes in some countries eventually have resulted in these countries’ own decision to terminate missile programmes.³¹

However, despite (or because of) its limited success in curbing missile proliferation, the MTCR is increasingly facing new challenges, something which makes its future effectiveness highly contingent on its ability to adjust and adapt. This regime is based on the assumptions and circumstances of a different era and has not yet adjusted to today’s much changed strategic and

²⁹ "Appendix G: The Missile Technology Control Regime," in Jones and McDonough, *Tracking Nuclear Proliferation*, pp. 311-14.

³⁰ The seven original founding members were: Canada, France, (West) Germany, Italy, Japan, United Kingdom, and the United States. Today, the MTCR member states are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Russian Federation, South Africa, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States. China and Israel are regarded as de facto or "adherent" states.

³¹ However, there might be other important reasons: changed security environments have made continued pursuit of such programmes unnecessary, costly, and counter-productive. The Argentine-Brazilian competition is a case in point.

technological environments. The supportive conditions which in its early years had made the MTCR a relatively straightforward and effective nonproliferation instrument – such as the limited number of key industrialized countries (most in the West) with the necessary components and technologies for missile development, the complexity of missile development and potential acquiring states' dependence on foreign assistance, and the recognizable distinction between military missile technologies/components and commercial civilian space technologies – have now all been weakened by technological and other changes.

The Growing Number of Potential Suppliers

Traditional export control mechanisms such as the MTCR presume a limited number of suppliers, a clear distinction between military and civilian technologies, and a foreign dependence with regard to components, technical know-how, and manufacturing technology.³² However, one of the phenomenal technological developments over the past two decades has been the increasing number of countries that have acquired an indigenous capability to develop missile delivery systems. Today, a dozen or more non-Western countries either already possess short- or medium-range missile systems or have the capability to develop them (see Table 2). Most of them are not MTCR members; some, like North Korea, are active suppliers.³³ Although the most sophisticated ballistic missiles with longer ranges are still difficult to acquire, low-end missiles and the requisite technologies reverse-engineered from the Soviet Scud series are widely available. Denial strategies that rely prominently on export controls will be less effective in stemming the proliferation of missile delivery systems since many of the emerging supplier states do not subscribe to nonproliferation.

Supply-side control measures can only be effective if all major exporters share more or less similar foreign policy preferences in specific issue-areas. If key suppliers remain outside the export-control arrangements, nonproliferation efforts will be less effective in achieving their stated objectives. Obviously, for export control strategies to be successful, broader international participation is necessary. Arms sales can generate income, especially hard currency, thus recouping research and development expenditures, and making future investments possible. North Korean weapons sales, including Scud-series missiles, have reportedly generated US \$800 million for Pyongyang between 1991 and 1998.³⁴ Political gains can also be made through arms transfers; a notable instance is Saudi Arabia's shifting diplomatic recognition to China after receipt of CSS-2

³² Wyn Q. Bowen, "U.S. Policy on Ballistic Missile Proliferation: The MTCR's First Decade (1987-1997)," *The Nonproliferation Review* 5:1 (Fall 1997), p. 23; Dinshaw Mistry, "Ballistic Missile Proliferation and the MTCR: A Ten-Year Review," *Contemporary Security Policy* 18(3) (December 1997), pp. 59-82.

³³ Jean-François Rious, ed., *Limiting the Proliferation of Weapons: The Role of Supply-Side Strategies* (Ottawa: Carleton University Press, 1992); William Potter and Harlan Jencks, eds., *The International Missile Bazaar: The New Suppliers' Network* (Boulder, CO: Westview, 1994).

³⁴ "N. Korea military exports said to total \$800 million," *The Daily Yomiuri* (29 September 1999), p. 8.

intermediate missiles worth over US \$2 billion.

Technological Changes and Diffusion

A second major challenge is the diffusion and changing nature of technology. In the early postwar years, commercialization of technologies usually came about as a result of technology spin-off through military R&D; today the reverse is increasingly the case. Cutting-edge technologies are often first developed for civilian use but also have potential military applications. India's missile programme, for example, has benefited from the country's civilian space programme over the years.³⁵ This makes it more difficult to define what constitutes strategic technologies (and what not), as well as to determine which entities should be placed on a list of controlled destinations. This then complicates the task of introducing and reinforcing controls.³⁶ In addition, one should also take note of a recent trend in the arms trade toward the transfer of technologies and components supplementing sales of complete weapons systems, increasing off-set arrangements, and the strategy of global sourcing and production.³⁷ This furthers the speed and scope of technology diffusion and has compounded the problems of nonproliferation controls by making monitoring more difficult. The implication of this revolutionary change is enormous in that control becomes highly difficult if not totally impossible. As technology develops apace, it can often be hard to keep up with what to control, let alone determine each system's potential military applications and possible destinations.³⁸ Compounding this difficulty is the fact that an increasing number of states are seeking to develop some capacity for launching civilian satellites and conducting other non-military activities in space, and are thus increasingly sensitive to those controls that could impair such activities by failing to differentiate between civilian and military programmes.

Globalization and Commercial Competition

Globalization means that today's multinational companies (MNCs), including major defense contractors, increasingly play down the importance of national boundaries and seek instead to

³⁵ Dinshaw Mistry, "India's Emerging Space Program," *Pacific Affairs* 71(2) (Summer 1998), pp. 151-74.

³⁶ Jay Stowsky, "From Spin-Off to Spin-On: Redefining the Military's Role in American Technology Development," in Wayne Sandholtz et al., *The Highest Stakes: The Economic Foundation of the Next Security System* (New York: Oxford University Press, 1992), pp. 114-40; Andrew L. Ross, "The Dynamics of Military Technology," in David Dewitt, David Haglund, and John Kirton, eds., *Building a New Global Order: Emerging Trends in International Security* (Toronto: Oxford University Press, 1993), pp. 106-40.

³⁷ Joanna Spear, "Beyond the Cold War: Changes in the International Arms Trade," *Harvard International Review* XVIII(1) (Winter 1994/95), pp. 8-11, 70; Richard A. Bitzinger, "Going Global: The Quiet Revolution in Arms Production," *Ibid.*, pp. 20-3, 75; Susan Willett, "East Asia's Changing Defence Industry," *Survival* 39(3) (Autumn 1997), pp.107-34.

³⁸ Michael Moodie, "Beyond Proliferation: The Challenge of Technology Diffusion: A Research Survey," in Brad Roberts, ed., *Weapons Proliferation in the 1990s* (Cambridge, Mass.: The MIT Press, 1995), pp.71-90.

execute the production/sales process in a global context, establishing production wherever capital, labor, and markets make the most economic sense.³⁹ Production and process technologies will go where MNCs have their subsidiaries, with many of them outside the boundaries of countries which are home to the company headquarters. Close economic interdependence and industrial cooperation at once make dual-use technology transfers inevitable and nonproliferation controls more difficult. At the same time, fierce competition obliges many companies to adopt off-set practices and technology transfers to prospective partners in order to close deals. This may inadvertently divert important dual-use technologies to suspected end-users bent on developing WMD and associated delivery systems. In certain cases, companies may simply disregard the implications of their technology transfers and indeed may cheat for getting export licenses in order to gain a business advantage over potential competitors. For instance, in the late 1980s, a number of West German companies were found guilty of illegal exports of nuclear, chemical, and rocket items and relevant technologies to Middle Eastern countries, including Libya.⁴⁰ More recently, the US satellite companies Hughes and Loral have been charged with passing important information to the Chinese which could be used to improve missile designs.⁴¹

One direct consequence of globalization is the potential for the transshipment, re-export, and/or diversion of items and technology under control to take place more frequently, something which represents a serious problem undermining the effectiveness of multilateral export control efforts. Resale or transfers, as well as diversion from stated original end-use and/or end-user(s), can result in sensitive items and technologies falling into the hands of countries unfriendly to the original exporter(s), or their diversion from civilian to military applications. One alleged case is the highly publicized media reporting of Israel's transfer of American Patriot technology to China.⁴² Hong Kong may also present a challenge for US export control enforcement with the return of the colony to China.⁴³ At the same time, end-use and user(s) are hard to certify; for instance, the United States has in recent years sold hundreds of supercomputers to China without being able to secure either pre-

³⁹ Denis Fred Simon, "Techno-Security in an Age of Globalization," in Simon, ed., *Techno-Security in an Age of Globalization: Perspectives from the Pacific Rim* (Armonk, New York and London: M.E. Sharpe, 1997), pp.3-21.

⁴⁰ Stephen Engelberg, "German Atomic Sale Challenged," *The New York Times* (1 February 1989), p.A2; William Tuohy, "German Firm Reportedly Knew Libya Toxic Gas Plan," *Los Angeles Times* (25 January 1989), p. A7.

⁴¹ "Hughes and Loral: Too Eager to Help China?" *Business Week* (13 September 1999). (<http://www.E-Bird/current/e19990903hughes.htm>).

⁴² Rowan Scarborough, "China May Have Patriot from Israel," *Washington Times* (12 March 1992), p. A1; David Silverberg, "Alleged Israeli Tech Transfer Raises Dormant Concerns," *Defense News* (23 March 1992), p. 6.

⁴³ United States General Accounting Office, *Hong Kong's Reversion to China: Effective Monitoring Critical to Assess U.S. Nonproliferation Risks* (Washington, DC: GAO, May 1997); Erik C. Wemple, "An Export Controls Clash," *China Business Review* 19 (May-June 1992), pp. 30-5.

license check or post-shipment verification for a single one.⁴⁴ This being the case, it is not surprising to read reports of the diversion of US technology to missile-related manufacturers, something which enables China to make better cruise missiles.⁴⁵ A 1995 case, for example, involved the diversion of US-made machine tools to a Chinese missile-making factory.⁴⁶ Multilateral export control regimes such as the MTCR normally imply inter-state regulatory activities and assume effective state supervision over commercial activities; however, as was demonstrated above, this is becoming less and less the case, something which in turn raises questions concerning the effectiveness of traditional strategies.

Institutional Deficiencies

These new developments highlight the challenges that the MTCR faces and the institutional deficiencies that hinder adequate responses on the part of the regime. The MTCR has certainly made serious efforts over the years to adjust itself to the new challenges. These efforts include regime enhancement through membership expansion, further institutionalization through the establishment of a point of contact and clearinghouse in Paris; the strengthening of both the Guidelines and member states' national export control systems; and the negotiation of adherence on the part of non-regime suppliers to the MTCR's guidelines.⁴⁷ However, the regime's institutional deficiencies impede further progress. These deficiencies include:

- a lack of norms and a legally binding treaty status;
- differing national interpretations concerning guideline enforcement measures;
- conflicts between trade liberalization and export controls in national policies; and
- uneven development of national export control systems.

The first problem is that the MTCR is not a legally binding international treaty, and that there is lack of consensus concerning the control of missiles. This has led to tensions regarding the regime's export control arrangements, especially between the northern industrialized countries and

⁴⁴ Johnston, "U.S. Export Control Policy," p. 54.

⁴⁵ Juliet Eilperin, "GOP Says U.S. Gave China Nuclear Edge," *Washington Post* (6 May 1998), p. A4; Bill Gertz, "U.S. technological aid makes China more dangerous," *Washington Times* (4 May 1998); David E. Sanger, "China to Return Computer It Had Diverted to Military," *New York Times* (12 September 1997), p. A8.

⁴⁶ Jonathan S. Landay, "Is China Diverting High Technology to US Foes?" *The Christian Science Monitor* (11 July 1997), pp. 1, 8; Nigel Holloway, "Cruise Control," *Far Eastern Economic Review* (14 August 1997), pp. 14-6.

⁴⁷ Bowen, "U.S. Policy on Ballistic Missile Proliferation," *passim*.

their southern developing counterparts.⁴⁸ Unlike nuclear weapons and chemical/biological weapons, where strong consensus exists concerning nonproliferation, there is less agreement concerning the subject of missile transfers. Indeed, there is increasing dispute over where to draw the line between acceptable activities (which would certainly include civilian space launches) and unacceptable ones (for example, where does one draw the line between "good" and "bad" national military development and testing programs). No international mechanism exists to make such determinations, and the MTCR is hardly adequate to handle this matter. Moreover, when compared with such relatively more developed regimes as the Non-proliferation Treaty, the Chemical Weapons Convention, the Nuclear Suppliers Group and the Australia Group, the MTCR lacks a mechanism to ensure consistent interpretation and enforcement.⁴⁹

Related to this inherent weakness is the tendency for differing interpretations and implementation of guidelines. Without uniform and consistent execution, export controls across national governments have turned out to be varied and uneven, leaving many loopholes for proliferate states. Even if agreements can be made at the multilateral level, controls must ultimately be carried out at the national level. Here the perspectives and policies of major supplier states, and the diversity and complexity of domestic politics and processes whereby national export control policies are formulated and implemented will all have a huge impact on the success of nonproliferation endeavors.⁵⁰ In addition, the export control system of each country also determines the criteria used to grant export licenses as well as how the often competing objectives of promoting peaceful trade and technology transfers and preventing the danger of proliferation are weighed. The end of the Cold War and the subsequent shifting of focus from the "high politics" of security to economic well-being and business competitiveness have exerted strong pressures for liberalization of trade and technology transfers, resulting in the reduced effectiveness of national export control systems.

There is also growing conflict between trade policy and export controls. Increasingly, the creation and maintenance of jobs has become the overriding concern of policymakers, to the detriment of export controls. This is particularly the case for those supplier states more dependent on international trade and whose trade ministries play a major role in implementing as well as

⁴⁸ For a general discussion of this issue, see Andrew Latham and Brian Bow, "Multilateral Export Control Regimes: Bridging The North-South Divide," *International Journal* (Summer 1998), pp. 465-86. One would suggest that all the existing multilateral export control regimes se arrangements are not binding international legal treaties and as national governments of member states retain the final decision power regarding export control issues, their abilities to coordinate national policies are inherently weak. See Ian Anthony, Susanna Eckstein and Jean Pascal Zanders, "Multilateral military-related export control measures," *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford: Oxford University Press, 1997), pp. 345-63.

⁴⁹ Bowen, "U.S. Policy on Ballistic Missile Proliferation," pp.24-5.

⁵⁰ Gary K. Bertsch, Richard T. Cupitt, and Steven Elliott-Gower, eds., *International Cooperation on Nonproliferation Export Controls: Prospects for the 1990s and Beyond* (Ann Arbor: The University of Michigan Press, 1994).

establishing export control policies.⁵¹ At the same time, the lax enforcement of national export control regulations because of institutional interests can also lead to illicit transfers of sensitive technologies to proscribed end-users. More recently, the Clinton administration has introduced export control liberalization in the high performance computer sector in order to enable American companies to be more competitive in the international market place. In addition, a decision to transfer licensing jurisdiction over satellites and computers exports from the U.S. State Department to Commerce (until recently, when it was reversed) had allegedly resulted in important dual-use technology going to Russia and China for potential military applications.⁵² Inter-agency rivalry and confusion over jurisdiction within the US export control system exacerbates these enforcement issues.⁵³

Finally, even with the best intentions, countries may not be alike in their abilities to enforce export control regulations due to differences in domestic systems. Sometimes the gap between declared policy and actual implementation might be less a deliberate act of cheating than the inadvertent failure or inability to effectively carry out enforcement measures. In Northeast Asia, Japan, South Korea, Hong Kong, and Taiwan can be said to have developed relatively reliable export control systems over the years, with Tokyo's dating back to the late 1940s.⁵⁴ Other countries, such as China, have however only recently embarked upon building national export control systems, something which has generated predictable problems in the jurisdictional division of oversight and law enforcement. For instance, China in recent years has legislated a number of export control regulations covering nuclear, chemical, and dual-use technology transfers and exports.⁵⁵ However, when compared with those of other states, China's export control system remains deficient in terms

⁵¹ Beverly Crawford, "The Roots of European Self-Assertion in East-West Trade," in Beverly Crawford and Peter W. Schulze, eds., *The New Europe Asserts Itself: A Changing Role in International Relations* (Berkeley, Calif.: University of California Press, 1990), pp. 251-83.

⁵² United States General Accounting Office, *Export Control: Issues Related to Commercial Communications Satellites*. GAO/T-NSIAD-98-208 (Washington, DC: GAO, June 1998); GAO, *Export Control: Some Controls Over Missile-Related Technology Exports to China Are Weak* (Washington, DC: GAO, April 1995); Eric Schmitt, "Curb on Technology for China Eased in 1996, Auditor Says," *New York Times* (11 June 1998), p. A8; Robert Johnston, "U.S. Export Control Policy in the High Performance Computer Sector," *The Nonproliferation Review* 5(2) (Winter 1998), pp. 44-59.

⁵³ Iain K. McDaniels, "A Tangled Web," *The China Business Review* 25(2) (March-April 1998), pp.36-42; James Gerstenzang, "U.S. OKs export of encryption tech," *Associate Press* (17 September 1999).

⁵⁴ Richard T. Cupitt, "Nonproliferation Export Controls in East Asia," *The Journal of East Asian Affairs* XI(2) (Summer/Fall 1997), pp. 452-80.

⁵⁵ Fu Cong, "An Introduction to China's Export Control System," pp.17-9, and Bates Gill, "U.S., China and Nonproliferation: Potential Steps Forward," pp.27-32, *The Monitor: Nonproliferation, Demilitarization and Arms Control* 3/4(4/1) (Fall 1997/Winter 1998).

of legal frameworks, licensing, and enforcement.⁵⁶ A case in point is the 1996 export of 5,000 ring magnets to Pakistan, apparently without the knowledge of the central government. Much work needs to be done to help China improve its export control system.⁵⁷

STRENGTHENING THE MTCR: LEADERSHIP AND STRATEGIES

The above discussion highlights both the challenges the MTCR faces and some of the institutional deficiencies impeding it from making the necessary adjustments and adopting the right responses. A number of concrete steps can and must be taken to strengthen both the role and effectiveness of the regime. Stated briefly, these would include:

- promoting missile nonproliferation norms and innovative approaches to membership expansion in order to make the regime more inclusive;
- re-thinking priorities and strategies, including moving away from denial measures to licensing practices that focus on end-use; and
- better implementation of missile nonproliferation initiatives with consistency in guideline interpretation and national enforcement, and greater transparency of procedures.

Ideally the regime's effectiveness could be enhanced with expanded membership, particularly if countries such as China, Israel, and South Korea could be encouraged to join. This strategy is difficult to implement at this point for a number of reasons. First, there is the perception gap. The MTCR is perceived by some states as highly discriminatory. For instance, Beijing has long argued that high performance aircraft are also delivery systems, just as ballistic missiles are. Therefore, banning only the latter but not the former represents a double standard on the part of MTCR members. In addition, countries like North Korea continue to use missile sales and assistance to accomplish such important foreign policy goals as the procurement of hard currency and the creation of a bargaining chip in negotiations with the United States. Furthermore, some countries remain reluctant to part with their existing space launching and missile programmes, as accession to the regime so requires; nor are they willing to compromise on sovereignty issues. The ongoing negotiation between Washington and Seoul concerning South Korea's admission to the MTCR serves as one example. Finally, there is always the issue of the inevitable tradeoff between increased membership and regime efficacy (in terms of the agenda, agreement, and enforcement issues which

⁵⁶ Richard T. Cupitt and Yuzo Murayama, *Export Controls in the People's Republic of China: Status Report - 1998* (Athens, GA: Center for International Trade and Security, 1998); Zachary Davis, "China's Nonproliferation and Export Control Policies: Boom or Bust for the NPT Regime?" *Asian Survey* XXXV(6) (June 1995), pp. 595-600.

⁵⁷ Cupitt and Khripunov, "New Strategies," p. 313.

would have to be worked out among member states.⁵⁸

What is more important is to develop and promote missile nonproliferation norms that would raise the awareness of the threat missiles pose for regional and international security. This can be done by highlighting the danger inherent in the proliferation of ballistic missiles in conjunction with the proliferation of weapons of mass destruction, together with references to the indiscriminate use of missiles during the Iraq-Iran war ("the war of the cities"). Norm building should also include efforts to address the perception of the MTCR by some countries as inherently biased and highly arbitrary, as well as their unwillingness to subject themselves to restrictions for commercial reasons. At the same time, innovative approaches to membership expansion could envision the NPT-type grand bargain to include those countries increasingly dependent on acquiring commercial space launch vehicles and technologies. Their inclusion would mitigate the concerns of those states which regard the MTCR as an impediment to their legitimate demands for space services; it would also strengthen end-use verification, and therefore help screen out potential illicit users and practices.

The second issue relates to the priority afforded various issues in the effort to stem the proliferation of missiles. As discussed above, short- to medium-range missiles and their manufacturing technologies are readily available; furthermore, for determined proliferant states, effective leak-proof controls are extremely difficult to create and execute. However, for most countries, developing intermediate-range to inter-continental (3,000 kilometres and above) ballistic missiles still present significant if not totally insurmountable technological hurdles; hence, this area still remains receptive to export control mechanisms. It is here that the MTCR should expend its export control energies. As Aaron Karp points out, the development of sophisticated missiles remains a matter of the delicate integration of technologies, resources, and organization. Maintaining sufficient thresholds in key bottleneck areas therefore should be the focus of any future deliberation concerning the addition or removal of items from the two annexes.⁵⁹ These items would include staging, navigation and guidance equipment and technologies, propulsion technologies, flight control and precision instruments, and re-entry technologies, among others.

The third issue concerns the issue of consistency in the interpretation and enforcement of guidelines. Critics point out that the interpretation and implementation of regime guidelines has not always been consistent. There are also concerns over intra-regime transfers which otherwise would be considered as proliferation activities. This leads to charges of double standards. For instance, China has argued the American-Japanese joint research in missile defense technology represents missile proliferation, but since Japan is an MTCR member, rules are interpreted differently. At the same time, there need to be greater transparency of procedures, so that decisions concerning transfers

⁵⁸ Richard T. Cupitt and Igor Khripunov, "New Strategies for the Nuclear Suppliers Group (NSG)," *Comparative Strategy* 16(3) (July-September 1997), pp.305-15; Ozga, "A Chronology," p. 68; Wyn Q. Bowen, "Brazil's Accession to the MTCR," *The Nonproliferation Review* 3(3) (Spring-Summer 1996), pp. 86-91.

⁵⁹ Aaron Karp, *Ballistic Missile Proliferation: the Politics and Technics* (Oxford: Oxford University Press, 1996).

or denials of dual-use technology would not be perceived as either discriminatory or arbitrary. Greater transparency, more consistency and better coordination among member states could therefore help improve national export control systems.

However, before these steps can be taken and meaningful results achieved, effective and innovative leadership is required. Leadership refers to the ability to identify core issues, nurture and build consensus, and coordinate policies across national boundaries. This quality has become increasingly important in today's international environment, where a multitude of actors, divergent interests and policy priorities, competing demands for finite resources, and a growing reliance on expertise make consensus difficult to achieve and common goals elusive to obtain. On the international nonproliferation front, a fundamental test of leadership would be the ability to bridge the gap between regime members and non-members in terms of perceptions and practices. In this context, the United States has assumed and is looked upon to continue its leadership role in the fight against missile proliferation. In the past, its leadership could be applied through the use of hard power (typically consisting of rewards and punishments). That strategy is not effective in a world where denial strategies have become increasingly problematic due to the issues outlined in the previous sections. What may be required is the more judicious use and greater exercise of soft power, where ideas and diplomacy can be more effective in obtaining set goals. The Ottawa Process (the process which culminated in the conclusion of an international treaty banning anti-personnel landmines) serves as one example of such an effort.⁶⁰

One of the responsibilities of any leadership is to "educate" the public with a view to promoting broadly based nonproliferation norms, enhancing the legitimacy of nonproliferation efforts, and building bridges between existing regimes and non-member states with either proven or potential capabilities as suppliers. In addition, prioritizing regime objectives, crafting practical strategies, and enhancing enforcement should also be high on the agenda. In the first instance, the American leadership within the MTCR has by and large traditional rather than innovative. Expansion of the regime's membership has been achieved through a combination of persuasion, co-optation, and economic incentives. What remains missing is the development and acceptance of norms or a general consensus on the issue of missile nonproliferation. This explains why some countries choose not to join the MTCR. At the same time, one must also recognize that for some countries, possession of missiles serves fundamental national interests; consequently, a norm banning missile possession would be unacceptable to them and hence would meet with greater resistance than the idea, for example, that anti-personnel landmines killing innocent civilians is simply wrong and unacceptable. Changing this situation will require effective leadership with sufficient political capital and commitment, and persevering diplomat efforts.

Given the multiple causes of weapons proliferation (see below) and the divergent agendas

⁶⁰ Lloyd Axworthy & Sarah Taylor, "A ban for all seasons," *International Journal* LIII(2) (Spring 1998), pp. 189-203. See also, Maxwell A. Cameron, Robert Lawson, and Brian Tomlin, eds., *To Walk Without Fear: The Global Movement to Ban Landmines* (Don Mills, ON: Oxford University Press Canada, 1998).

and strategies of the various nonproliferation regimes, effective leadership will be highly desirable not only in coordinating priorities and policies but also in putting limited resources into better use. Proliferant states respond differently to nonproliferation strategies composed of a mix of such varied policy instruments as export controls, sanctions, economic incentives, and security assurances.⁶¹ Therefore conceiving and implementing innovative initiatives in tandem with traditional strategies will help strengthen such nonproliferation efforts.⁶² These overlapping, mutually reinforcing export control arrangements could benefit from the experiences of more institutionalized bodies such as the International Atomic Energy Agency (IAEA) in considering legitimate requests for civilian technology and know-how in return for the recipients' accedence to safeguards and other relevant verification modalities. The IAEA's procedures demonstrate the importance of shifting multilateral export control regimes' focus from traditional denial strategies based on target states and controlled items to the monitoring of end-use and dual-use technology applications.⁶³

In the end, it should be clear that no single strategy will work well alone. What is required is a better synergy of various strategies at the multilateral, regional, and national levels. As was discussed in previous sections, there must be international confidence that missile control guidelines will be consistently and uniformly interpreted and executed by national governments. The effectiveness of such a strategy will likely depend on well coordinated and balanced links between export controls, regional stability, and measures designed to promote economic prosperity. In all of these endeavors, a strong effort must be made to educate the public that nonproliferation initiatives can enhance security through better export controls without hampering normal trade in the process. At the same time, improvements in the business-government partnership necessary to combatting missile proliferation is equally important, so that companies will feel less victimized by government regulations and become more active in supporting end-use(r) checks and better understand licensing procedures so as to avoid illicit and ultimately harmful transfers. National export control systems will also need constant revision and updating, with a view to promulgating clearly defined rules and streamlining licensing procedures so as to facilitate normal business transactions without sacrificing the important task of screening and intercepting transfers of missile proliferation concerns. Finally, it is important to use incentives as well as sanctions in the execution of nonproliferation efforts, as well as to show consistency in applying and enforcing standards.

⁶¹ Aaron Karp, "Lessons of Iranian Missile Programs for U.S. Nonproliferation Policy," *The Nonproliferation Review* 5(3)(Spring-Summer 1998), pp. 17-26; Karp, *Ballistic Missile Proliferation*.

⁶² See, example, Peter Gizewski, "Managed Proliferation in South Asia: Implications for Regional Security and the Nonproliferation Regime," *International Journal* LIV(2)(Spring 1999), pp.279-91; W.P.S. Sidhu et al., *Nuclear Risk-Reduction Measures in Southern Asia*. Report No 26 (Washington, DC: The Stimson Center, November 1998); Strobe Talbott, "Dealing with the Bomb in South Asia," *Foreign Affairs* 78(2) (March/April 1998), pp. 110-22.

⁶³ Janne E. Nolan, et al., *Report of the Presidential Advisory Board on Arms Proliferation Policy* (Washington, DC: United States Government Printing Office, July 1996).

Together, these efforts can go a long way towards the promotion of nonproliferation norms.⁶⁴ Experience has suggested that efforts to ameliorate proliferation of WMD and missiles will not rely simply on sanctions, threats of deprivation, or even military preemptive actions, because all of these policy instruments deal only with the symptoms rather than the sources of the proliferation challenge.

UNDERSTANDING MOTIVATIONS FOR PROLIFERATION: THE ROLE OF CONFIDENCE BUILDING MEASURES

Causes of Proliferation

Missile proliferation is driven by a host of factors. Efforts to ameliorate the proliferation of missiles must therefore be based on a better understanding of these dynamics. The motives for proliferation tend to be extremely diverse, something which makes effective policies and policy coordination difficult to achieve. In this context, holistic approaches and the synergistic application of a variety of diverse policy instruments may present a better chance of success than the traditional tactics of reward versus punishment.⁶⁵ On the demand side, countries seeking to develop and/or acquire missiles (and, for that matter, major conventional weaponry and WMD) are motivated by a host of factors, ranging from security and prestige to a bevy of domestic factors (see Table 3). For example, North Korea's missile program is driven in large part by security considerations, given the growing gap between the capability of its conventional forces and those of the ROK. A desire to ensure regime survival further explains the importance of missiles to the DPRK. The ability to launch ICBMs also serves as a demonstration of North Korean military prowess. Also important in Pyongyang's foreign policy is the utility of its missile programmes as a bargaining chip *vis-à-vis* the United States. On the supply side, missile transfers clearly serve another important purpose for the regime: as a source of hard currency. As an example of this, during the US-DPRK missile talks the North Korean officials reportedly demanded \$1 billion per year in compensation for its suspension of missile sales.⁶⁶

⁶⁴ Gary K. Bertsch, Richard T. Cupitt, and Takehiko Yamamoto, "Trade, export controls, and nonproliferation in the Asia-Pacific region," *The Pacific Review* 10(3) (1997), pp. 407-25; William J. Long, "Trade and Technology Incentives and Bilateral Cooperation," *International Studies Quarterly* 40(1) (March 1996), pp. 77-106.

⁶⁵ US experience in dealing with the North Korean nuclear and missile issues highlight the desirability of multi-dimensional approaches. Don Oberdorfer, *The Two Koreas* (New York: Addison-Wesley, 1998); Leon V. Sigal, *Disarming Strangers* (Princeton: Princeton University Press, 1998); Victor Cha, "Berlin: What have we learned and where do we go from here?" *Nautilus Policy Forum Online* (#99-07A) (17 September 1999). (http://www.nautilus.org/fora/security/9907A_Cha.html)

⁶⁶ Leon V. Sigal, "Averting a Train Wreck with North Korea," *Arms Control Today* (November/December 1998). (<http://www.armscontrol.org/ACT/novdec98/sgnd98.htm>)

Recent missile developments in India and Pakistan tell a similar story and can be seen as the results of a combination of various security, prestige, technological push, and domestic political factors. For instance, if security provides the ultimate driving force for weapons acquisitions, including WMD and their delivery systems, then perceived and real developments negatively affecting one's security situation would obviously prompt specific responses. Given the expense of conventional weapons, the acquisition of WMD and missiles can also serve as a short cut to restoring and maintaining a proper strategic balance of power. India's nuclear testing and missile developments have been attributed to New Delhi's increasing unease at not only losing the strategic competition with China but also having to live between one declared nuclear power and a covert one, both of which have fought wars with India and with whom long-standing territorial and border issues remain unresolved. Meanwhile, New Delhi increasingly finds itself in an impossible position with the conclusion of various international nonproliferation treaties that further deprive it of options.⁶⁷ The only way that India can achieve both a psychological and military superiority in the sub-continent is through the acquisition of nuclear weapons and the development and deployment of missiles.⁶⁸

Proliferation can also be attributed to bureaucratic push where certain government agencies and military-industrial complexes acquire institutional interests in promoting the development of weapon systems.⁶⁹ Another factor involves prestige and pride, which can also contribute to nuclear weapons proliferation, where the ability to develop and detonate nuclear devices is regarded as a *sine qua non* of modern statehood.⁷⁰ Yet another influencing factor may be domestic-political: in the case of Pakistan, the civilian government has been under tremendous pressure to develop and deliver (to the armed forces) nuclear weapons and their delivery systems. Presumably, these would also be the same people and sectors most resistant to disarmament and nonproliferation proposals. However, one can also credit bureaucratic interests with playing a key role in forsaking nuclear weapons programmes as government officials and industry representatives recognise and seek the rewards of embarking on the nonproliferation and de-nuclearization paths. But this is only possible, as suggested by analyses, when economic liberalisation and democratisation go hand-in-hand in

⁶⁷ William Walker, "India's Nuclear Labyrinth," *The Nonproliferation Review* 4(1) (Fall 1996), pp. 61-77.

⁶⁸ J. Mohan Malik, "India Goes Nuclear: Rationale, Benefits, Costs and Implications," *Contemporary Southeast Asia* 20(2) (August 1998), pp. 191-215.

⁶⁹ An excellent examination can be found in George Perkovich, *India's Nuclear Bomb* (Berkeley, CA: University of California Press, 1999). W.P.S. Sidhu, an Indian security analyst, has attributed India's nuclear missile programs to a host of factors including technical impetus and bureaucratic interests. Sidhu, "India's Security and Risk-Reduction Measures," in W.P.S. Sidhu *et al.*, *Nuclear Risk-Reduction Measures in Southern Asia*. Report No. 26 (Washington, DC: The Stimson Center, November 1998), pp. 1-46.

⁷⁰ Sagan, "Why Do States Build Nuclear Weapons?"; Russell Watson, "Explosion of Self-Esteem," *Newsweek*, 25 May 1998, pp. 32; Fareed Zakaria, "How to Be a Great Power, Cheap," *Ibid.*, p. 34.

creating and sustaining domestic coalitions opposed to proliferation.⁷¹ Prominent examples are Brazil, Argentina, South Africa, Belarus, Kazakhstan, and Ukraine.

However, one must recognise that an improved security environment, as much as economic incentives and/or economic sanctions, are a crucial factor in a number of countries' decisions to forsake nuclear weapons and cancel missile projects. This obviously is not the case between India and Pakistan. If anything, the reverse may be true.⁷² Indeed, given the sustained rivalry between countries like India and Pakistan, there is little incentive for self restraint; on the contrary, the two states continue to engage in a dangerous arms race as they develop longer range and more accurate warheads, which could potentially be fitted with nuclear warheads. Continued tensions and escalating rivalry in some regions feed into the frenzy for newer and better missiles for security reasons; for example, short range (500 kilometre) to medium range (1,500-1,800 kilometre) missiles have demonstrated some utility as war fighting weapons. However, the recent US air campaign against Yugoslavia, which used, in part, Tomahawk cruise missiles, has also had an important effects, in that it demonstrated that missiles are becoming an important, effective instrument of coercion, threat, and intimidation.

On the supply side, there are a number of factors that account for weapons proliferation.⁷³ These include commercial interests, foreign policy considerations, and strategic imperatives. The drive for commercial profit (or at least the desire to avoid sustaining losses and so maintain a viable defense industrial bases) may also be a crucial factor. This has increasingly become the case in the post-Cold War era, where defence industries face declining domestic orders and a shrinking international market. The difficulty in stemming conventional arms sales to the Middle East and the Asia-Pacific is a clear demonstration of how the concern over the survival of domestic defense industrial bases has dictated arms sale policies, over the objections of arms control and nonproliferation advocates. Weapons transfers have long served foreign policy objectives in that supplier states seek to exert influence over recipient states and/or promote favorable developments. Furthermore, supporting and enhancing the defense capabilities of one's ally/allies has also been a long-held practice on the part of many supplier states.

The Role of Confidence Building

This brief discussion of the various factors which underlie the continued proliferation of missiles serves to underline the argument that existing nonproliferation regimes such as the MTCR

⁷¹ Etel Solingen, "The Political Economy of Nuclear Restraint," *International Security* 19(2) (Fall 1994), pp. 126-69.

⁷² Neil Joeck, "Nuclear Proliferation and Nuclear Reversal in South Asia," *Comparative Strategy* 16(3) (July-September 1997), pp. 263-73.

⁷³ The classic work remains Andrew J. Pierre, *The Global Politics of Arms Sales* (Princeton, NJ: Princeton University Press, 1982).

cannot be expected to be entirely effective in stemming weapons proliferation – after all, they were not established to address these underlying factors, be they security, domestic political, or commercial. By the same token, a country's national export control policy must also necessarily contend with various other foreign policy objectives. Indeed, one can argue that any effective nonproliferation policy must be based on a delicate balancing of the diverse and sometimes competing interests and objectives, as well as the ability to coordinate policy at both the domestic and international levels – an exceedingly difficult task that continues to frustrate many governments and businesses.

The previous sections have already touched on the issue of strengthening the MTCR. It is sufficient to say any effort to enhance the MTCR should improve on membership expansion, consistent and uniform interpretations and enforcement of regime guidelines and regulations, together with the updating of parameters for control purposes. Any future effort must comprise a blend of strategies, including: continued controls on transfers of sophisticated missile and space launching systems/technologies; self-restraint in exchange for economic incentives (e.g., providing potential missile suppliers with the opportunities for commercial satellite launches) and conditionality (membership in international organisations, more conducive international financial agency lending practices); and management of missile proliferation through greater transparency and confidence building measures (CBMs).

One of the underlying causes of missile proliferation is the desire to improve security. Consequently, the introduction of confidence building measures (CBMs) could help alleviate such concerns and therefore reduce the need for missiles. For understandable reasons, CBMs should start from those efforts which focus on transparency, and gradually moving toward more constraining mechanisms. One conceivable step could be to add missile transfers to the annual United Nations Registry on Conventional Arms. In addition, such CBMs as launch pre-notification and observation measures and/or unilaterally declared and/or bilaterally/multilaterally negotiated no-first-use principles could serve as an additional starting point. This could be followed by the introduction of missile-free zones, with the participants then moving on to de-targeting, de-alerting, and other measures. Such efforts would serve to relieve the pressure for the acquisition of missiles.

Security considerations may be the prime reason for the diversity of responses from different countries concerning transparency, conversion, and constraint measures. As this paper suggested earlier, one of the driving forces in missile development and acquisitions is the need to redress perceived asymmetries in offensive capability – that is, the use of missiles as an “force equalizer”. This reality renders simple calls for the suspension of missile sales ineffectual. Indeed, for some countries, the introduction of arms control and confidence building measures may reduce rather than enhance their security, where such measures lead to the discovery that their position (whether it be in terms of resources, geography, or military capabilities) is strategically inferior to that which they had earlier supposed. In short,

“confidence-building measures may heighten the weaker nation's sense of defenselessness. To avert these perceptions, CBMs must be designed in such a way as to provide real

reductions in tension, demanding more of the party claiming superiority to ensure adequate balance. This goal, however, appears to be unrealistic; no nation will agree to reduce its capabilities further than its opponent."⁷⁴

Transparency issues can be addressed either through bilateral arrangements (e.g., the Indo-Pakistani Lahore agreement on missile launch pre-notification, which the two countries did respect during their April 1999 tests) or through multilateral negotiations. For instance, the UN Registry on Conventional Arms Transfers could add ballistic and cruise missile transfers to the original seven categories to be reported. The gap among the selected countries exists because some may be concerned about the potential release of "secrets" which might reveal military weaknesses; consequently, an initial step toward greater transparency should emphasise avoidance of misunderstanding and unanticipated events (such as the launch of a sounding rocket near Norway). Finally, an "open sky" mechanism could also be considered as a potential instrument in the facilitation of greater transparency.

Transparency mechanisms can be developed to introduce constraining measures that attempt to control unnecessary (and destabilizing) accumulations of missiles in regions of high tension or conflicts, as well as reduce the chance of their use in crisis situations. Key suppliers could negotiate a deal banning missile transfers to certain regions; however, some trade-off in constraining conventional weapons exports may be a precondition before such accords may take place. This will require closer consultation between the great powers; the United States, for instance, could negotiate a package deal with North Korea to secure the latter state's commitment not to export missiles and related technologies in exchange for American economic assistance and diplomatic recognition. The Perry Report represented just such an exploratory effort.

Perhaps of even greater importance is the introduction of bilateral de-alerting and de-targeting arrangements, especially between hostile countries.⁷⁵ The challenge here will be to allow states to retain missile retaliatory capabilities while discouraging incentives for and the capability of pre-emptive missile attacks. Additionally, multilaterally negotiated missile free zones where testing and deployment are prohibited can also be considered, with perhaps states not possessing missiles taking the lead in this regard.

Greater transparency and restraining measures should be accompanied by enhanced security dialogues and consultations held in bilateral, multilateral, and regional settings. One of the reasons that CBMs must play a role in the overall fight against missile proliferation is that control mechanisms are almost ineffectual for those states with indigenous capabilities as well as for

⁷⁴ Brigadier General Javier J. Salazar Torres, "The Armed Forces and Confidence-Building Measures in Chile: Three Essays," in Augusto Varas *et al.* eds., *Confidence-building Measures in Latin America: Central America and the Southern Cone* (Washington, DC: Henry L. Stimson Center, February 1995), p. 66.

⁷⁵ See "De-alerting: the Debate," *UNIDIR Newsletter* 38 (August 1998), pp. 9-34; Michael W. Edenburn, *et al.*, *De-Alerting Strategic Ballistic Missiles*. CMC Occasional Papers No.9 (March 1999).

determined proliferate states able to find alternative suppliers. CBMs address the demand aspect of missile proliferation. As these measures deepen and reinforce each other, and where mutual trust develops, the emphasis in creating CBMs should shift from accident avoidance to more conscious efforts at mutual self-constraints. Following the model of the Cooperative Threat Reduction (CTR) programmes in the nuclear field, a similar arrangement might also be worked out bilaterally between the United States and potential missile suppliers, where provisions for the launching of satellites would partially address the R&D recoupment issue for some countries. However, this approach remains controversial and there is concern over blackmail as well as insatiable demands.⁷⁶ Discussions at the Track II level such as CSCAP (Council for Security Cooperation in Asia Pacific) would facilitate exchange of ideas without unduly committing governments to certain approaches before they are confident of adapting them.

TOWARDS AN INTERNATIONAL TREATY: EVENTUAL GOALS AND INTERIM STEPS

As an increasing number of states seek to develop some capacity for placing satellites in space, the question of access to and the indigenous development of launch facilities will clearly become a more pressing international issue. At the same time, there are always concerns that some states will use space programmes to acquire and/or develop missile technologies – specifically, the desire on a growing number of states to develop a national ballistic missile capacity. In this regard, claims that the MTCR has undermined national commercial capabilities have generally stemmed from concerns that such export controls have in fact constrained more militarily-oriented efforts. Sales of ballistic missiles will increasingly be used to help offset the costs inherent in the research, development and production of civilian space launch vehicles and ballistic missiles. The issue becomes all the more serious given the almost complete absence of any international norms concerning the transfer and accumulation of such missiles, together with the disinterest many new suppliers seem to have evinced in joining the MTCR. Clearly, a balance must be found between continued vigilance on potential missile proliferation activities and support for legitimate civilian space launching programmes, together with satellites intended for environmental, weather, communications, and other scientific purposes. To some extent, innovative thinking is required in crafting a grand bargain, similar to that achieved in the NPT regime, that would provide greater access to civilian technology in exchange for self-restraint in missile supply and acquisitions. Ideally, time-bound specific steps leading to the negotiation and implementation of an international treaty on missiles should also accompany this.

The ultimate goal in restricting missile proliferation would be a full-fledged legally binding international treaty that should include the following elements:

⁷⁶ See for example, Victor Zaborisky, "U.S. Missile Nonproliferation Strategy toward the NIS and China: How Effective?" *The Nonproliferation Review* 5(1) (Fall 1997), pp. 88-94.

(A) A preamble that clearly states the mission of the treaty, the reasons why ballistic missile proliferation is inherently destabilising and threatening to international and regional security, and what needs to be done to develop consensus as well as nurture an international norm prohibiting the transfer of missiles, missile components, and related technologies.

(B) Enforceable and verifiable provisions proscribing and regulating missile and space launch activities. These provisions should require the following:

- supplier-state commitments not to transfer or export missile systems, components, technology, production facilities or professional knowledge, as well as supply credible end-user verification measures;
- recipient country pledges not to receive, acquire, or allow deployment of missiles, missile systems, technology, components; nor to develop missile defence systems, and;
- a framework for the peaceful and legitimate use of civilian space programs for, *inter alia*, communications, weather forecasting, and other commercial and scientific experimental purposes.

(C) Arms control and disarmament measures that address the security concern of most countries which do not possess missiles but may wish to acquire them. These states must be assured that states possessing missiles will:

- establish missile-free zones, where the acquisition, deployment, and use of missiles is prohibited;
- offer negative security assurances, whereby missile-possessing states pledges not to use or threaten to use missile against non-possessing states: this would include a no-first-use principle, as well as de-alerting and de-targeting mechanisms between missile-possessing states;
- reduce, limit, and gradually ban the production of missiles; destruction of existing stockpiles; such provisions must be verifiable, with realistic inspection mechanisms; and
- develop time-bound disarmament measures leading to reduction to zero missiles in all countries;

(D) Establishment of a world space organisation to promote and facilitate the peaceful use of space in the areas of environment, telecommunications, and weather forecasting;

(E) Fair, equitable, verifiable verification mechanisms and terms for entry into force.

The Conference on Disarmament would seem to provide the most logical venue for negotiations on such an international treaty, given the prominent role it played in the negotiation and conclusion of such important international treaties as the Comprehensive Test Ban Treaty (CTBT). The CD would also lend legitimacy to such an undertaking, as its membership is broadly representative in both political and geographical terms. However, the CD's more recent record is not reassuring. One concern is the tedious process with which arms control and disarmament issues are placed on the agenda; another is the limited prospect for bringing negotiations for such a treaty to a speedy conclusion. The delay in setting up the ad hoc committee on the negotiation of a fissile materials cut-off treaty (FMCT) is a case in point. There must inevitably be a trade-off between perceived political legitimacy and democratic openness in international arms control and disarmament issues on the one hand, and the more practical matter of getting down to business in a timely fashion and bypassing the central pitfall of all multilateral negotiation and treaty making efforts – the challenge of sustaining government support, diplomatic continuity, a supportive negotiating environment, and personal rapport among key figures.⁷⁷

The MTCR itself may be another appropriate place to begin. It would be a group of manageable size, with all members presumably of a like mind concerning missile proliferation issues. This would in turn create an environment more conducive to the procedural matters which all international negotiations must endure. However, a conducive forum does not necessarily guarantee success with regard to the delivery of the product. The MTCR would need to build upon its mission of promoting nonproliferation through export controls if it is to continue to play a role in stemming vertical proliferation in missiles and missile defence systems. As has been already pointed out, the decision to develop and deploy NMD and TMD will not be conducive to negotiating a missile nonproliferation treaty, for this would be seen by those considered as targets for such a technology as a cynical and completely unfair development. This is an understandable concern: a treaty focussing only on proliferation without extending it to include a total ban on missiles production, storage, use, would be a hard one to sell. Indeed, an MTCR-led treaty negotiation would only be conceivable and, more important, would only have a chance of success and universal acceptance if the focus was on arms control and disarmament, as well as nonproliferation.

A third potential alternative would be that of an international convention, preferably sponsored by the United Nations, but possibly modelled on the Ottawa process, where a core group of states could take the lead in supporting negotiations. While this would also comprise a gathering of the "like-minded", it could avoid some of the more negative associations which burden the MTCR in the eyes of some states. Instead of following the conventional path for treaty negotiation, including discussions concerning agenda-setting and other procedural complexities, such a convention could begin with what this treaty would look like, including scope of coverage, provisions and steps for achieving set goals, questions of enforceability and verification mechanisms. A deadline could be set concerning the time allowed to reach agreement, and all the technical details

⁷⁷ Rebecca Johnson, "Nuclear Arms Control through Multilateral Negotiation," in Nancy W. Gallagher, ed., *Arms Control: New Approaches to Theory and Policy* (London and Portland, OR: Frank Cass, 1998), pp. 83-115.

should follow and facilitate rather than stand in the way of what the final product might aim to accomplish. However, it is doubtful whether such an international convention can ever take place, given that this issue remains the concern of only a handful of states – unlike APLs, which enjoyed a far greater degree of political and popular visibility on account of their humanitarian consequences for non-combatants.

It should be obvious that a strategy of attempting to re-invent the Ottawa process without preliminary negotiations would not be practical and in all likelihood even counter-productive. Such a strategy would ensure delay before any results could emerge, given the strong national security and commercial interests involved. As has been pointed out,

“a non-discriminatory and comprehensive treaty prohibiting development, production and acquisition of ballistic missiles would need to be pursued single-mindedly along *an incremental* time-bound route. Russia, the US, China and perhaps even Pakistan and some other countries may not find a zero ballistic missile regime acceptable. A global anti-missile crusade for a multi-nationally negotiated treaty may not constitute starry-eyed idealism but be an idea whose time has come.”⁷⁸

A hierarchy of different steps starting from a lower level than the full treaty approach should therefore be considered, negotiated and implemented in the near term; this would then form stepping stones to more ambitious projects. Some of these steps could include:

- a United Nations missile registry to provide increased transparency in missile production, holding, and transfers;
- the multilateralization and eventually universalization of bilateral missile banning arrangements, such as the INF, with range reductions to less than 50 kilometres;⁷⁹
- the establishment of an international clearing house for dual-use exports, something comparable to the IAEA in the nuclear sector (perhaps a World Space Organisation⁸⁰) to support legitimate civilian space activities;
- regional arms control measures and CBMs, such as security dialogues, military transparency, and defence white papers, that address demands for missile acquisitions and development, and;

⁷⁸ Kapil Kak, "Missile Proliferation and International Security," *Strategic Analysis XXIII*(3) (June 1999), pp. 423-43. (<http://www.idsa-india.org/an-jun9-5.html>). Emphasis added.

⁷⁹ Kak, "Missile Proliferation."

⁸⁰ Ozga, "A Chronology."

- an eventual missile test ban.

Table 4 provides a summary of some interim steps and the likely responses from various states. These steps might begin with the more immediately doable, to those that require additional efforts and time to arrive at consensus and agreed-upon provisions/procedures. The ultimate challenge would be the construction of measures by which we might think about and begin negotiating an international treaty that could be based on some degree of consensus concerning missile nonproliferation. Some of these measures may later be incorporated in the rolling text of the prospective missile treaty. It must be emphasised that the lists are merely illustrative rather than exhaustive, given the still exploratory nature of the report; furthermore, because of their different interests, priorities, threat perception, and military readiness, countries' responses to various interim steps and measures will understandably differ. The key then is to determine the reasons for these various responses, how and where to seek common ground, and what can be done to close the gap between these countries. This will not be an easy task.

A logical beginning would be to set the right priorities. The MTCR remain the linchpin for missile nonproliferation efforts. Given the many changes that have taken place over the past decade, there is greater need for the regime to adjust by focussing more on monitoring end-use than simply trying to control (and deny) dual-use space launching technologies. While encouraging more states to join the regime or at least abide by its guidelines remains a desirable goal, the ultimate objective should be the enhancement of the regime's legitimacy, the development and promotion of a strong missile nonproliferation norm, and the transformation of the MTCR into a more broadly based international arrangement with greater participation from both supplier and recipient states.

The divergent rationales for states to either obtain or transfer missiles and missile related technologies require additional measures in the support of MTCR activities and objectives. One could be bilateral or regional CBMs that both manage the spread of missiles and reduce the need for their acquisition. These could be achieved through transparency measures designed to reassure and so reduce misunderstandings and the chances of missile use. Greater cooperation in international and/or bilateral space launch programs could also lighten pressures for missile-related sales. Indeed, an international space organization similar to the IAEA could be a useful vehicle in promoting commercial space launching programs and verifying the end use of transferred dual-use technologies. Transnational coalitions could also support those domestic elements in favour of such nonproliferation measures in exchange for greater economic benefits. Patient and perseverant diplomacy will remain crucial in ensuring that opportunist supplier states refrain from missile-related sales through a combination of economic incentives and political resolve.

A series of interim steps toward building consensus on issues such as missile production, test, deployment and transfers must precede formal negotiation of a legally binding international treaty. Here the most contentious issue is the scope of such efforts. The idea of multilateralizing the INF would not appeal to most Third World countries as they neither possess or need missiles of INF-proscribed ranges (i.e., below 5,500 kilometres) for security and deterrence purposes. This in turn highlights the importance of regionally oriented security and confidence building mechanisms, as

was discussed in earlier sections. At the same time, because of the different perceptions and utility of missiles in countries' national defence postures, counter-proliferation measures such as missile defense could be seen as threatening and therefore create complications in taking these steps forward. The acrimony surrounding the American decision to develop and deploy NMD/TMD has already demonstrated this point.

CONCLUSION

Ballistic missile proliferation continues to pose a serious threat to regional and international security. Recent events, in particular the dramatic missile tests on the part of a number of countries, further undercut the international efforts at curbing missile proliferation. While the MTCR has been instrumental in limiting the spread of missiles since its inception in 1987, the changing geo-strategic environment, the diffusion of technology, and the evolution in private sector innovation and production all present daunting challenges to the MTCR and the international missile nonproliferation norms it embodies. Furthermore, the regime's inherent institutional deficiencies slow if not prevent its adjustment and adaptation.

Effective leadership is required to inject vitality into the MTCR, a regime whose continued activism is still required and which needs to be strengthened if it is to play a more proactive role in preventing further missile proliferation. At the same time, there are means by which the regime can be improved upon: these measures include norm building and gap bridging efforts, greater transparency in the regime's procedure so as to enhance its legitimacy, and a shift of focus from denial strategies to the monitoring of the end-use application of dual-use technologies. CBMs could be introduced to support MTCR objectives by alleviating some of the causes – either demand-pull or supply-driven – that underlie missile proliferation. The ultimate goal, though, is to consider the feasibility of an international treaty on missiles, together with practical venues for entering into negotiations. One would readily admit that treatification at this juncture remains a difficult proposition, but one could also envision different examples of such an effort, perhaps on a sliding scale ranging from the lowest common denominator to those with more stringent conditions. An enhanced MTCR, coupled with the introduction and implementation of regional CBMs would certainly pave the way toward the eventual drafting of an international treaty based on the principle of universality and implementable through effective and fair verification.

Canada has a direct interest in both missile nonproliferation and legitimate civilian space programs, and therefore should take a more proactive role in the development of norms and rules leading toward an international treaty. Canada's reputation as an active proponent of international arms control and disarmament, its innovative undertaking concerning verification issues, and its prominent role in international efforts at banning landmines and light weapons provide experience and justification for its taking the lead in actively promoting international action against the proliferation of missiles. In more and more circumstances, strategies based upon the dictation of terms through the use of rewards and sanctions is proving increasingly unfeasible: instead, the ability to negotiate mutually acceptable deals by bringing willing parties together, making those

modifications within the regime framework as necessitated by new developments, and negotiating and resolving distributional conflicts acceptable to all concerned will become increasingly important. The ability to identify and nurture common interests therefore can make or break in international policy coordinative efforts. Canada's role could be particularly useful in bridging the gap between the MTCR members and non-regime members, especially at a time when the American determination to develop and deploy NMD/TMD has rendered dialogue between Washington and such key non-regime members as China highly problematic. Additionally, Canada should also play a more active role within the G-8 and the MTCR in advocating support for the principle of greater access to commercial space programs while continually maintaining high vigilance on missile transfer activities. Finally, Ottawa should make a firm stand on the issue of NMD and what could be expected of its potential involvement and/or opposition, even though this difficult decision may complicate Canada's relationship with the United States.⁸¹ As suggested by many arms control and disarmament advocates, the decision to proceed ahead with NMD/TMD has more to do with American domestic politics and in the end may ill serve the cause of missile nonproliferation.

⁸¹ See the "Forum Report: Canada and Ballistic Missile Defence," Centre for Defence and Security Studies, University of Manitoba, November 1998.

Table 1. Ballistic Missile Tests, Acquisitions, and R&D in Selected Countries/Areas¹

Countries/Areas	Type	Range (km)/Payload (kg)	Status
CHINA			
DF-31	ICBM	8,000/700	Tested
JL-2	SLBM	8,000/?	Under Development
INDIA			
Agni-I	IRBM	2,000/1,000	Tested (to 1,400km)
Agni-II	IRBM	2,500/1,000	Tested (to 2,000km)
Agni-III	IRBM	3,700/?	Under Development
Sagarika	SLBM	300+/nk	Under Development
Surya	ICBM	12,000/nk	Under Development
IRAN			
Shahab-3	IRBM	1,300/700	Tested (to 800km)
Shahab-4	IRBM	2,000/1,000	Under Development
LIBYA			
Al Fatah	MRBM	950/1,000	Under Development
NORTH KOREA			
No-Dong 1	MRBM	1,000/1,000	Tested
No-Dong 2	MRBM	1,500+/1,000	Under Development
Taepo Dong 1	MRBM	2,000/1,000	Tested
Taepo Dong 2	ICBM	6,000/1,000	Under Development
PAKISTAN			
Ghauri-I (Hatf 5)	IRBM	1,500/700	Tested (to 1,100km)
Ghauri-II (Hatf 6)	IRBM	2,500/1,000	Tested (to 1,165km)
Shaheen (Hatf 4)	SRBM	750/1,000	Tested (to 600km)
Shaheen-II	MRBM	2,400/?	Under Development
M-11	SRBM	300/800	In Storage (China)
SOUTH KOREA			
NHK-A (Hyonmu)	SRBM	300/500(?)	Tested (to 40km)
SYRIA			
Scud C	SRBM	500/700	Import (Iran, DPRK)
M-9 ?	SRBM	600/950	Import (via Pakistan, DPRK)

¹ Sources: David G. Wiencek, *Dangerous Arsenal: Missile Threats In and From Asia*. Bailrigg Memorandum 22 (Lancaster: The Centre for Defence and International Security Studies, 1997), p.14; Rodney W. Jones and Mark G. McDonough, with Toby Dalton and Gregory Koblenz, *Tracking Nuclear Proliferation: A Guide in Maps and Charts, 1998* (Washington, DC., Carnegie Endowment for International Peace 1998); Duncan Lennox, "Control regimes fail to stem the spread," *Jane's Intelligence Review* (September 1999), pp.50-54. See also, Carnegie Endowment for International Peace, *South Asian Nuclear Crisis* (<http://www.ceip.org/programs/npp/numberts/htm>); Center for Nonproliferation Studies, *Missile Database* (<http://www.cns.miis.edu/db/ms1/index.htm>).

Table 2. The Missile Suppliers' Network²

Supplier & What Supplied	Recipient Nation(s) and Comments
ARGENTINA CONDOR 2 MRBM	Development program with Egypt (known as Vector) & Iraq (Known as Badr 2000) in the 1980s. Programme terminated in 1990.
BRAZIL SS-600 SRBM <i>Assistance</i>	Suspected tests in Libya in 1988. Unconsummated export deals with Libya. Programme terminated. Iraq: The former director of Brazil's Aerospace Technology Center Major General Hugo de Olivera Piva was hired by Iraq in the mid-1980s to lead the 23-man development team which helped Iraq develop the Al Abid and Tamuz TBMs.
CHINA M-9 SRBM M-11 SRBM CSS-2 IRBM CSS-8 SRBM <i>Assistance</i>	Reportedly ordered by Syria (deal cancelled in 1991). Sold to Pakistan and Iran (operational status unclear). Sold to Saudi Arabia (in service). Sold to Iran (in service). Brazil: Alleged technical input into Brazilian ballistic missile programmes during the 1980s. On-going joint program with Brazil to develop SLV (Space Launch Vehicle). Iran: Missile production facilities at Semnan and Bandar Abbas. North Korea: Scud, Nodong and Taepo Dong TBM programmes (reportedly). Pakistan: Hatf SRBM program.
<i>Assistance</i> <i>Assistance</i> <i>Assistance</i>	
EGYPT SCUD B	Sold to North Korea in 1981. Reverse-engineered to become North Korean Scud Mod A (replaced by Scud Mod B).
IRAN <i>Assistance</i> <i>Assistance</i>	Trans-shipment point for North Korean Scud exports to Syria . North Korea: substantial financial aid for North Korean missile programs in return for deliveries of Scud and Nodong missiles.
ISRAEL <i>Assistance</i>	South Africa: Israel supplied key technologies for South Africa's now-terminated Arniston TBM programme.
NORTH KOREA SCUD B SRBM SCUD C SRBM	Sold to Egypt, Iran and Syria (in service). Sold to Iran, Libya and Syria (in service).

² Source: Modified from Centre for Defence and International Security Studies, *The Suppliers' Network Datapage*. (http://www.cdiss.org/supply_1.htm).

NDONG 1 SRBM

Assistance
Assistance

Exports to **Iran** and **Pakistan**. Interest from **Libya** (System tested. Expected to enter production in 1996).

Egypt: Project-T SRBM program.

Iran: Mushak SRBM program. Fuel & component production facilities at Isfahan and Sirjan. Shahab-3 SRBM.

RUSSIA

R-2 (SS-2) IRBM

SA-2 SAM

Transferred to **China** in 1958. Reverse-engineered as CSS-1. Sold to **China**. Reverse-engineered as Chinese HQ-2 SAM. Further developed as Project 8610 (CSS-8 or M-7) SRBM. Sold to **Iraq**. Reverse-engineered as the Al Fahd 300 SRBM (Project abandoned). Fired by **Bosnian Serbs** as BSRBM in 1994 and reverse-engineered by **Croatia** as a BSRBM. Used as basis for **Indian** Prithvi 1 and 2 TBMs.

SS-1 SCUD BIRBM

Sold to **Afghanistan, Algeria, Egypt, Iran, Iraq, North Korea, Libya, U.A.E., Vietnam, Yemen** plus 12 **CIS/former Warsaw Pact states**.

SS-21 SCARAB BSRBM

Sold to **Libya, Syria** and **Yemen** and operated by seven other **FSU** and **former Warsaw Pact states**.

Assistance

India: Sale of seven cryogenic rocket engines agreed in 1994 but halted under international pressure. Indian sources claim that Indian scientists working in Russia have already acquired drawings of the engines.

Table 3. Variables Affecting Missile Proliferation in Selected Countries

	China	India	Iran	North Korea	Pakistan
<i>Demand Side</i>					
Security	<ul style="list-style-type: none"> • Limited deterrence • Counter measures against TMD/NMD • Useful instrument against Taiwan independence • Regional superiority 	<ul style="list-style-type: none"> • Balance against China • Conventional and nuclear superiority over Pakistan • Primacy on Indian subcontinent 	<ul style="list-style-type: none"> • Competition with Iraq • Ability to control the Persian Gulf 	<ul style="list-style-type: none"> • Regime survival • Equaliser vis-à-vis superior US/ROK conventional forces • Threat to US as bargaining chip 	<ul style="list-style-type: none"> • Deterrence against Indian conventional/ nuclear superiority
Prestige	<ul style="list-style-type: none"> • To some extent 	<ul style="list-style-type: none"> • Military/ technological prowess 	<ul style="list-style-type: none"> • Very important 	<ul style="list-style-type: none"> • Symbol of socialism • Strength under difficult circumstances 	<ul style="list-style-type: none"> • Islamic missiles?
Bureaucracy	<ul style="list-style-type: none"> • Military-industrial complex 	<ul style="list-style-type: none"> • Industrial-technocrat complex? • Institutional advancement (ISRO) 	<ul style="list-style-type: none"> • Revolutionary Guard regards control of missiles as important vestige of power 	<ul style="list-style-type: none"> • Military interests 	<ul style="list-style-type: none"> • Military interests
Domestic Politics	<ul style="list-style-type: none"> • Maybe; perceived US hegemony strengthens hardliners 	<ul style="list-style-type: none"> • Sustain BJP-led coalition 	<ul style="list-style-type: none"> • See above 	<ul style="list-style-type: none"> • Strengthen the hands of the military 	<ul style="list-style-type: none"> • Civilian government needs military support
<i>Supply Side</i>					
Foreign policy	<ul style="list-style-type: none"> • Supports key allies such as Pakistan • Gain political influence (e.g., Iran) 	<ul style="list-style-type: none"> • Not known for transfers 	<ul style="list-style-type: none"> • In exchange for missiles and missile technology 	<ul style="list-style-type: none"> • Establish and expand influence in other regions 	<ul style="list-style-type: none"> • N/A
Commercial	<ul style="list-style-type: none"> • Foreign currency 	<ul style="list-style-type: none"> • Not known for transfers 	<ul style="list-style-type: none"> • Maybe 	<ul style="list-style-type: none"> • Key source of foreign currency 	<ul style="list-style-type: none"> • Maybe; but not known as a supplier
Military	<ul style="list-style-type: none"> • Keep India tied down by supplying Pakistan 	<ul style="list-style-type: none"> • Not known for transfers 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Gain knowledge through recipient countries' testing and use 	<ul style="list-style-type: none"> • Maybe (e.g., support Mujahadin guerrillas)
Bureaucracy	<ul style="list-style-type: none"> • parochial interests of arms-export companies 	<ul style="list-style-type: none"> • Not known for transfers 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Korean People's Army gains through exports 	<ul style="list-style-type: none"> • Not clear

Table 4. Some Interim Steps and Likely Responses of Selected States

	China	India	Pakistan	North Korea	South Korea	Japan	Russia	USA
<i>Transparency</i> (UN Registry on Missile Transfers)	Probably not supportive	Supportive	Not supportive	Not supportive	Supportive	Supportive	Supportive?	Supportive
<i>Transparency</i> (launch notification)	may be acceptable	acceptable	acceptable	Not acceptable	supportive	Supportive	supportive	supportive
<i>Transparency</i> (production and stockpile)	not supportive	may be supportive	not supportive	Not supportive	supportive	Supportive	probably supportive, depending on what deals it can get and what the US will do	probably supportive; hostage to domestic debate
<i>Constraints</i> (missile free zones)	Conditional support; retain flexibility	may be supportive	may not be interested; wants to keep options vis-à-vis India	Objection	supportive	Supportive	supportive as long as not affecting its strategic missiles	conditional supportive if sub can be excluded
<i>Conversion</i> (multilateralize INF)	may be acceptable	not supportive	not supportive	Not supportive	vague	Supportive	supportive	supportive
<i>Conversion</i> (World Space Organization)	Supportive	supportive	acceptable	May be acceptable	supportive	Supportive	supportive	supportive on conditions
<i>Constraint</i> (test ban)	conditional; may want to link to TMD/NMD	not acceptable	not acceptable	Can be a bargaining chip	vague; wants to keep option	Supportive	supportive	supportive but like to keep NMD/TMD launch tests
<i>Constraint</i> (de-alert)	conditional acceptance; demand US to do more	may be acceptable, but want to draw China in	may be reluctant	Not acceptable	may be reluctant	Supportive	may demand reciprocal action	may want to keep NMD option open
<i>Constraint</i> (de-targeting)	acceptable, with conditions	wants China in	may be reluctant	not acceptable	may be reluctant	Supportive	reciprocity	conditional acceptance

LIBRARY E A / BIBLIOTHÈQUE A E



3 5036 01042601 6

DOCS
CA1 EA365 2000M75 ENG
Yuan, Jing-dong
The MTCR and missile proliferation
: moving toward the next phase
17968637