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REGIONAL APPROACHES TO CONSTRAINING BALLISTIC MISSILE PROLIFERATION

**BY
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AND
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**A STUDY PREPARED FOR THE
DEPARTMENT OF FOREIGN AFFAIRS AND
INTERNATIONAL TRADE
(VERIFICATION RESEARCH PROGRAM)**



MAY 1996

OTTAWA, CANADA

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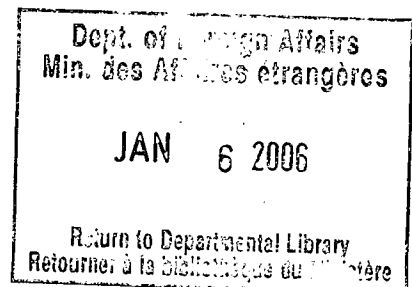
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**THE VIEWS EXPRESSED IN THIS REPORT ARE THOSE OF THE
AUTHORS AND DO NOT NECESSARILY REFLECT THOSE OF THE
CANADIAN GOVERNMENT OR THE DEPARTMENT OF FOREIGN
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Preface

In the context of examining the future orientation of the Missile Technology Control Regime (MTCR), Canada chaired a meeting, hosted by the Government of Switzerland, in Montreux (August 31 - September 1, 1995) to examine ways in which the MTCR might be reinforced as our key instrument for dealing with the challenges of missile proliferation. Discussions at the Montreux meeting ranged from examining global norm development to complement the MTCR to the role that transparency and confidence-building measures might play in combatting missile proliferation -- particularly at the regional level. At the conclusion of the Montreux meeting, Partners agreed to keep these issues under review, as appropriate.

In this regard, at the Bonn Plenary (October 10 -12, 1995) MTCR Partners agreed that, as part of their ongoing efforts to reinforce and strengthen the MTCR and to deal with urgent problems of missile proliferation, they could meet intersessionally, on an *ad hoc* basis, reinforced with experts, to seek ways of developing practical approaches which could be used by Partners in responding to proliferation challenges. MTCR partners agreed that the regional dimension of missile proliferation deserved special attention.

Canada is a firm proponent of continuing work within the MTCR to examine ways of strengthening the regime to address the missile proliferation threat. In Canada's view this effort needs to focus on both the broader, longer-term issue of norm building and the more immediate need to develop a range of approaches and instruments that might be used to meet specific regional missile proliferation challenges. Such approaches should also seek to engage both suppliers and recipients in dialogue and cooperation to avert the risks of missile proliferation.

Canada's working paper, "Regional Approaches to Constraining Ballistic Missile Proliferation," is being circulated to MTCR partners in the hope that it will contribute positively to our discussions and practical work at this first meeting of the Reinforced Points of Contact. We look forward to the comments and views of Partners on this paper.

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Key Findings

The Relationship between Regional Stability and International Security

- o Many serious challenges to achieving international peace and security have sprung from regional instability and insecurity.
- o Regional capabilities to acquire weapons of mass destruction (WMD) and advanced delivery systems such as ballistic missiles are of particular concern.
- o “Regional Threat Reduction”¹ may constitute the preferred method for defusing potential crises before they erupt.

The Role of Ballistic Missiles in Regional Instabilities

- o Countries in troubled regions of the world have been increasing the numbers and types of ballistic missiles in their inventories; some are also establishing their own missile production facilities. This is a matter of particular concern when those missiles are capable of serving as delivery systems for WMD.
- o Ballistic missiles have become the delivery platforms of choice because of their short flight times, their capability to strike with little or no warning, a lack of effective missile defences in most areas of the globe, and thus, their virtually-assured penetrability. The psychological impact of a ballistic missile capability can be almost as destabilizing as its military utility.
- o The technologies used in these delivery systems are becoming increasingly easier and cheaper to develop indigenously or acquire elsewhere.
- o Regional Threat Reduction is particularly appropriate and needed in regions with complex histories of tension and rivalry, such as the region of South Asia. If India and Pakistan were to continue to develop and deploy their ballistic missile

¹ In this paper, “Regional Threat Reduction” is defined as assistance offered by countries which reduces regional threats from ballistic missiles capable of carrying weapons of mass destruction. This term is similar, of course, to “comprehensive threat reduction,” a program in which the new independent states of the former Soviet Union are being assisted by the United States in the process of dismantlement and elimination of weapons of mass destruction and the delivery systems capable of carrying these weapons. It is assumed that Regional Threat Reduction would involve the diplomatic efforts of a number of countries or other trusted third parties.

capabilities, including placing nuclear or other weapons of mass destructions on their ballistic missiles, their relationship could further deteriorate to the point of an international crisis.

Achieving Stable Regional Relationships with Regard to Ballistic Missiles

- o Achieving and maintaining a stable strategic relationship in the presence of ballistic missiles has many elements, including accurate assessments of the other side's military capabilities and intentions. Even more important may be a willingness to change old habits and perceptions in order to facilitate greater openness regarding those capabilities and intentions.
- o Active and passive ballistic missile defence capabilities have a deterrent value in promoting strategic stability. Such development may increase the possibility that ballistic missiles will not be acquired or used. On the other hand, the indigenous development or acquisition of ballistic missile defences by one party could lead the other party (parties) to add to its offensive capabilities, thus resulting in further regional instability.

The Role of Confidence-Building Measures and Confidence- and Security-Building Measures (CBMs/CSBMs) in Promoting Regional Stability

- o Certain ballistic missile-focussed confidence-building measures/confidence- and security-building measures (CBMs/CSBMs), if successfully negotiated and implemented, could help promote regional security. These measures include invitational inspections, observations, and visits; data or information exchanges; agreed limits or bans; and joint exercises and cooperative programs. There could be significant synergistic benefits among these measures depending on which ones are successfully implemented.
- o Successful implementation will involve each party's ability to verify effectively compliance with the CBMs/CSBMs.
- o There will be tradeoffs between the contribution CBMs/CSBMs make to enhancing regional stability and the degree to which the security of an individual country is jeopardized by implementing the measures. In order to be convinced that the long-term gains in its security outweighs short-term losses or compromises of sensitive military information, each country will need to perform its own net assessment of its gains and losses.
- o The acceptability of CBMs/CSBMs will also be directly affected by external perceptions, pressures, and incentives.

Measures to Constrain Ballistic Missile Proliferation in South Asia

- o Certain study assumptions have been made about India and Pakistan during the period between 1996 and 2006. These are assumptions, not predictions, and they concern a period of great uncertainty. The assumptions take into account certain geopolitical constraints and realities, however disturbing and/or undesirable.
 - oo India and Pakistan will remain adversaries, and India will remain deeply suspicious of China's intentions, but no major war will occur in South Asia.
 - oo India and Pakistan will remain threshold (but undeclared) nuclear powers. Unless they become signatories of the Comprehensive Test Ban Treaty (CTBT), they may conduct tests.
 - oo Both countries will continue to develop chemical and biological weapons capabilities unless they ratify the Chemical Weapons Convention and there is a strengthened Biological and Toxin Weapons Convention.
 - oo Weapons of mass destruction (WMD) programs will enjoy strong support from certain sectors of the population of these countries, for example, the military, and broad-based support from the general public.
 - oo Both countries will possess ballistic missiles capable of delivering WMD and conventional warheads on key military and civilian targets.
 - oo Neither country will possess effective defences against ballistic missile threats.
 - oo Each country will have good intelligence on the capabilities, but not necessarily the intentions, of the other country.
 - oo Suspicions of the other side's motives and intentions will remain high.
 - oo Domestic policies and dynamics will require at least rhetorical bellicosity and strong indications of military readiness.

Current Conditions in South Asia

- o Proliferation in South Asia is part of a chain of relationships and rivalries: India seeks to achieve deterrence against China, which asserts itself regionally and globally as a self-appointed superpower, and Pakistan seeks to create a level playing field against a militarily-stronger and larger India.

- o In addition to China, several other “outside” nations, such as the United States and the former Soviet Union, have had a major influence in South Asia since 1947. These outside influences, which have changed since the end of the Cold War, must be taken into account when considering regional stability.
- o Concerned countries have urged India and Pakistan to abide by the MTCR guidelines. However, the effect of the MTCR on India and Pakistan is unquestionably unequal. When the MTCR was announced in 1987, India already had ambitious indigenous ballistic missile and space programs. Since that time, it has developed and tested the Prithvi missile fifteen times, and it has successfully test-fired the Agni missile. Pakistan’s efforts to match India’s ballistic missile program will most likely be unsuccessful, given the existence of the MTCR and increased emphasis in the West on non-transfer of dual-use technology; however, Pakistan will develop and/or acquire a more advanced ballistic missile capability with assistance from China.
- o The efforts of the international community to rollback or constrain India and Pakistan’s nuclear capabilities have thus far been unsuccessful.

Real and Perceived Threats in the View of India and of Pakistan

- o Despite international efforts, India and Pakistan continue to pursue ballistic missile programs, both are developing missiles with a deep-strike capability, and each accuses the other of developing missiles to carry nuclear warheads--an accusation both countries strongly deny.
- o There would be several motivations for Indian acquisition and use of nuclear weapons on its ballistic missiles: to counter China (a long-term goal), as a hedge against Pakistan’s nuclear capability, to resist coercion on the part of other countries, for prestige and internal politics, and as evidence of scientific or technological credibility. Pakistan also has its goals: to counter Indian nuclear capability, to deter or defend against India’s conventional capability, for internal political reasons, and for international prestige, particularly in the Islamic World.

Past Endeavors Aimed at Achieving Strategic Relationships

- o India and Pakistan have recognized that greater transparency in the defence area can help reduce regional tension. Delhi and Islamabad have signed a number of measures intended to improve their bilateral relationship and prevent the escalation of tensions, including an agreement not to attack each other’s nuclear installations and facilities; advance notification of military exercises, manoeuvres and troop movements, and an agreement permitting overflights and landings by military aircraft. The countries have also agreed to a “Joint Declaration on Prohibition of Chemical Weapons,” which

would ban the use, production, and stockpiling of chemical weapons or assisting others to acquire a similar capability; they have established a communication channel (“hotline”) between the Directors General for Military Operations, and they have agreed to exchange military visitors. While other proposals have been discussed, implementation of the agreed measures has not matched the speed of the negotiation of the agreements. Implementation remains a real problem.

- o China and India have agreed to negotiate a series of CBMs, including possible reductions of military forces deployed along the border, meetings of military personnel, development of communication links, and prior notification regarding military exercises. Implementation of these measures has also been slow.
- o While regional measures must of necessity reflect regional concerns, it is possible that India and Pakistan might find useful lessons in other, recent bilateral/regional arrangements, for example, the positive experiences associated with the Argentina and Brazil Agreement on the Exclusively Peaceful Uses of Nuclear Energy and the establishment of the Argentinean-Brazilian Agency for Accounting and Control of Nuclear Materials (ABACC). Also of possible South Asian interest might be the development of the regional CSBMs formalized in the 1995 “Declaration of Santiago on Confidence- and Security-Building Measures.”

The Most Feasible, Negotiable, and Effective Regional CBM/CSBMs Which Could Help Stabilize South Asia

- o Many arms control and confidence-building measures have been suggested by interested countries as ways to reduce tensions in South Asia. However, international efforts have not succeeded in persuading the two countries to refrain from the development and the deployment of short- and medium-range nuclear-capable ballistic missiles. Similar limits--on deployment of ballistic missiles with military forces, or a missile-forward deployment exclusion zone--have thus far not been acceptable to the two countries. Indian opposition to a global INF agreement, or to a regional missile ban, has been apparent.
- o In the light of this continued resistance to more sweeping accords, a more modest step-by-step (“building block”) approach utilizing CBMs/CSBMs could have some merit in achieving regional stability.
- o Encouragement should be given to more systematic, effective, and practical implementation of the CBM/CSBMs which have already been negotiated between India and Pakistan and between India and China. Revitalization of the CBM/CSBM process should also involve encouragement of mutually agreeable monitoring procedures which would permit the parties to verify compliance with the measures. While effective verification is not a panacea for all regional security problems, it can

increase confidence and improve the chances for further negotiations and additional CBMs/CSBMs.

- o Encouraging the parties to begin a dialogue on some of the more promising and acceptable of these CBMs/CSBMs certainly would improve regional relations. This encouragement might begin by suggesting certain Measures of Effectiveness (MOEs) against which regional CBMs/CSBMs could be judged. The following Measures might be considered:
 - oo Do the parties believe that the CBM/CSBM is specifically tailored to address their regional concerns?
 - oo Will the CBM/CSBM contribute to strategic stability in the view of the parties and of the international community?
 - oo How do the parties view the roles (positive and negative) which could be played by interested countries or other third parties?
 - oo What do the parties believe are the benefits and drawbacks to the CBM/CSBM?
 - oo Can it be negotiated?
 - oo Can it be effectively verified?
 - oo Can it be implemented?
 - oo Is it cost effective, that is, is the cost of negotiation and implementation consistent with its contribution to strategic stability?
- o The following CBMs/CSBMs merit consideration in the South Asian region:
 - oo Joint drug-interdiction border patrols
 - oo Redeployment of troops from the Siachen Glacier
 - oo Joint exercises in international peacekeeping operations
 - oo Exchange of defence policy statements and doctrines, which--over time--could be focused on R & D activities, ballistic missile characteristics, and planned ballistic missile flight tests and space launches.
 - oo Joint exercises in early warning of ballistic missile launches

- oo An agreement not to deploy ballistic missiles with operational military forces, or an agreement to create a missile exclusion zones
- oo A cooperative ballistic missile flight test monitoring experiment
- o The first three proposed CBMs take a "building block" approach to developing interstate confidence and openness. Indian-Pakistani cooperative efforts might begin with a non-military issue, for example, cooperation in interdicting cross-border drug smuggling activities. Agreement to demilitarize the Siachen Glacier would specifically address a sub-regional issue and would demonstrate how monitoring technologies can play an important role in verification of bilateral obligations, whatever their nature. Joint exercises in peacekeeping operations would permit exchange of views on issues of importance which do not lead to ideological differences.
- o Exchange of views on the subject of defence policy and military doctrine should continue to be encouraged by interested countries. Countries, such as Canada, which have not sided with either India or Pakistan may be more persuasive in proposing such exchanges.
- o Development of joint exercises involving early warning of ballistic missile launches might contribute to regional stability in several ways: it would be an opportunity to participate together in an exercise which enhances strategic stability; it would provide each country with some assurance of its technological ability to detect a launch; if successful, it might deter either country from attempting a ballistic missile attack because of the probability of early detection and the possible advance responses. Third parties could play an important role in developing, promoting, and directing such exercises.
- o Encouragement could be given to a regional agreement not to deploy ballistic missiles with operational military forces, or more generally not to deploy such missiles outside designated production, testing, or storage facilities. This measure does not preclude missile development or production, and thus carries with it some chance for acceptance.
- o Cooperative missile flight test monitoring would provide a means to demonstrate to the two parties methods for determining that a missile test launch has occurred. Cooperative monitoring techniques such as tamper-protected IR, acoustic, and seismic sensors near a launch facility could be utilized; data could be remotely transmitted to a jointly-operated monitoring station. Gaining experience in monitoring missile test launches might permit the parties to agree, over time, to a ban on certain ballistic missile flight tests.

- o India and Pakistan should continue to be asked to agreed to abide by MTCR guidelines regarding space launch vehicles. Accepting the guidelines may be an easier path to pursue than accepting the notion that the MTCR is "non discriminatory."
- o A key factor during a period in which regional relations are at a low ebb is the development of both official and unofficial exchanges and visits to and from interested countries. Indian and Pakistani experts and policy-makers should be invited to official conferences and workshops on a variety of topics by international organizations and, in smaller settings, by "third parties."
- o Experts from India and Pakistan should also be encouraged to meet with each other, with no international involvement. Efforts to force practical results from these meetings should be avoided; at this point in their troubled relationship, India and Pakistan need to exchange views and ideas as much as official pieces of paper. Ultimately, however, the best exchange would be a summit between the leaders of the two countries.

Implementation of CBMs/CSBMs

- o India and Pakistan need to be encouraged to take more initiatives in proposing, negotiating, and implementing, step-by-step, CBMs/CSBMs, however modest to the outside world. Ultimately, they must accept and act upon the measures.
- o China, because it is a key player in South Asian security concerns, should be encouraged to recognize openly the extent to which its strained relations with India and its friendly relations with Pakistan complicate the security environment.
- o India and Pakistan will not respond well to suggestions that they need to be restrained by the international community, and most particularly by the P-5.
- o Member countries of the MTCR regime, if their relations with India and Pakistan have been cordial, can be particularly helpful in supporting efforts at confidence-building or control of arms because they will not appear to be publicly criticizing the two nations for "incorrect" behavior. New MTCR members, in particular Argentina, Brazil, and South Africa, could be helpful in this regard.
- o A consistent point of view by many countries on the subject of nonproliferation, including support for all the existing and proposed nonproliferation measures and restrictions, would contribute to norm-building.
- o Trusted countries, regional organizations, and international institutions could play an important role in increasing the number of activities (governmental- and privately-

sponsored seminars, conferences, workshops) in which regional representatives participate in discussions of the concept of transparency, the role of transparency measures, and the development of verifiable CBMs/CSBMs.

- o Representatives of concerned countries and international organizations, such as the United Nations, can provide encouragement in the form of discussion of their positive experiences in the field of confidence-building. Discussion, even debate, of increased transparency measures in regard to South Asian nuclear and ballistic missile programs should be encouraged and fostered.
- o Invitations to cooperative monitoring experiments would provide India, Pakistan, and even China, with demonstrations on how a regional cooperative monitoring center could function, and how it could assist in defusing potential crises.

Introduction

While analytical attention has been focused on issues related to international security, for example, fissile material accountability, many serious challenges to achieving international peace and security have sprung from regional instability and insecurity. Regional confrontations involving countries with a history of unresolved issues, no meaningful progress toward resolution of the sources of conflict, and the capability to acquire weapons of mass destruction (WMD) and advanced delivery systems such as ballistic missiles are of particular concern. While the term has not yet been introduced, "Regional Threat Reduction" may constitute the preferred method for defusing these potential crises before they erupt.²

During the past eight years, the United States and the republics of the former Soviet Union have been reducing their stockpiles of tactical and strategic missiles. At the same time, countries in troubled regions of the world have been increasing the numbers and types of ballistic missiles in their inventories; some are also establishing their own missile production facilities. Approximately 30 countries have surface-to-surface ballistic missiles, and more than half of those countries are in Africa, Asia, South America, and the Middle East. International security interests are seriously threatened by the increasing numbers and capabilities of missiles throughout the world, especially when the missiles are designed to also serve as delivery systems for WMD. Of particular concern is the number of countries in the Middle East, North Africa, and Asia with ballistic missile and nuclear, chemical, or biological weapons programs.

Of all the potential systems for delivering WMD or conventional weapons, ballistic missiles have become the platforms of choice because of their short flight times, their capability to strike with little or no warning, a lack of effective missile defences in most areas of the globe, and thus, their virtually-assured penetrability. Their psychological impact can be almost as destabilizing as their military utility. Ballistic missiles can also degrade crisis stability by condensing decision-making time lines and accentuating perceptions of vulnerability. In a regional context, even an unsophisticated and inaccurate ballistic missile can serve as a weapon of terror or coercion, or as a deterrent to action on the part of the other party or parties. Indeed, because of the questionable accuracy of some regional ballistic missiles, a country may elect to arm them with unconventional warheads, such as nuclear weapons, the accuracy of which becomes relatively unimportant.³

² Regional Threat Reduction is defined on page 1.

³ The disadvantage associated with a lack of accuracy in certain regional ballistic missiles may well disappear over time as countries gain access to better inertial guidance systems or use the Global Positioning System (G.P.S.).

Ballistic missiles have also been viewed as sources of prestige in certain regions of the globe. They lend evidence of scientific or technological credibility to countries whose national pride is rankled by labels such as "Third World" or "lesser developed." The technologies used in these delivery systems are becoming increasingly easier and cheaper to develop indigenously or acquire elsewhere: some of the relevant technologies have a dual use as part of legitimate civilian applications as well as for military purposes, and thus can be developed or obtained under false pretenses; and, of course, ballistic missiles and space launch vehicles are marketed internationally by certain companies and countries in need of hard currency.

Regional Threat Reduction is particularly appropriate and needed in regions with complex histories of tension and rivalry, such as the region of South Asia.⁴ The turbulent relationship between India and Pakistan includes three wars, major crises, and numerous incidents, including border incidents related to their conflicting claims to Kashmir. The two countries, deeply suspicious and distrustful of each other, are considered nuclear- or near-nuclear capable, and they have ambitious delivery systems under development which will provide a deep-strike capability. They have been unwilling to sign the Nuclear Nonproliferation Treaty (NPT), they are not members of the Missile Technology Control Regime (MTCR), and they have accused each other of developing ballistic missiles to carry nuclear weapons.⁵ Parliamentary debates, official interviews, and press commentary show that New Delhi's development of the Agni and Prithvi missiles is viewed as a source of national pride; Pakistani leaders apparently also hope to garner the same kind of popular support for Islamabad's nascent missile program. If India and Pakistan were to develop and deploy nuclear weapons on their ballistic missiles, their relationship could further deteriorate to the point of an international crisis. As U.S. Secretary of Defence William Perry has noted, "the worst-case scenario, of course, would be if India and Pakistan allow their tense relations and their nuclear capability to drive them towards a nuclear arms race or even to a nuclear war."⁶

⁴ While Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, Sri Lanka, and Tibet are often included in the region designated as South Asia, commentary regarding South Asian regional security issues is generally confined to relations between India and Pakistan.

⁵ Both countries have claimed that they have no intention of deploying nuclear weapons, and they have stated that their short-range ballistic missiles will be armed only with conventional warheads.

⁶ "Establishing Strong Security Ties with India and Pakistan." Prepared remarks by Secretary of Defence William J. Perry to the Foreign Policy Association, New York, 31 January 1995. Seymour Hersh has argued that India and Pakistan nearly fought a nuclear war in 1990. "On the Nuclear Edge," *New Yorker*, 29 March 1993, pp. 56-73. Many other analysts, including Devin Hagerty have strongly disputed this claim. See, for example, Devin T. Hagerty, "Nuclear Deterrence in South Asia," *International*

The tensions which dominate Indian-Pakistani relations have only been complicated by their neighbor China. The Indian perception of China as its most dangerous potential opponent may be a key factor in Indian acquisition of nuclear weapons and development of longer-range ballistic missiles. China and India have not resolved their relationship since the war of 1962: in addition to several territorial disputes, there are unconfirmed reports that one or both of the countries may have deployed nuclear-armed missiles near their common border.

In contrast to this relationship which is characterized by suspicion and distrust, the Sino-Pakistani relationship is one of military and diplomatic support. Some unclassified reports have concluded that China has supplied technical assistance and components to Pakistan in the development of its ballistic missile and nuclear weapons capabilities.

On 15 December 1995, Tim Weiner of The New York Times reported that U.S. intelligence experts suspected that India was preparing for its first nuclear test since 1974, stating that the experts based their opinion on scientific and technical activity recorded by spy satellites at the Pokaran test site in the Rajasthan desert.⁷ An Indian Foreign Ministry spokesman termed the report "totally speculative," but stopped short of denying it.⁸ Pakistan appealed to the major powers to prevent the test. Islamabad also expressed concern over reports that India intended to test its Prithvi missile at the Pokaran test site; in some versions of the story, the two reports became linked, suggesting that India intended to test both its nuclear device and its delivery system. In January, then Prime Minister P. V. Narasimha Rao publicly stated that India was not preparing to conduct a nuclear test. However, Indian authorities have announced the country's intention to deploy the Prithvi, its medium-range missile.⁹ This situation, however it plays out, clearly demonstrates that aggravated regional tensions have a serious effect upon international security.

This paper is a concise study identifying and evaluating possible regional measures for constraining ballistic missile proliferation and for achieving a stable strategic relationship with regard to ballistic missiles within a region, taking as a case study the region of South Asia. The study will focus on certain factors contributing to current and likely future proliferation of ballistic missiles technologies and missiles, even though many other weapon

Security, vol. 20 (Winter 1995/96), pp. 79-114.

⁷ "U.S. Suspects India Prepares to Conduct Nuclear Test," The New York Times, 15 December 1995.

⁸ According to a Reuters report quoted by R. Jeffrey Smith, "Possible Nuclear Arms Test by India Concerns U.S.," Washington Post, 16 December 1995.

⁹ The Prithvi missile program is discussed below in the section entitled, "Real and Perceived Threats in the View of India and of Pakistan."

systems and geographic, economic, ethnic, political, religious, and regional factors affect regional stability.¹⁰

The Characteristics and Elements of a Stable Strategic
Relationship with Regard to Ballistic Missiles

Achieving and maintaining a stable strategic relationship in the presence of ballistic missiles has many elements, including accurate assessments of the other side's military capabilities and intentions; but--as demonstrated in recent years by the U.S.-former Soviet Union (FSU) relationship--even more important may be a willingness to change old habits and perceptions in order to facilitate greater openness regarding military capabilities and intentions.

A key element in assessing the other side's military capabilities is to have a good knowledge of the characteristics of the ballistic missile programs of other states, whether the programs involve indigenous development and production or are import-dependent. Inaccurate assessments of the other side's true capabilities and intentions--including exaggerated estimates of these capabilities and intentions--may lead to an increased arms race and possibly a decision to launch a pre-emptive strike on the other side in a time of crisis.

If information on a regional ballistic missile program is willingly shared, through cooperative actions or through unilateral declarations which can be verified, it is less likely to have the negative effect of feeding existing misperceptions, mistrust, and fears. Under the most optimal circumstances, the information would be shared as part of an agreement to ban the development, testing, and production of ballistic missiles capable of delivering conventional warheads, nuclear weapons, or other WMD.

In order to avoid over-reaction or "quick trigger" action, the military doctrine of each country should place ballistic missiles in the context of the overall force structure of the country and establish under what conditions ballistic missiles and other forces would be used to respond to real and perceived threats. Inherent in any such military doctrine must be the consideration given to alliance commitments on the acquisition and use of the missiles. Accurate knowledge of other states' military doctrine, achieved through military-to-military exchanges, can lead to reduced tensions and misperceptions.

¹⁰ It is recognized that domestic politics play a major role in the decisions being taken regarding ballistic missile development and deployment on the Indian Subcontinent. This paper does not deal with the two centrist and weak governments or other political or ethnic issues, such as their conflicting claims to Kashmir, nor does it discuss other causes for regional instability in South Asia, including communal relations, population growth and migration, and environmental degradation.

While force levels which constitute effective deterrence regarding ballistic missile use would preferably be delivery systems armed only with conventional warheads, it would be unrealistic in certain regional situations to seek or expect an immediate rollback of WMD capabilities. Rather, emphasis should be placed on the capabilities of conventional weapons as deterrents to ballistic missile use. Because rollback of WMD capabilities is unlikely in the absence of reduced tensions, a cap on WMD acquisition may be the best solution of the moment. "No first use of WMD" declarations, coupled by agreements not to covertly deploy ballistic missiles capable of delivering WMD, would have a calming effect in certain regional hot spots. Over time, establishment of nuclear-weapons- and ballistic-missiles-free zones in a region would greatly increase strategic stability.¹¹

Verification of agreements associated with non-deployment, or restricted deployment, of ballistic missiles must take into account certain logistical differences between liquid- and solid-propelled ballistic missiles. Liquid-propelled ballistic missiles require considerable time to move, erect, fuel, spin up the gyros, and fire. They must be transported empty; they must be accompanied by fuel trucks; they must be erected and fueled; and their guidance gyros spun up before launch. All of these activities take time and are subject to observation. Solid-propelled missiles do not require all of these activities; thus, they can be moved, erected, and fired in much less time and with far fewer observable features. Consequently, the nature and verifiability of possible cooperative measures or agreements will vary greatly depending on the types of ballistic missiles involved.

Another important element in the development and deployment of ballistic missiles involves the associated command, control, communications and intelligence (C3I) capabilities. While large numbers of ballistic missiles create regional instability, poorly-controlled missiles raise the potential for accidents and unauthorized use. Alternative delivery system capabilities, most particularly strike aircraft, would allow weapons to be recalled when they have been mistakenly launched, although maintenance of the infrastructure associated with strike aircraft is an expensive undertaking for some developing countries.

Cooperative efforts to inform regional parties of ballistic missile test launches and space vehicle launches, including the location, timing, and purpose of the launch, would reduce the perception of a possible threat.

¹¹ The authors of this paper reject the argument made by Kenneth Waltz, Devin Hagerty, and others that proliferation has stabilizing effects; specifically, Waltz, Hagerty, et al. claim that nuclear weapons have deterred war between their possessors and will continue to do so. Kenneth N. Waltz, The Spread of Nuclear Weapons: More May Be Better, Adelphi Paper No. 171, International Institute for Strategic Studies, 1981. Hagerty applies this theory to South Asia in "Nuclear Deterrence in South Asia," *op. cit.*

Active and passive ballistic missile defence capabilities have a deterrent value in promoting strategic stability. Ballistic missiles are destabilizing. Because of their short time of flight and trajectories, they deliver weapons without much warning. One way to reduce this instability and to decrease the military and psychological value of ballistic missiles may be to develop ballistic missile defences. Such development may increase the possibility that ballistic missiles will not be acquired or used. On the other hand, the indigenous development or acquisition of ballistic missile defences by one party could lead the other party (parties) to add to its offensive capabilities, thus resulting in further regional instability.

Ballistic Missile-Focussed Regional Measures
To Help Promote Stable Strategic Relationships

The following are some ballistic missile-focussed measures which, if successfully negotiated and implemented, could help promote regional stability.¹² The measures are not listed in any priority order; nor is the potential difficulty of implement each of them addressed, since this is likely to be very regionally- and scenario-dependent. There could be significant synergistic benefits among these measures depending on which ones are successfully implemented.¹³

Each measure will only be briefly described here; proposing and implementing any one in a specific regional context would require considerable elaboration, appropriate to the region and its countries, concerning specific content, negotiating tactics, and implementation strategies. Successful implementation would involve each party's ability to verify effectively compliance with the CBMs/CSBMs.

It should be recognized that in evaluating any CBM/CSBM that there will be tradeoffs between the contribution it makes to enhancing regional stability and the degree to which the security of an individual country is jeopardized by implementing the measure. In order to be

¹² In this paper, these measures will be designated as "confidence-building measures/confidence- and security-building measures (CBMs/CSBMs)" without making a distinction between these terms. In the European context, the first CBMs were introduced with the 1975 Final Act of the Conference on Security and Cooperation in Europe; the goal of these measures was to lessen the risk of surprise military attack by reducing uncertainty and misunderstanding. Under the Madrid Mandate, new measures, more concrete and extensive, were introduced; these measures were identified as CSBMs. In a regional context, the term CBM may be more acceptable; nevertheless, the measures proposed in this paper are sufficiently extensive that it could be argued that they are also CSBMs.

¹³ These potential synergistic effects are not identified in this paper.

convinced that the long-term gains in its security outweighs short-term losses or compromises of sensitive military information, each country will need to perform its own net assessment of its gains and losses.

The acceptability of CBMs/CSBMs will be directly affected by external perceptions, pressures, and incentives. For example, greater cooperation with technologically-advanced nations in space or defence efforts may be an incentive to accept CBMs/CSBMs. Pressures applied, such as economic sanctions, may also lead to acceptance, although hardly with alacrity. In presenting these proposed measures, it will be important to emphasize how their contribution to achieving regional stability will enhance the national security of each nation.

Invitational inspections, observations, and visits. These measures would be designed to increase transparency and thus contribute to regional stability. In all cases, the invited observers would be escorted by personnel of the host country.

- o Invitational inspections of ballistic missile flight test facilities, including launch platforms, impact areas, and range instrumentation. Such inspections would reveal the nature and scope of the ballistic missile test programs, for example, the ranges of the various planned flight tests, without revealing sensitive design and operational data.
- o Invitational observation of actual ballistic missile flight tests to various ranges. Such observations would reveal the ballistic missile size and configuration (number of stages) and its launching procedures without compromising sensitive design information, such as its payload capability, guidance system, and accuracy.
- o Invitational observation of space launches, including an opportunity to determine the nature of the payload. This would reveal the characteristics of the space launch vehicle and the general purpose of the payload, for example, scientific experiments, communications, reconnaissance, etc., without revealing any militarily sensitive information, such as specific communications and reconnaissance capabilities and limitations, and data transmission frequencies and formats.
- o Invitational visits to ballistic missile and space launch vehicle production facilities. These visits would reveal the production capabilities without revealing the numbers actually produced or the sensitive internal features associated with guidance systems, payload arming and fusing, and the true nature of the planned payload. It would be desirable to have periodic visits to assure that the production capabilities have not changed significantly.

Data or Information Exchanges. The exchanges would be designed to provide information which will contribute to confidence and stability in the region.

- o Advance notification of planned ballistic missile flight tests and space vehicle launches, including the location and timing of the launch, the planned trajectory, and impact area for ballistic missiles, the purpose of the flight test and space vehicle launch, and the orbital parameters for the space payload. Such notification would provide some transparency on the programs, clearly indicating their purposes, and facilitate the collection of independent information, further raising confidence in the knowledge of the other party's activities. Sensitive military information concerning the characteristics and performance of the missiles and space vehicles and their payloads would not be revealed by these notifications.
- o Data exchanges regarding ballistic missile ranges and deployment plans, including the numbers of missiles in each range category and their respective deployment areas. Such exchanges would provide some knowledge on the nature and scope of the threat, thus further reducing uncertainties and avoiding the worst case planning which generates further arms races and creates unnecessary instabilities in a region. These exchanges would increase openness without revealing sensitive military operational data and intentions.
- o Exchange of information on defence doctrine and policy related to ballistic missile programs and activities, including future R & D and acquisition plans. These exchanges could include official defence policy statements, doctrines, strategies, white papers, and budgeting data. This type of information should provide useful insights regarding the present and future utility and role of ballistic missiles in the defence planning of each country; this knowledge could help achieve and maintain regional stability. The information exchanged need not contain any truly sensitive military operational planning data.

Agreed limits or bans. Limits or bans on certain ballistic missile activities would be designed to increase transparency concerning the potential threats, and in some cases to actually reduce the likely threats.

- o A ban or limit on ballistic missile flight tests beyond certain agreed ranges. Such bans could preclude achieving militarily effective missiles capable of ranges above the agreed limits. Military leaders are unlikely to accept for operational use a missile that has not been flight tested to the desired range. Limits on the number of tests permitted to certain agreed ranges could inhibit or slow the achievement of fully operational systems. These bans and limits could reduce the scope, pace, and magnitude of the threat.
- o A ban or limit on the encryption of telemetry data from ballistic missile flight tests and space vehicles. The availability of unencrypted telemetry data could permit other countries to determine the characteristics and purpose of the flight test or space launch vehicle, thus contributing to reducing uncertainties

regarding potential threats. However, military leaders may be reluctant to provide such useful information on the characteristics of their systems. Their concerns might be alleviated somewhat by allowing encryption on a limited number of telemetry channels. Similarly, the military may consider it necessary to have one or more encrypted channels from their space craft.

- o A ban on flight testing ballistic missiles with more than one re-entry vehicle. Such a ban could inhibit or prevent the development of ballistic missiles capable of delivering more than one warhead. This could limit the magnitude of the threat, and it would be particularly useful in prohibiting the development of cluster munitions for delivering chemical weapons. Both of these bans could contribute to stability in the region.
- o A ban on the deployment of certain types of ballistic missiles in specific areas, that is, non-deployment or exclusion zones, or limits on the numbers of certain types of ballistic missiles that may be deployed in specific locations. (The limits on numbers would be much more difficult to monitor and thus verify than a complete ban.) Such bans or limits would help define and constrain the potential threats and thus contribute to stability.

Joint exercises and cooperative programs. Joint and cooperative measures provide highly effective elements in reducing suspicions.

- o Conducting joint exercises in the early warning of ballistic missile launches could help reduce the likelihood that such missiles might be used in a time of crisis. In addition, experience in the early detection of ballistic missile launches may permit time to take appropriate responses or protective actions.
- o Cooperation in the exploration of space could contribute to better relations and increased understanding of the other party's activities, particularly if such cooperation included space activities designed to provide greater openness and transparency in the region, for example, photographic satellites which could provide environmental and military information.
- o Cooperative monitoring of the obligations under other CBMs/CSBMs, for example, ballistic missile non-deployment zones, would provide additional assurance of compliance with the obligations.
- o Agreement by all parties in a region to fully abide by the MTCR guidelines regarding space launch vehicles would both facilitate space cooperation and help assure that such cooperation was not contributing to the acquisition of ballistic missile capabilities.

A Regional Example: Measures to Constrain
Ballistic Missile Proliferation in South Asia

Study Assumptions

In testimony before the U.S. Senate on 24 February 1993, then Director of Central Intelligence James Woolsey stated that "the arms race between India and Pakistan poses perhaps the most probable prospect for future use of weapons of mass destruction, including nuclear weapons." In South Asia, India and Pakistan have advanced programs to acquire, either indigenously or with foreign support, weapons of mass destruction and ballistic missile delivery systems. Clearly the situation in South Asia is a matter of regional and international concern.

To analyze this regional case, it has been necessary to make some study assumptions associated with the two countries during the period between 1996 and 2006. These are assumptions, not predictions, and they concern a period of great uncertainty. The assumptions, which set the context in which the region will be discussed, take into account certain geopolitical constraints and realities, however disturbing and/or undesirable.

- o India and Pakistan will remain adversaries, and India will remain deeply suspicious of China's intentions, but no major war will occur in South Asia.
- o India and Pakistan will remain threshold (but undeclared) nuclear powers. They will be unwilling to roll back their nuclear capabilities. Unless they can be persuaded to join the CTBT, they may conduct one or more nuclear tests during this period.
- o Both countries will continue to develop chemical and biological weapons capabilities unless they ratify the Chemical Weapons Convention and there is a strengthened Biological and Toxin Weapons Convention.
- o Weapons of mass destruction (WMD) programs will enjoy strong support from certain sectors of the population of these countries, for example, the military, and broad-based support from the general public.
- o Both countries will possess ballistic missiles capable of delivering WMD and conventional warheads on key military and civilian targets.
- o Neither country will possess effective defences against ballistic missile threats. India has announced that it may purchase the Russian S-300 anti-missile system; this system would provide some defense against tactical ballistic and cruise missiles as well as aircraft.

- o India, and possibly Pakistan, will possess or have access to space launch vehicles for military communications and intelligence purposes.
- o Each country will have good intelligence on the capabilities, but not necessarily the intentions, of the other country. The Indian IRS-IC satellite, with six meters resolution, will provide improved coverage of Pakistani military sites and activities.
- o Suspicions of the other side's motives and intentions will remain high.
- o Domestic policies and dynamics will require at least rhetorical bellicosity and strong indications of military readiness.

Current Conditions in South Asia

Proliferation in South Asia is part of a chain of relationships and rivalries. While seeking to achieve deterrence against China, India tests missiles which threaten Pakistan. Pakistan attempts to create a level playing field against a militarily-stronger and larger India by strengthening its relationship to China. China asserts itself regionally and globally as a self-appointed superpower. India began its nuclear program in the mid-1960s, following its abrupt and crushing defeat in a short border war with China in 1962 and China's first nuclear test in 1964. Both countries continue to deploy troops along their border and tensions remain high. A 1993 agreement to reduce troops and reach a boundary agreement has not yet been implemented. In 1994, intelligence sources reported that China has deployed nuclear missiles in Tibet aimed at India for some time.¹⁴

In addition to China, several other "outside" nations have had a major influence in South Asia since 1947. These outside influences must be taken into account when considering regional stability. During the Cold War, the United States supported Pakistan and the Soviet Union became India's most reliable trading partner and source of military hardware. U.S. assistance to Pakistan was designed to support the containment of the Soviet Union and to bolster Pakistan's capability to resist a possible effort by the Soviet Union to reach the Indian Ocean. When Pakistan used U.S.-supplied weapons during its conflicts with India, the United States interrupted military and economic assistance and gained a reputation in Pakistan as an unreliable ally. The close China-Pakistan relationship which has existed since the mid-1960s is the result of this split in U.S.-Pakistan relations: Pakistan has sought to increase its security by allying itself with China against India.

¹⁴ "Asia's missile race hots [sic] up," Jane's Defence Weekly, 19 February 1994.

Russia's ability to engage India in dialogue has not diminished. Andrey Kokoshin, Russia's first deputy defence minister, has characterized India as "almost the main strategic partner for us militarily, politically, and economically." In his view, military cooperation with India should involve "not only an exchange of personnel and the training of specialists, but also a wide-ranging exchange of views on operational matters, the tactics of using forces and weapons."¹⁵

Recent U.S.-Pakistani relations have not been smooth. Pakistan deeply resents what it sees as a discriminatory U.S. nonproliferation policy against it, as represented by the Pressler Amendment; it claims that the United States and other countries failed to take similar action against India after India's 1974 "peaceful" nuclear explosion. Pakistanis assert that multilateral missile controls and sanctions focus exclusively on import/export behavior and leave unaddressed indigenous ballistic missile development programs, such as India's Prithvi and Agni missiles. If Pakistan were to deploy new nuclear-capable missiles or uncap its fissionable material production program, its relations with many developed countries would surely deteriorate.

The U.S. Congress has taken a number of steps in response to nuclear proliferation in South Asia, including enactment of the Nuclear Nonproliferation Act of 1978. In 1979, U. S. aid was suspended to Pakistan because of Pakistan's covert construction of a uranium enrichment facility. In 1983, when India refused to place all of its nuclear facilities under international inspection, the United States ended a 30-year agreement to supply India, on a commercial basis, with enriched uranium and spare parts for its nuclear power station at Tarapur, near Bombay. In 1985, the Pressler amendment to the Foreign Assistance Act of 1961 required that no assistance be furnished to Pakistan and no military equipment or technology be sold or transferred to Pakistan unless the President certify in writing to Congress that "Pakistan does not possess a nuclear explosive device and that the proposed United States assistance program will reduce significantly the risk that Pakistan will possess a nuclear explosive device."¹⁶

The cool relations between India and the United States improved after the signing of a bilateral agreement providing for consultations between the Pentagon and India's Defence Ministry, joint military exercises, military training, and defence research in January 1995. However, recently the Congress approved a one-time partial waiver of the Pressler sanctions, called the Brown amendment which would permit transfer U.S. military aircraft, missiles and other high-tech armaments to Pakistan. This amendment has led to an acrimonious exchange

¹⁵ Moscow News, 3-9 March 1995; Kommersant Daily, 28 March 1995. Cited by Igor Khripunov in his article, "Conventional Weapons Transfers: U.S.-Russian Cooperation or Rivalry," Comparative Strategy, vol. 14, p. 462.

¹⁶ In October 1990, U.S. President George Bush suspended aid to Pakistan because he was unable to make the necessary certification to the Congress.

between the Pakistani and Indian press, the former claiming that the Indians have been outwitted by the Pakistanis and were suffering a painful, if not humiliating defeat, the Indians asserting that "by tailoring its arguments to fine-tune a strategy of dual containment in South Asia which allows India to remain militarily superior to Pakistan, but not overwhelmingly so, Washington has tacitly allowed an arms race to flourish."¹⁷ It has recently been reported that the Clinton Administration is considering delaying the shipment to Pakistan because of that country's suspected acquisition of sensitive nuclear equipment from China late last year.¹⁸

Recent U.S. measures to counter proliferation in South Asia have centered on blocking Indian and Pakistani access to technology that could be used to develop missiles for delivery of nuclear weapons. In May 1992, the Government imposed a two-year ban on U.S.-licensed exports to the Indian Space Research Organization and the Russian entity Glavkosmos in retaliation for a proposed sale of up to seven Russian rocket engines and related technology to India's satellite launch program. Because the sale was viewed as a violation of the MTCR, Russia agreed in 1993 to supply four cryogenic engines, but to suspend transfer of the technology.¹⁹ One year later, the United States, based on its determination that China had transferred MTCR-controlled technology and equipment to Pakistan with its supply of M-11 missiles, imposed trade sanctions on both countries, banning for two years the export of high technology equipment to one Pakistani and eleven Chinese governmental ministries and aerospace companies.

During the early 1970s, Canada, acting upon its nuclear non-proliferation policy, queried India regarding activities taken by that country related to a CIRUS research reactor which Canada had supplied on condition that it be used solely for peaceful purposes. When India detonated a nuclear explosive device on 18 May 1974, claiming it was solely for peaceful purposes, the Canadian government, which does not distinguish between nuclear weapons and nuclear explosives, suspended its nuclear cooperation program with India. Later India admitted that plutonium produced in the CIRUS reactor by utilizing uranium fuel of non-Canadian origin had been used in the explosive device.

As a result of the Indian nuclear explosion, Canada introduced a much stricter nuclear non-proliferation policy, the main thrust of which was that nuclear cooperation with a non-nuclear weapon state would only be authorized if that state had made a general commitment to non-proliferation by ratifying the NPT or some equivalent binding step and thereby had accepted full-scope IAEA safeguards. Moreover, Canadian nuclear exports can only proceed to states (both nuclear weapon and non-nuclear weapon states) which have undertaken to

¹⁷ Aabha Dixit, "U.S. Exacerbates Arms Race," Defence News, 11-17 December 1995.

¹⁸ R. Jeffrey Smith, "Proliferation Concerns May Delay U.S. Arms Shipment to Pakistan," The Washington Post, 15 February 1996.

¹⁹ It has been reported in the press that Indian space scientists have claimed that their colleagues working in Russia have already obtained drawings of the engines.

accept formally additional requirements designed to minimize the proliferation risk. This policy applies to all countries in the South Asia region as well as elsewhere in the world.²⁰

At various times, the Russian Federation, the United Kingdom, France, Germany, and Japan have undertaken bilateral discussions on nonproliferation and regional security issues with India and Pakistan, urging them to sign the NPT, or at least engage in bilateral regional talks on nuclear issues. In 1991, the United States proposed multilateral discussions--termed "the Five Party" proposal--on regional security and nonproliferation in South Asia. Pakistan, Russia, and China accepted the proposal; India did not, arguing that the scope of the region to be considered did not encompass all the areas of security concern for it and objecting that Chinese strategic forces were left unaddressed. In November 1995, Australia's Deputy Prime Minister Kim Beazley urged India to help lead Australia's crusade for a world free of nuclear weapons.²¹ Recently Canadian Prime Minister Jean Chretien urged India to drop its opposition to the NPT. Concerned countries have also urged India and Pakistan to abide by the MTCR guidelines during bilateral talks.

Efforts to persuade New Delhi to sign the NPT--an "inherently discriminatory" agreement in the eyes of the Indians---have not only failed thus far, but some believe that they have backfired. Two Indian analysts, Deepa Ollapally and Raja Ramanna have complained quite specifically about the United States Government, arguing that it believes, incorrectly in their view, that "India is obstinate about the Nuclear Nonproliferation Treaty, that India is vulnerable to technology-denying efforts, and that it can be equated with its neighbor, Pakistan."²² They claim that India has exercised restraint in its nuclear program, has wider strategic concerns than Pakistan (namely, China), and is impervious to American efforts to limit the transfer of dual-use technologies because of its advanced indigenous capabilities in the space and missile field. The comments of Ollapally and Ramanna are particularly pointed on the subject of the MTCR:

While analysts disagree on the exact extent of the MTCR's impact on India's missile program, its most lasting effect has been to spur greater self-sufficiency, with signs of eventual success. As with its nuclear capability, India has exercised restraint in missile deployment. In many ways it exemplifies India's tendency to have technology "demonstrations" as part of its strategic posture for sending strong signals of its capability without necessarily ratcheting up the arms race. While the United States depicts missiles as inherently destabilizing, it has not convincingly spelled out why they are more so in India's arsenals than in more powerful countries'. Most of

²⁰ Material in this and the preceding paragraph is drawn from "Canada's Nuclear Non-Proliferation Policy." Government of Canada, Ottawa, 1985.

²¹ According to a Reuters report dated 17 November 1995.

²² "U.S.-India Tensions: Misperceptions on Nuclear Proliferation," Foreign Affairs, January/February 1995, p. 13.

India's fall within the range of Chinese and Saudi Arabian CSS-2 missiles. America's enhanced fear of missiles seems to be generated more by Iraq's use of SCUD missiles in the Persian Gulf War than by a considered analysis of India's intent and capability.²³

The effect of the MTCR on India and Pakistan is unquestionably unequal. When the MTCR was announced in 1987, India already had ambitious indigenous ballistic missile and space programs, although it had not tested any surface-to-surface missiles. Since that time, it has developed and tested the Prithvi missile fifteen times, and it has successfully test-fired the Agni missile. Pakistan's efforts to match India's ballistic missile program will most likely be unsuccessful, given the existence of the MTCR and increased emphasis in the West on non-transfer of dual-use technology; however, Pakistan will develop and/or acquire a more advanced ballistic missile capability with assistance from China.

The efforts of the international community to rollback India and Pakistan's nuclear capabilities have thus far been unsuccessful. India has consistently rejected the NPT as discriminatory and called for a global nuclear nonproliferation regime. Pakistan's long-standing, but thus far untested reply is that it will sign the NPT when India signs. The United Nations General Assembly has passed numerous resolutions calling for the establishment of a nuclear-weapons-free zone in South Asia, which Pakistan has long supported. India, however, rejects any regional proposal that does not include a rollback of China's nuclear program. Viewing its nuclear program in the context of the other nuclear powers, Beijing also refuses to be drawn into any such plan.

As Shekhar Gupta has pointed out, the crucial difference between the Indian and Pakistani nuclear and missile programs is that "while Pakistan links its nuclear and missile plans directly with India's, the Indian approach has been to delink its programs from those of Pakistan, underlining its own insecurities vis-a-vis China."²⁴ Gupta also contrasts Pakistan's nuclear program with its "clear weapons objective and orientation" with India's program, "a complex, inter-disciplinary thrust toward peaceful as well as weapons-oriented technologies, combining ambitious nuclear power generation plans with development along other axes."²⁵

²³ "U.S.-India Tensions," p. 17.

²⁴ Shekhar Gupta, "Nuclear Weapons in the Subcontinent," in Defence and Insecurity in Southern Asia: The Conventional and Nuclear Dimensions, Henry L. Stimson Center, May 1995, p. 34.

²⁵ Gupta, p. 36.

Real and Perceived Threats in the View of India and of Pakistan

Although India and Pakistan both deny possession of a nuclear weapons arsenal, both admit they have the capability to produce such weapons. India, which exploded a "peaceful" nuclear device in May 1974, is believed to have sufficient plutonium to produce 75 or more nuclear weapons. Pakistan is thought to have enough enriched uranium for 10-15 nuclear weapons.²⁶ There is little doubt that India has the technological capability required to field a relatively sophisticated range of nuclear weapons that could be air or missile delivered. Pakistan, which achieved an initial nuclear capability at least by 1989, if not earlier, apparently has the capability to assemble a few nuclear weapons quickly, but may have difficulty making them compatible with their ballistic missiles. Both countries have aircraft capable of delivering nuclear weapons.

Russian analysts have stated that India's armed forces are equipped with chemical weapons and with modern means of protection against them.²⁷ They believe that India does not possess offensive biological weapons as yet; however, they point to certain civilian research centers in the field of biotechnology, the nature of the work of which could be used for militarily-applied purposes, primarily in a defensive respect. In regard to Pakistan, their judgment is that while there is no reliable information to indicate the existence of chemical or biological weapons, research of an applied military nature is being conducted in these fields. Pakistan's chemical weapons research program is said to be centered at the Kahuta nuclear complex near Islamabad. In testimony before the U.S. Senate Committee on Governmental Affairs in 1992, then Central Intelligence Agency director Robert Gates stated that both Pakistan and India "have pursued chemical weapons."

Despite international efforts, India and Pakistan continue to pursue ballistic missile programs, both are developing missiles with a deep-strike capability, and each accuses the other of developing missiles to carry nuclear warheads--an accusation both countries strongly deny. The ballistic missiles of greatest concern are the Indian Prithvi and Agni, although reports that India soon may be able to produce a nuclear-capable cruise missile are disquieting as well. Furthermore, India's satellite launch program gives it at least a theoretical ICBM capability, although there is no evidence that India intends to pursue ICBMs at this time.

²⁶ In a RAND report, Brian G. Chow, Richard H. Speier, and Gregory S. Jones estimate that current inventories of weapons-usable material in India and Pakistan are enough for 85 and 13 bombs respectively. They project that by the mid-1990s, India and Pakistan will be able to produce enough fissile material per year for 100 and for 2 bombs respectively. The Proposed Fissile Material Production Cutoff: Next Steps, National Defence Research Institute, Santa Monica, CA, 1995. pp.9, 13.

²⁷ Proliferation Issues. Russian Federation: Foreign Intelligence Service Report. JPRS-TND-93-007. 5 March 1993.

India's Prithvi short-range liquid propellant missile was first publicly displayed in January 1994; thus far, it has been tested fifteen times²⁸. It is expected that the Army will soon deploy its own 150 km version for tactical battlefield support--assuming it is not already deployed. The Indian Air Force will later acquire a 250 km range version with a smaller warhead for airfield attack²⁹.

India claims that it needs new missiles to counter Pakistan's deployment of missiles with longer ranges than any of India's.³⁰ Prithvi gives India a deep strike capability into Pakistan and limited coverage of China. Given its moderate accuracy--for Third World military programs--and relative flexibility based upon its mobility, the Prithvi can be used on the battlefield in many ways. Indian press reports indicate that the Prithvi could be used against relatively static targets, such as troop and armor concentrations and command headquarters. It could also be used against such fixed targets as air bases, munitions factories, harbors, railway stations, nuclear plants, air fields, and industrial facilities such as oil depots.³¹

It is unclear whether New Delhi sees the Prithvi as a likely nuclear delivery system. As the Prithvi missiles will be located within strike range of Pakistani aircraft, making them vulnerable to pre-emptive strikes, New Delhi might choose to arm them only with conventional warheads. Because of this vulnerability, it is also possible that New Delhi will delay open deployment of the Prithvi until times of crisis, choosing instead to store the missiles at rear air or army bases for airlift to the front. When the Prithvi is deployed, it is likely to be along the Punjab and Rajasthan border and along the line of actual control in Jammu and Kashmir.³²

²⁸ The fifteenth test, on 27 January 1996, involved the Prithvi II, with a range of approximately 250 km.

²⁹ A 350 km range Prithvi is also planned.

³⁰ India, as a matter of national pride, refers to the Prithvi as a "advanced medium range" missile. Pakistan's President Farooq Leghari has responded that his country can also produce an indigenous missile to match the Prithvi.

³¹ "Commentary Notes: Features of Prithvi Missile," in FBIS-NES-93-114, from All India Radio General Overseas Service (1010 GMT, June 1993).

³² In the event of hostilities, Pakistan will have to move forces from far away cantonments to the war front. It is believed that Pakistan has only one main artery which runs mostly in the vicinity of the border in Punjab with six major river bridges. Given increased accuracy, India could delay troop movements by attacking these rail/road bridges with the Prithvi missile. These locations are also within the range of medium-range artillery. See Colonel Haroon Rashid, "The Security Imperatives of Pakistan," Defence Journal, vol. 16, nos. 4-5, 1990, p. 10.

The Agni, an intermediate range two or three stage liquid propellant system with a range of 1500 km-2500 km is in the development stage. The Agni missile will be able to hit targets deep inside Pakistan and China. India has had mixed results testing this missile. While the Indian government calls Agni a "technology demonstrator," the late Prime Minister Rajiv Gandhi said that the Agni could help India "safeguard its independence." Gandhi also said that "what Agni does is to afford us the option of developing the ability to deliver non-nuclear weapons with high precision at long ranges."³³ These words were undoubtedly carefully chosen to emphasize the non-nuclear aspect of this weapon delivery system. It appears unlikely, however, that if India develops the technology to mate a nuclear warhead to a ballistic missile, the Agni will stay a non-nuclear missile.

The Indian press has routinely reported that the Agni, unlike the Prithvi, can threaten several significant Chinese targets and industrial centers, such as Chengdu, Lanzhou, and Xi'an, or space launch facilities at Xichang in Siquan province. Agni may also be capable of hitting Beijing if launched from the far eastern state of Arunachal Pradesh.

Other Indian missiles in development or entering service include Trishul, a low altitude short-range surface-to-air missile (SAM) system akin to the Soviet SA-8; Akash, a Patriot-type low to medium altitude SAM system with phased-array radar; and Nag, an anti-tank missile capable of being used from multiple platforms. None of these defensive missiles are likely to possess any significant ballistic missile defence capabilities. Recently the Indian government imposed a stamp of super secrecy on its missile programs, barring its lawmakers from all financial and program information associated with the development efforts.

Pakistan's series of solid propellant short range missiles, Haft-1, -2, and -3, can best be described as rudimentary. The Haft-1, with a range of approximately 80 km, is already deployed, but with an estimated CEP of 1000 meters, it makes a poor weapon. If this accuracy is not improved, the only way this missile will be militarily useful will be to make it nuclear armed, but Pakistan's ability to develop a nuclear warhead small enough to fit within the missile's nosecone is highly questionable. The Haft-2, still being developed but running into obstacles associated with non-availability of components and technologies, may be just as inaccurate as the Haft-1. If Islamabad deploys the Haft-1 or -2, it would need to place them near the border in order to strike Indian targets such as Jammu, Amritsar, Bhatinda, Jullundur, and Bikaner.³⁴ The Haft-3, said to be a variation of the Haft-2, is claimed to be in the process of being developed. There is no known expected operational date.

³³ Gary Milholin, "India's Missiles--With a Little Help from Our Friends," The Bulletin of the Atomic Scientists, vol. 45, (November 1989), p. 31.

³⁴ "Indian Missile and Satellite Build-Up," Defence Journal, vol. XX, nos. 5-6 (1994), p. 39.

Many newspaper accounts have reported that U.S. intelligence agencies have spotted inside Pakistan what appear to be a number of launch vehicles for the Chinese-made M-11 short range solid propellant ballistic missile.³⁵ The estimated range of the M-11 is approximately 300 km. Pakistan has denied the transfer of these missiles. According to Shekhar Gupta, General Aslam Beg has confirmed that Pakistani's nuclear delivery system remains the F-16.³⁶

There would be several motivations for Indian acquisition and use of nuclear weapons on its ballistic missiles: to counter China (a long-term goal), as a hedge against Pakistan's nuclear capability, to resist coercion on the part of other countries, for prestige and internal politics, and as evidence of scientific or technological credibility. Pakistan also has its goals: to counter Indian nuclear capability, to deter or defend against India's conventional capability, for internal political reasons, and for international prestige, particularly in the Islamic World.³⁷

Past Endeavors Aimed at Achieving Strategic Relationships

India and Pakistan have recognized that greater transparency in the defence area can help reduce regional tensions. An Indian-Pakistani Agreement, "Prohibition of Attack on Nuclear Installations and Facilities," was signed in December 1988; instruments of ratification of this Agreement were exchanged in January 1991, and on 1 January 1992, India and Pakistan exchanged the lists of nuclear installations covered under the Agreement. In July 1990, India proposed a package of political, communication, and technical confidence-building measures (CBMs) to Pakistan in an effort to improve their bilateral relationship and to prevent the escalation of tensions.³⁸

³⁵ The Indian press reports Pakistan has received fifty-eight M-11s. U.S. press accounts claim that U.S. intelligence has observed components for thirty M-11 missiles laying in crates at Pakistan's Sargodha Air Force Base. See, for example, R. Jeffrey Smith, "Chinese Missile Launchers Sighted in Pakistan," Washington Post, 6 April 1991.

³⁶ Gupta, p.47.

³⁷ While some Third World countries believe that the West would pay particular attention to an Islamic Bomb, Pakistan's nuclear motivations appear to be nationalistic and not ideological in a religious sense. Pakistan may use its nuclear capability to acquire status in the Islamic world, but it is unlikely that it would use that capability to further any pan-Islamic cause.

³⁸ Much of the material regarding Indian proposals for CBM/CSBMs is drawn from Rakesh Sood, "Confidence Building Measures between India and Her Neighbors," a white paper dated 29 December 1994.

The proposed CBMs provided for information-sharing on military exercises, improving communications among military commanders, joint border patrolling, exchanges of delegations of armed forces; at the political level, the CBMs included reiteration of India's intent to settle disputes through peaceful means and bilateral negotiations, ceasing hostile propaganda, respecting the Line of Control, refraining from acts detrimental to maintenance of peaceful harmonious relations, and non-interference in each other's internal affairs. Since that time, the two countries have signed Agreements entitled, "Advance Notice on Military Exercises, Manoeuvres and Troop Movements," and "Prevention of Air Space Violations and Permitting Overflights and Landings by Military Aircraft"; they have agreed to a "Joint Declaration on Prohibition of Chemical Weapons," which would ban the use, production, and stockpiling of chemical weapons or assisting others to acquire a similar capability; they have established a communication channel ("hotline") between the Directors General for Military Operations; and they have agreed to exchange military visitors. While other proposals have also been discussed, implementation of the agreed measures has not matched the speed of negotiation of agreements. As Rakesh Sood has pointed out, "while India would have preferred a speedier implementation of these CBMs with a view to building upon them, it is clear that by their very nature, the pace of CBMs cannot be forced and must reflect genuine political will on the part of the states concerned."³⁹

Relations between India and China have slowly improved following a goodwill visit to China paid by then Prime Minister Rajiv Gandhi in 1988. Under an "Agreement on Peace and Tranquility along the Line of Actual Control in the India-China Border Areas" signed in September 1993, the countries have agreed to negotiate a series of CBMs, including possible reductions of military forces deployed along the border. Other CBMs agreed upon include meetings of military personnel, development of communication links, and prior notification regarding military exercises. Implementation of these measures has also been slow.

While regional measures must of necessity reflect regional concerns, it is possible that India and Pakistan might find useful lessons in other, recent bilateral/regional arrangements, for example, the positive experiences associated with the negotiation and implementation of the Argentina and Brazil Agreement on the Exclusively Peaceful Uses of Nuclear Energy and the establishment of the Argentinean-Brazilian Agency for Accounting and Control of Nuclear Materials (ABACC). The development, by Argentina, Brazil, and Chile, of the Joint Declaration on the Complete Prohibition of Chemical and Biological Weapons, known as the Mendoza Accord, offers additional lessons. Also of possible South Asian interest might be the development of regional CSBMs formalized in the 1995 "Declaration of Santiago on Confidence- and Security-Building Measures."

³⁹ Rakesh Sood, *op. cit.*

Identification of the Most Feasible, Negotiable, and Effective
Regional CBM/CSBMs Which Could Help Stabilize South Asia

Many arms control and confidence-building measures have been suggested by interested countries as ways to reduce tensions in South Asia. Thus far, despite continued advocacy of joining the NPT, it is generally recognized that neither India nor Pakistan is likely to join in the foreseeable future. While a regional ban on production of fissile materials for weapons purposes appears to be unacceptable, there remains hope that the two nations would join a universally applicable ban. Both countries appear willing to tighten export controls on WMD information or materials to other nations. There is also hope that they will ratify and implement the provisions of the Chemical Weapons Convention in a timely manner. However, international efforts have thus far not succeeded in persuading the two countries to refrain from the planned development and deployment of short- and medium-range nuclear-capable ballistic missiles. Similar limits--on deployment of ballistic missiles with military forces, or a missile-forward deployment exclusion zone--have thus far not been acceptable to the two countries.

While India and Pakistan were co-sponsors, along with other countries, in a United Nations resolution endorsing the "intensive" negotiation of a Comprehensive Nuclear Test Ban Treaty (CTBT), some analysts believe that India will not sign before it conducts some tests because it is "data-poor" in regard to test data for nuclear weapons that would become warheads for ballistic missiles; others think that India's reluctance may be related to the fact that the CTBT is not linked directly to reduction of all nuclear weapons. It has been reported that India and Pakistan have also linked negotiation of a ban on the production of fissile materials for weapons purposes with wider disarmament issues.

Indian opposition to a global INF agreement, or to a regional missile ban, has been apparent. In 1994, following the introduction of the initiative by John Holum, director of the U.S. Arms Control and Disarmament Agency (ACDA) in an interview in Defence News, Raja Mohan wrote a dismissive commentary:

A universal INF Treaty is not really non-discriminatory. Such a treaty would indeed eliminate a whole class of missiles, with ranges between 500 and 5,500 km. But it leaves those countries with the possession of inter-continental missiles with ranges above 5,500 km free to threaten the rest of the world. It also leaves the advanced countries with the option of continuing to build advanced cruise missiles, that have emerged as a powerful weapons system, as seen during the Gulf War. A global INF also leaves the U.S. to press ahead with the development of a new generation of missiles that can shoot down other missiles. In short, a global INF Treaty will be little more than a partial arrangement that leaves all strategic advances with the U.S., while enforcing missile disarmament on the emerging powers. Until New Delhi acquires the ability to deploy intercontinental missiles and cruise missiles, any

international arrangement to abolish medium range missiles such as the Agni must be viewed with caution as it could have the effect of unilaterally disarming India."⁴⁰

In light of this continued resistance to more sweeping accords, a more modest step-by-step ("building block") approach utilizing CBMs/CSBMs could have some merit in achieving regional stability. Rather than pressing for new arms control agreements, encouragement should be given to more systematic, effective, and practical implementation of the CBMs/CSBMs which have already been negotiated between India and Pakistan and between India and China. Development, negotiation, and implementation of additional CBMs/CSBMs related to ballistic missiles should also be encouraged. Revitalization of the CBM/CSBM process should also involve encouragement of mutually agreeable monitoring procedures which would permit the parties to verify compliance with the measures. While effective verification is not a panacea for all regional security problems, it can increase confidence and improve the chances for further negotiations and additional CBMs/CSBMs.

A number of potential CBMs/CSBMs have been proposed in recent years. Encouraging the parties to begin a dialogue on some of the more promising and acceptable of these CBMs/CSBMs certainly would improve regional relations. This encouragement might begin by suggesting certain Measures of Effectiveness (MOEs) against which regional CBMs/CSBMs could be judged. These MOEs might also assist third parties in evaluating which CBMs/CSBMs should be promoted in the region.

The following Measures of Effectiveness might be considered:

- o Do the parties believe that the CBM/CSBM is specifically tailored to address their regional concerns?
- o Will the CBM/CSBM contribute to strategic stability in the view of the parties and of the international community?⁴¹
- o How do the parties view the roles (positive and negative) which could be played by interested countries or other third parties?

⁴⁰ C. Raja Mohan, "Making [the] World Safe for American Missiles," The Hindu, 7 July 1994, p. 13.

⁴¹ Rakesh Sood has suggested that a principle which would have application in negotiating CBMs is "reiteration of accepted norms of behaviour such as those enshrined in the United Nations Charter." "Confidence-building Measures: Regional Application of Agreed Global Principles." Disarmament in the Last Half Century and Its Future Prospects. Disarmament Topical Papers 21. United Nations, 1995.

- o What do the parties believe are the benefits and drawbacks to the CBM/CSBM?
- o Can it be negotiated?
- o Can it be effectively verified?
- o Can it be implemented?
- o Is it cost effective, that is, is the cost of negotiation and implementation consistent with its contribution to strategic stability?

In addition to those already agreed (even if not fully implemented), the following CBMs/CSBMs appear to merit consideration for the South Asian region:

- o Joint drug-interdiction border patrols.
- o Redeployment of troops from the Siachen Glacier.
- o Joint exercises in international peacekeeping operations.
- o Military officer exchange programs.
- o Exchange of defence policy statements and doctrines, which--over time--could be focused on R & D activities, ballistic missile characteristics, and planned ballistic missile flight tests and space launches.
- o Joint exercises in early warning of ballistic missile launches.
- o An agreement not to deploy ballistic missiles with operational military forces, or an agreement to create a missile exclusion zones.
- o A cooperative ballistic missile flight test monitoring experiment.

An explanation of the first three items might be desirable. Rather than beginning with intractable differences in the area of ballistic missile development, production, and deployment, Indian-Pakistani cooperative efforts might be proposed on a non-military issue, for example, cooperation in interdicting cross-border drug smuggling activities. Drug smuggling is unquestionably a regional--and international--security issue. There appear to be few, if any, drawbacks to a measure of this sort; its benefit is the opportunity for joint program-planning, dialogue, and action, permitting representatives of the two countries--including military personnel--to cooperate in a straightforward enforcement endeavor. The

measure appears to be negotiable, implementable, and verifiable without much cost. There should be no security concerns regarding the compromise of sensitive information.⁴²

Instead of tackling the emotionally-charged geopolitical issue of Kashmir, another CBM/CSBM might deal with redeployment of troops from the Siachen Glacier. Agreement to demilitarize the Siachen Glacier would specifically address a sub-regional issue. Redeploying troops and replacing them with unmanned monitoring technologies which could be utilized to verify compliance with the demilitarization would be highly cost effective; the utilization of monitoring technologies would also have the benefit of demonstrating how they can play an important role in verification of bilateral obligations, whatever their nature. It is reported that India has passed a non-paper on this subject to Pakistan.

The third CBM/CSBM stems from a suggestion made by U.S. Secretary of Defence Perry. Perry, noting that India and Pakistan are two of the world's largest contributors to international peace operations, has proposed joint exercises in peacekeeping operations between Indians and Americans and Pakistanis and Americans. He has suggested that these joint exercises, and perhaps a "three-sided exercise" involving the United States, India, and Pakistan, would have the potential to contribute to confidence-building in South Asia.⁴³ Joint exercises, involving the two countries and a third party would permit India and Pakistan to enhance their national prestige through demonstrating their expertise in this area.

During joint exercises in peacekeeping operations, Indian and Pakistani military officers would have an opportunity to exchange views on issues of importance which do not lead to ideological differences. Over time, a military officers exchange program, unrestricted in its topics of discussion, would be a helpful CBM/CSBM.

Exchange of views on the subject of defence policy and military doctrine should continue to be encouraged by interested countries. These exchanges might take place in a variety of ways: during a seminar or workshop sponsored by a facilitating body, such as a Governmental agency or a non-profit center, or during solely Indian-Pakistan dialogues. Countries which are perceived to not have sided with either India or Pakistan may be more persuasive in proposing such exchanges. Dialogue might take place on the subject of each country's view of the threats to its strategic stability and the reasons why that country views ballistic missiles as important in meeting that threat. Over time, as confidence builds,

⁴² Samina Yasmeen and Aabha Dixit have also argued that "India and Pakistan need to move towards nonmilitary CBMs." Their proposed CBMs include: simplification of travel between the two countries, student exchange programs, cooperative ventures between women's organizations, joint programs for rural development, and programs for environmental protection. Confidence-Building Measures in South Asia. Henry L. Stimson Center, Washington, 1995.

⁴³ "Establishing Strong Security Ties with India and Pakistan," op. cit.

these exchanges might lead to data exchanges and declarations on ballistic missile R & D activities, ballistic missile flight test and space launchers, and ballistic missile characteristics. They might even lead to some constraints on the acquisition and deployment of ballistic missiles.

Development of joint exercises involving early warning of ballistic missile launches is a measure now underway between United States and the Russian Federation. Development of similar exercises between India and Pakistan might contribute to regional stability in several ways: it would be an opportunity to participate together in an exercise which enhances strategic stability; it would provide each country with some assurance of its technological ability to detect a launch; if successful, it might deter either country from attempting a ballistic missile attack because of the probability of early detection and the possible advance responses. Third parties could play an important role in developing, promoting, and directing such exercises.

While it is unlikely that the two countries would freeze their missile development and production activities at this point in their rocky relationship, encouragement could be given to a regional agreement not to deploy ballistic missiles with operational military forces, or more generally not to deploy such missiles outside designated production, testing, or storage facilities. This measure does not preclude missile development or production, and thus carries with it some chance for acceptance. The parties would need to declare the locations of the missiles, but the missiles themselves would not be subject to inspection. Verification could consist of a combination of national technical means, unattended sensors at particularly sensitive sites, satellite imagery provided by SPOT or other commercially-available sources, and third-party inspections of the exclusion zone. Remote sensing satellites such as Canada's "Radarsat" could play a role in agreed cooperative monitoring programs.

Cooperative missile flight test monitoring would provide a means to demonstrate to the two parties methods for determining that a missile test launch has occurred. Notification of a planned test launch would be necessary, along with information regarding the type of missile, the expected date of the test, the geographical coordinates of the site of the launcher and the location of the target area. Cooperative monitoring techniques such as tamper-protected IR, acoustic, and seismic sensors near a launch facility could be utilized; data could be remotely transmitted to a jointly-operated monitoring station. Gaining experience in monitoring missile test launches might permit the parties to agree, over time, to a ban on certain ballistic missile flight tests.⁴⁴

⁴⁴ Sandia National Laboratories and the U.S. ACDA have developed provisions for a hypothetical missile monitoring agreement which considers questions the parties would have to address if they were to negotiate a missile non-deployment regime. Lawrence Scheinman, "Ballistic Missile Proliferation." Paper prepared for the Shanghai Initiative, Goa, India, January 1995.

While encouragement of cooperation in the peaceful uses of space may need to be a long-term goal, in the meanwhile India and Pakistan should continue to be asked to abide by MTCR guidelines regarding space launch vehicles. Accepting the guidelines may be an easier path to pursue than accepting the notion that the MTCR is "non discriminatory," if what Indian commentators have said is representative of the view of the Government as a whole. For example, A.P. Venkateswaran has argued that it is the payload, not the delivery system that is destabilizing. "If a global ban on the development, testing, manufacture and deployment of nuclear weapons applicable to all nations is achieved, a separate treaty on carriers. . . would be unnecessary. Then the fangs have been removed, no cobra is deadly."⁴⁵

A key factor during a period in which regional relations are at a low ebb is the development of both official and unofficial exchanges and visits to and from interested countries. Indian and Pakistani experts and policy-makers should be invited to official conferences and workshops on a variety of topics by international organizations. Discussion with representatives of countries which have achieved nuclear and missile capability rollback, for example, Argentina, Brazil, and South Africa, could offer opportunities to learn many lessons.⁴⁶

Experts from India and Pakistan should also be encouraged to meet with each other, with no international involvement. Efforts to force practical results from these meetings should be avoided; at this point in their troubled relationship, India and Pakistan need to exchange views and ideas as much as official pieces of paper. Ultimately, however, the best exchange would be a summit between the leaders of the two countries.

Implementation of CBMs/CSBMs

South Asia's problems must be addressed and resolved, first of all, by the South Asians. India and Pakistan need to be encouraged to take more initiative in proposing, negotiating, and implementing, step-by-step CBMs/CSBMs--however modest to the outside world--which provide meaningful solutions to their regional issues, ultimately they must accept and act upon the measures. The two countries should also be encouraged to take

⁴⁵ "Remarks on Ballistic Missile 'Proliferation.' A. P. Venkateswaran, Indian Centre for Policy Research. Undated white paper.

⁴⁶ It was recently reported that Brazil and India signed a treaty involving the use of radioactive thorium as a nuclear fuel. Brazil has the largest reserves of thorium in the world, but the mineral is not used in the country. The two nations also signed other pacts covering commercial cooperation, a common agenda on environment, and the peaceful uses of nuclear energy and science and technology.

unilateral actions, based on the country's cost-benefit analysis, which could lead to reciprocal activities on the part of the other country. These actions or measures should be placed in the context of enhancing each country's regional and world-wide image as a progressive nation and a "role model" for other, lesser developed countries.

Interested countries must avoid the perception problems that complicate their efforts to resolve regional differences, including those in South Asia. These countries must recognize that there is deep-rooted suspicion concerning the intentions of "outsiders" that complicates any effort, no matter how well intentioned. A Pakistani military officer once noted that the term "arms control" had a negative connotation in South Asia, that it was seen by South Asians as efforts on the part of outsiders to "control" or "eliminate" Pakistani weapons programs. He preferred "arms management."⁴⁷ Moreover, countries or other third parties which make an effort to resolve a contentious bilateral issue must not allow themselves to be placed in the role of "siding"--whether actually siding on giving the impression of siding--with one nation or the other.

China, because it is a key player in South Asian security concerns, should be encouraged to recognize openly the extent to which its strained relations with India and its friendly relations with Pakistan complicate the security environment. China should be encouraged, along with the South Asian countries, to sign the CTBT and the fissile material production cut-off agreement.

If asked and agreed by the two parties, concerned countries should be prepared to assist in the regional problem-solving process. India and Pakistan will not respond well to suggestions that they need to be restrained by the international community, and most particularly by the P-5. Indeed, as many have suggested, India is infuriated by the suggestion that it be asked to forego nuclear testing while China continues to test, that it be expected to accept the comprehensive test ban treaty as a nuclear "have-not," and that the CTBT is not linked to the long-time Indian demand for a timetable for elimination of all nuclear arms. Diplomatic initiatives should continue to be made to encourage India and Pakistan to become parties to "global" arms control agreements on the grounds that they are part of the process leading to reductions in WMD.

Member countries of the MTCR regime, if their relations with India and Pakistan have been cordial, can be particularly helpful in supporting efforts at confidence-building or control of ballistic missiles because they will not appear to be publicly criticizing the two nations for "incorrect" behavior. New MTCR members, in particular Argentina, Brazil, and South Africa which have had experience with rollback of nuclear capability, could be helpful in this regard.

⁴⁷ This statement was quoted in a speech by Caroline R. Russell, Foreign Affairs Officer, U.S. Arms Control and Disarmament Agency. "Regional Arms Control: Prospects for South Asia," Columbia University, 3 March 1995.

Despite the perceptual problems, the role of interested third parties in promoting regional security should not be underestimated. One of the oldest formal agreements between India and Pakistan, the Indus Water Treaty, was negotiated and signed on 19 September 1960 after agreed-upon mediation by a third party, the International Bank for Reconstruction and Development (IBRD). Current diplomatic efforts to limit development of WMD and to discourage ballistic missile development, acquisition, and deployment should be continued. A consistent point of view by many countries on the subject of nonproliferation, including support for all the existing and proposed nonproliferation measures and restrictions, will contribute to globalizing a norm against ballistic missile proliferation.

Interested countries, regional organizations, and international institutions could play an important role in increasing the number of activities (governmental- and privately-sponsored seminars, conferences, workshops) in which representatives of India and Pakistan participate in discussions of the concept of transparency, the role of transparency measures, and the development of verifiable CBMs/CSBMs. Representatives of concerned, neutral countries and international organizations, such as the United Nations, can provide encouragement in the form of discussion of their positive experiences in the field of confidence-building. Discussion, even debate, of increased transparency measures in regard to South Asian nuclear and ballistic missile programs should be encouraged and fostered.

Invitations to cooperative monitoring experiments would provide India, Pakistan, and even China with demonstrations on how a regional cooperative monitoring center could function, and how it could assist in defusing potential crises.

Summary


Addressing regional instability is critically important for international peace and stability. Among the many causes of regional instability, the proliferation of ballistic missiles capable of delivering conventional and WMD warheads on both military and civilian targets is one of the most destabilizing events in recent years.

Regional security in South Asia has been directly affected by the tensions which dominate the political and military relations between India and Pakistan. Ironically, both countries have similar security concerns: both countries are concerned about a larger neighbor. As U.S. Secretary of Defence Perry has pointed out: "Pakistan believes that it needs its nuclear program as a deterrent not only to India's nuclear capability, but also to India's conventional superiority. . . . India wants to retain its nuclear capability to deter the Chinese military, which is superior to India's both in nuclear and conventional capability."⁴⁸ National prestige is also a strong motivation for the development of nuclear capability and

⁴⁸ "Establishing Strong Security Ties with India and Pakistan," op. cit.

the acquisition of ballistic missiles. Pre-emptive use of nuclear weapons on sophisticated delivery means cannot be ruled out in the next ten years.

While sweeping arms control proposals are unlikely to stem this proliferation and solve regional stability problems, "Regional Threat Reduction," that is, diplomatic assistance in reducing regional threats, would be a significant means of reducing regional instability. The efforts which other countries might encourage involve a step-by-step, or building block, approach, involving increasingly more comprehensive CBMs/CSBMs, much in the way that the Stockholm Agreement led over time to the Vienna Documents. This approach, utilizing selected CBMs/CSBMs which could be acceptable to India and Pakistan, may be the best means for enhancing stability in South Asia.

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