

Arms Control And Ballistic Missile Defence In The Post-Cold War

Strategic Environment: Implications for Canada

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This paper builds on the idea expressed in the Conference of Defence Associations' 1999 *Strategic Assessment: Canada's Response to the New Challenges of International Security*, that a fundamental shift in the framework of international relations in the post-Cold War era has brought about a set of circumstances in which instability and threats to regional security virtually anywhere in the world may have ramifications for all states in the global economy. Two other key aspects that the Strategic Assessment mentions but does not explore in any detail are also examined. The first of these is the growing importance of outer space as a strategic environment and the reliance of modern militaries on space based technologies for their operational capabilities. The second is the need for Canada to respond positively to American initiatives in the area of ballistic missile defence (BMD), in order to ensure that we remain an active and valued partner in mutual defence and security organizations such as NATO and NORAD. In fact, this paper will demonstrate how Canadian defence and security interests rest on an association between the effects of globalization, strategic space systems, and BMD.

The changes in the international strategic environment introduced by the dissolution of the Soviet Union and conclusion of the Cold War have given rise to the question of whether or not a need exists for the deployment of a North American ballistic missile defence capability. A new threat, which BMD systems can help to address, is emerging. The threat relates to the growing dependence of advanced industrial states on space based systems for their environmental, economic, and military security. Dependence on such systems causes developed states to be vulnerable to asymmetrical attack by so called "rogue" states as well as a variety of sub-state actors. The problem is made particularly acute by the continued proliferation of ballistic missile technology, nuclear weapons technology and fissile materials in the post-Cold War era. In so far as this emerging threat has not yet been popularly identified in the strategic studies literature, it may seem to be only a remote concern at the present time. However, as the level of dependence on space based systems by advanced states and the problem of proliferation continue to grow, the need to address this threat will continue to grow exponentially.

This paper discusses the specific nature of the emerging threat and examines a United States Space Command (USSPACECOM) proposal for addressing it. An assessment of a change in the role that arms control has to play in the post-Cold War era establishes the foundation for a discussion of how, rather than contributing to international security, the constraints imposed by the 1972 Anti-Ballistic Missile (ABM) Treaty represent a severe hindrance to the ability of BMD systems to address adequately the emerging threat. This analysis is founded on the Clausewitzian principle that, while the character of conflict may change from one historical era to the next; the fundamental nature of war as a political instrument does not change.

The Post-Cold War Rationale for Ballistic Missile Defence

The political and technological changes that have occurred since the end of the Cold War have dramatically altered the context of the international security environment. Some might argue that with the dissolution of the Soviet Union and the commitment of the U.S. and Russia to cooperative engagement and various confidence building measures, the U.S. and its allies no longer face a credible nuclear threat. However, certain other changes have occurred that also need to be considered.

The debate over the development and deployment of missile defence systems is an old one, dating back to early concerns about a need to defend against the German V-2 rocket. Since the end of the Cold War the debate has not waned. In fact, one might argue that the 1991 Gulf War, which coincided with the collapse of the Soviet Union, reinvigorated the debate. The media attention that was paid to Iraq's Scud attacks on Saudi Arabia and Israel and the use of the Patriot anti-missile system introduced the concept of ballistic missile defence to a generation that was largely unfamiliar with it. More recent tests of Taepo-Dong I missiles, and threatened development of Taepo-Dong II missiles, by North Korea and the completion of nuclear weapon tests by India and Pakistan have helped to bolster the arguments of those who are in favour of BMD development and deployment. The effect of these instances of documented weapons proliferation in generating support for BMD may also be further reinforced by the recent defeat of the Comprehensive Test Ban Treaty (CTBT) ratification in the United States. In the coming years the evolution of existing missile defence systems and the development of new technologies will begin to test the boundaries for development and deployment established by the ABM Treaty. When this happens, policy makers will be faced with the difficult decision of either revising or abrogating a long standing arms control regime, and perhaps redefining arms control itself, or devising a rationalization for not taking adequate steps to address a real threat to international security.

The post-Cold War debate over BMD is somewhat different than the debates over ABM and SDI that occurred during the Cold War. Both of the earlier debates revolved around a single type of weapon system whose primary purpose was to defend against a strategic ballistic missile attack against the United States of America. The question of the impact of deployment on strategic stability and nuclear deterrence also weighed heavily in these debates. Ultimately, arms control in the form of the 1972 Anti-Ballistic Missile Treaty was used as a means not to prevent BMD deployment, but rather to place constraints on its deployment so that a limited defensive capability could be achieved without compromising the delicate strategic balance between the U.S. and the Soviet Union.

In the current context, however, two distinct types of missile defense systems have been tabled for development in the United States. The first, and least controversial, is theatre missile defence (TMD). The second is referred to as national missile defence (NMD). Both of these will be discussed in greater detail below. For the purposes of this analysis, the debate surrounding national missile defence is the most pertinent as it relates more closely to the implications of the ABM Treaty in the Post-Cold War era. Another important distinction about the current debate is the significant role that BMD systems may play in the defence of the space-based interests of the United States and its allies. The broader implications of this role for the preservation of the international system in the post-Cold War era have a direct bearing on Canada's national interests and will also be discussed later in this paper.

Distinguishing Between TMD and NMD

As was mentioned above, the two broad concepts that are prevalent in the current BMD literature are TMD, and NMD. Before a coherent discussion on the topic is possible, the distinction between the two must be made clear. TMD refers to a missile defense system with a limited defensive footprint, or area of defendability. The range of a TMD system is limited to between ten kilometers and a few hundred kilometers. This is due, in part, to the range limitations inherent in certain types of interceptors, but also due to the capacities of ground based radar (GBR) guidance and tracking systems, which are currently used in TMD systems. NMD systems, as the name implies, possess a much larger area of defendability. These are achieved by better performance capabilities of interceptors, or kill vehicles, and may be significantly enhanced by the deployment of space-based tracking and guidance systems in the near future.

A great deal of debate surrounds the deployment of BMD systems, particularly those capable of providing an NMD, because the technology required to make these systems effective could compromise the 1972 Anti-Ballistic Missile (ABM) treaty signed between the Soviet Union and the United States. An attempt was made to address some of these problems by the Missile Defense Act of 1991, which tried to clarify some of the technical issues relating to the testing and development of interceptors. While the ABM treaty was drawn up in the Cold War and reflects the security concerns of that environment, contemporary security threats bear very little resemblance to those of the Cold War. Some agreement has been reached between Moscow and Washington that missile defense may be a worthwhile pursuit, and that the ABM treaty may have to be reviewed in the future. Nonetheless, the two countries have been unable to reach a consensus regarding deeper Treaty amendments that would allow for the development and deployment of more robust NMD systems.

In 1997 the Ballistic Missile Defense Organization (BMDO) submitted a budget proposal to Congress for FY 1997-99 in which spending on missile defense research, development, testing, and evaluation (R&DTE) would exceed \$5.3 billion. Of those resources, approximately thirty-one percent, or \$1.7 billion, were allocated to NMD systems. The BMDO budget proposal for FY 1998-2000 is even more ambitious. The new budget calls for slightly over \$10.2 billion for missile defence R&DTE, with a little less than \$2.9 billion dedicated to NMD. In January 1999, Secretary of Defence William Cohen announced that the Defence Department would be allocating even more funds to TMD and NMD in an effort to meet growing ballistic missile threats. The Cohen budget announcement called for an increase in spending of \$6.6 billion to NMD, bringing the total NMD commitment to \$10.5 billion through FY 2005. Thus, barring a dramatic change in policy from an incoming administration, funding for NMD throughout the next couple of years will continue to account for roughly one-third of the total BMD budget. The remainder of the funds will go towards the development and procurement of TMD systems, several of which are currently under development.

The concept of boost phase intercept (BPI) is an extremely important one to understand when considering various missile defence capabilities. BPI was first developed in 1958 with the United States Airforce's Project Defender. Early work made it clear that the use of a ground based interceptor (GBI) was simply not a realistic option for intercept during the boost phase of ballistic missile flight, due to the fact that the it only lasts for between three and six minutes.

Unless a GBI is located near the ballistic missile launch site the window of opportunity for BPI is not great enough to allow for detection, tracking, target designation, and intercept.

BPI is regarded as a highly attractive option within missile defense for at least three reasons. First, a ballistic missile still in its boost phase has not yet burned up all of its fuel and is very vulnerable to destruction. Second, the enemy will suffer any nuclear, biological, or chemical fallout caused by the destruction of a missile in its boost phase. Third, BPI guarantees that a missile is destroyed before it has the opportunity either to detonate its warhead in outer space, or to disperse its MIRVs.

The potentially enormous defensive footprint of an airborne BPI system dictates that one could effectively serve as a substantial component of a national missile defense system. As has already been indicated, NMD is distinct from TMD in its ability to defend a larger territory against ballistic missile attack. Technologically, at its base level NMD will incorporate elements such as GBIs, GBR, an early warning satellite system known as the Space-Based Infrared System (SBIRS) High, advanced early warning radars, Forward-Based X-Band Radars (FBXBs), and Battle Management/Command, Control, and Communications (BM/C³). A second level of development would incorporate other radar systems and a lower orbit SBIRS system, also known as "Brilliant Eyes," or the Space and Missile Tracking System (SMTS), to facilitate detection and tracking functions. Brilliant Eyes is a space and missile tracking system designed to detect ballistic missile launch and track incoming warheads before they can be detected by GBR. The system is composed of twenty-four satellites in low earth orbit (LEO), which are responsible for target discrimination and the cueing of GBRs. The greatest challenge to NMD in this respect is the integration of the various interceptor and detection systems into a single, efficient BMD system that does not violate the ABM treaty.

The conventional argument against continued R&DTE on NMD is that, although a bona fide need exists for TMD in the current context, the costs which proponents of NMD associate with its development and deployment are disproportionately greater than the threat which it is intended to counter at the present. The policy of the Clinton administration on NMD seems to be sensitive to this criticism. The 1998-99 budget allocation for NMD was scheduled to be about \$963 million. This funding is intended to continue research into the feasibility and systems requirements of NMD so that should a legitimate threat to US security emerge, a more intensive development and procurement plan can be undertaken. Moreover, the threat that the current NMD program is intended to address is that of a limited strategic ballistic missile attack against the U.S., rather than a massive assault as some models of the Strategic Defense Initiative (SDI) were based on.

In spite of persistent failures and high costs there are those who strongly advocate continued investment in the development of BMD systems. In fact, one can almost see the same public debate emerging over TMD and NMD today as occurred over ABM and SDI in the past. An editorial in the Wall Street Journal on 5 January 1999 came out strongly in favour of "a commitment to actually test, build, and deploy" a national defence capability in spite of recurrent problems with the Theatre High Altitude Area Defence (THAAD) program. Conversely, Lt. General Lester Lyles was quoted in the Washington Post as saying,

[w]hen we started all of these missile defence programs, they were done from a valid sense of urgency, but one thing that was not really factored into them was how to try to control the costs up front...Now we're beginning to see that we're going to have a huge, huge bill in the future for missile defence, and they may not be all affordable.

For the most part the arguments have remained the same. Proponents want to field systems to address a perceived threat or vulnerability, and opponents seek to marginalize the threat, cite exorbitant developmental costs, and warn of resultant instability.

Ballistic Missile Defence and the Protection of Critical Space Systems

One could argue that a reliance on space and space-based technology represents a common interest among advanced industrial states by virtue of the mutual vulnerability that emerges from the integration of these systems. As a prominent member of the international community and a world leader in several technological fields, including telecommunications and earth observation science, Canada can certainly be numbered among these nations. The common interests that are created in this way go beyond the simple bilateral interest in war avoidance that characterized the Cold War, by including all states that rely on space based systems for economic and security needs. Thus, by accounting for the effects of globalism and the importance of multilateralism, this position is highly reflective of the realities of the Post Cold War period. This of course is opposed to the ABM Treaty, which, in spite of being revised to include former Soviet Republics, is still an agreement drawn up to address security concerns in a largely bilateral conflict. Until recently outer space has not been a medium in which large scale interests of corporations and nation states have existed concurrently. However, in the current context, the global economy, and by extension international relations, are being affected at an unprecedented level by space technology.

The United States Space Command recently published its "Long-Range Plan: Implementing USSPACECOM Vision for 2020" (LRP 2020). The plan is meant to compliment the Joint Vision 2010 (JV 2010) pamphlet published by the U.S. DoD, which outlines defence department initiatives to ensure that full integration of U.S. forces is achieved by 2010. This initiative is essentially a response to the emphasis on a doctrine of joint force, which seems to have emerged since the American invasion of Grenada and the passing of the Goldwater-Nichols Department of Defense Reorganization Act of 1986.

LRP 2020 is a document that describes U.S. Space Command's plan for ensuring that all of the systems under its control will be able to function smoothly in joint force operations, and in fact to assist in the command and control of those operations. One of the most interesting issues raised in LRP 2020 is that the cost of accessing space is too prohibitive for the military to remain predominant in that field. The plan proposes that the rapid commercialization of space be allowed to continue, and that Global Partnerships be established in order to ensure that the cost of space operations remain reasonable. The plan rationalizes that, as a result of this strategy, the U.S. economy will be tightly linked to space and so must be protected. It certainly does not require a huge leap in logic to suggest that, as America's largest trading partner and closest ally, Canada has a significant interest in staying as close as possible to the leading edge of US initiatives in this area.

LRP 2020 is based on an assumption of what six aspects of the future strategic environment will look like. These aspects account for political, economic, technological, military, space, and foreign threat considerations. Given the relevance of these assumptions about the future strategic environment, and their concomitant implications for the role of BMD, and therefore, by extension, the status of the ABM Treaty, it is worth examining them in a little detail.

The plan assumes first and foremost that the United States will remain a global power and that no significant military threat will emerge in the near term. However, it does warn that non-state actors including drug cartels, crime syndicates, terrorists, NGOs, and multinational corporations, will all play more important roles in the conduct and outcome of international relations. It is also assumed that resort will be made to temporary alliances more frequently as a means of dealing with whatever international crises may emerge.

Economically, the plan anticipates a world economy that is increasingly dependent on information and information processing. In this respect the economic future envisaged by LRP 2020 resembles very closely that outlined by Davis, who describes a shift in the emphasis of the global economy from an industrial based to an information based infrastructure. The significance of such a shift lay in the increasing importance of the telecommunications and satellite industries to the strength and stability of the international economy. The result of this reliance on information will be that other nations, and MNCs will begin to rival the U.S. in economic power. With the appearance of larger and larger economic alliances and the growth in the wealth of MNCs, the gap between the "haves" and "have-nots" will increase dramatically.

LRP 2020 is based on a concept of the future in which commercial interests will drive technological breakthroughs, particularly in space and related technologies. Advances will lead to increased information "connectivity," enabling more and more people to take advantage of the benefits of market expansion. The rapid acceleration of technological development is expected to have an impact on strategic as well as economic matters, necessitating a new emphasis on stealth technology in order to help preserve the combat life expectancy of costly weapons systems.

The military future envisaged by LRP 2020 is one in which the U.S. will be the only power with a substantial force projection capability. U.S. force structure will be based on a concept of massed effects rather than mass forces. This shift requires an increase of the lethality of weapons systems and flexibility of their platforms. The most probable source of vulnerability to U.S. forces will be from asymmetrical attack, most likely manifesting itself in a precision attack on the information systems network required to coordinate the activities of high-tech militaries. The U.S. will have to be able to function effectively in a coalition type arrangement, but should also retain the ability to carry out unilateral actions. Clearly, in order to ensure a joint capability for US and Canadian forces in a coalition environment, and to minimize the potential negative side effects of unilateral US actions, it is in the best interest of Canada to ensure that our economic as well as our security and defence doctrines remain compatible with those of the US.

LRP 2020 also prepares for a future in which space will be dominated by multinational commercial interests rather than by American and Russian military interests, and space capabilities will proliferate globally. The global economy will be integrally linked to space commerce, just as battlefield success will be linked to the control of space. The result of this

phenomenon will be a convergence of the military and commercial space sectors. Issues of sovereignty and the right to access space will become primary concerns in international relations, thus making space operations increasingly important to society at large.

It is certainly worth noting that Canada's long history as a leader in space science and advanced technology puts it in a unique position to be a prominent member of such a global economy. The launch of the Alouette 1 satellite in 1962, only five years after Sputnik 1 reached orbit, made Canada the third country in the world to design and build its own satellite. Then, in 1972, Anik A1 made Canada the first country to place in to orbit its own commercial geostationary communications satellite network. This accomplishment was followed by the launch of the Hermes satellite in 1976, which made Canada the first country to have its own direct home TV satellite. More recent accomplishments include the development of the world famous RADARSAT, which was launched in 1995, and in 1997 created the first complete map of Antarctica. Today the Canadian space industry boasts an export ratio of approximately thirty-percent, currently the highest in the world, with sixty percent of Canadian Space Agency funds being directed towards communications projects.

Most importantly for the purposes of this paper, LRP 2020 also calls attention for the

need to protect U.S. and friendly systems from attack by foreign threats. Threats can range from signals interception to jamming to destruction. Space power can not be of any use to the warfighter if it can not defend itself from attack. It seems clear that a role for missile defence in protecting space-based assets in particular and the stability of the international system in general exists. It is equally clear that if Canada expects to retain, or perhaps to regain, its status as a valued ally capable of making a useful contribution to a security partnership, we must acknowledge the need to re-examine the role of the ABM Treaty in the current international security environment. Before one can discuss ABM Treaty implications for the emerging role of missile defence systems, it is necessary first to understand what that role may be.

The foundation of LRP 2020's strategy for developing twenty-first century space power doctrine is based on four operational concepts. These form the conceptual infrastructure around which the doctrine of space power will be built, and help to determine how it will be applied to safeguard American interests. The four operational concepts introduced by LRP 2020 are Control of Space, Global Engagement, Full Force Integration, and Global Partnerships.

Control of Space (CoS), as an operational concept, is concerned with ensuring access to space as a means of supporting other military operations, as well as denying the same access to adversaries in time of war. The goal is to be able to maintain and replenish satellite constellations at will in order to maintain Dominant Battlefield Awareness (DBA) in space and on earth. By doing this it will be possible to detect, track, and neutralize threats to those systems and ensure freedom of operations in space, thus facilitating Global Engagement (GE).

GE is defined as global surveillance, global missile defence, and the application of force from space. The goal of GE is to develop the ability to respond to any crisis around the world at any time. Global surveillance is a necessary element, which will allow for the detection of significant incidents such as missile launches world wide, and facilitate faster deployment times. In addition

to being able to detect ballistic missile launch and other signs of conflict, global surveillance is also intended to provide an enhanced level of support to other military operations in near real time. Part of the crisis response mandate of GE is the detection, tracking, and destruction of ballistic missiles. The threat posed by ballistic missiles is not limited to targets on earth. Some classes of ballistic missiles may be used in an anti-satellite role, especially when armed with a nuclear warhead. In fact, Salkeld has suggested systems in near earth orbit are extremely vulnerable to ballistic missile attack. He attributes this vulnerability in large part to the fact that the destructive power of nuclear weapons detonated outside the earth's atmosphere may increase by as much as a factor of ten. By being able to counter this threat GE works in support of CoS, just as CoS enables the freedom of operation required by GE. A final aspect of GE has been dubbed force application. This refers to the ability to apply force from space based weapons platforms in terrestrial combat. Initial emphasis on force application seems to be on its potential as a strategic weapon.

Full Force Integration is an operation concept that represents the union of space derived information and space-based forces with those from the land, sea and air. As Davis has suggested, the current revolution in military affairs is centered on the refinement of command and control systems. In essence FFI represents an effort to ensure that the right resources are made available for the right mission at the right time. This will be accomplished by the integration of information at a Joint Task Force Headquarters and the efficient dissemination of that information to warfighters in the field.

The fourth operational concept utilized by LRP 2020 is Global Partnerships (GP). The concept of GP is designed to encourage cost sharing between the military and other organizations. The intended effect is to increase overall U.S. military capabilities, while simultaneously reducing the military's share of the cost of space operations. GP is seen as a necessary step in procuring the resources necessary to support CoS, GE, and FFI. It may also represent a substantial opportunity for promoting joint US-Canadian operations in space and other related technological fields.

The vulnerability of space-based systems on which the U.S. and its allies are dependent is a very real concern to the United States Government. As such, the operationalization of concepts such as CoS and GE is a question of "when" rather than "if." Given that missile defence is an important part of the Global Engagement concept, it seems clear that the deployment of advanced missile defence systems, based either in whole or in part in space, are virtually inevitable. The inevitability of the deployment of some kind of advanced BMD system is also attested to by the substantial investment commitment that the U.S. government has made to various BMD programs. Consequently the ABM Treaty appears to be reaching the end of its life expectancy. In order for systems envisaged by LRP 2020 to be deployed, certain restrictions imposed by the Treaty would have to be lifted. Specifically those restrictions which limit or prevent the deployment of space-based interceptors and interceptors based on other physical principles will have to be revised or dropped. By responding positively to this need the Government of Canada could seize the opportunity to put itself at the forefront of the intellectual movement that will redefine arms control and reshape the structure of international security in the Post-Cold war era.

The Changing Character of the International Security Environment

One of the most important facts that was demonstrated in the Gulf War is that there is a need to develop a sensible doctrine of space power that will serve to manage the enormous amounts of data collected by space based information systems. Without such a doctrine, the information collected by these systems will be of little or no use to the war fighter and space power would become rather hollow. Davis has described this as the information revolution, which he attributes to advances in computer and telecommunications technologies and other related innovations. At the heart of this revolution is the development of the ability to collect, analyze, and use more data than has ever been possible in the past. The implications are the ability to acquire an extremely high degree of situational awareness. In military and strategic terms this means the ability to mobilize resources and establish a presence in theatre, cut through the fog of war, anticipate and avert disaster, and take advantage of opportunities as they present themselves. In business terms it means the ability to access previously inaccessible markets (resource mobilization), respond quickly to market fluctuations (the fog of commerce), anticipate and avert disaster, and take advantage of opportunities as they present themselves.

Davis cites three important characteristics of this information revolution that mark the transition from an industrial to an information-based society. The first is that it has set in motion forces that challenge the design of many institutions, including the military. The second is that it disrupts the hierarchies around which institutions are designed. The third is that it diffuses and redistributes power. The result of the revolution is a change in the very nature of the global economy. As Davis says, there has been a shift from an industrial base to an information base underlying global economics and international politics. Just as sea power and air power developed in a period in which industrialization brought profound changes to the way in which commerce was carried out, today space power is developing in the face of profound changes brought about by the information revolution.

Davis proposes that the apparent air of ambiguity that has characterized the global security context in the post-Cold War era parallels the transition to an information based society. Thus an apparent paradox has been created whereby an increase in information and the importance of communications is not necessarily consistent with an increase in knowledge and awareness. Instead, the shift to an information based society merely facilitates the pursuit of individual interests, while frustrating attempts to understand or conceptualize the international system holistically. By taking advantage of communications and information technology smaller organizations and individuals have been able to reach out and claim larger shares of the global market place for themselves. However, as the cost of technology increases, consortia begin to emerge, which are composed of different sized organizations all with different levels of influence, but all equally interdependent. The world of international trade and economy is no longer one in which highly structured corporations with clearly discernible links to national governments dominate. As Davis says, the current international environment more closely resembles an "amorphous mass" of divergent actors interconnected in a sophisticated network in which the primacy of national governments is less clearly demonstrated. The increased level of connectivity of individuals and organizations with each other, and with the market itself, means that now more than ever, popular ideas of how information and space technology can best be applied are influencing their development.

The parallel in the world of defence and security appears in the collapse of strategic, operational, and tactical levels of thought and action. The difficulty in pin-pointing a specific threat makes it difficult to adopt operational doctrines and structure forces in a manner that provides a meaningful defence of national interests. It is the very shapelessness of the global economy and the intermingling of corporate and national interests that creates this confusion. The age of sustained diplomatic crises between individual states may have already moved into the realm of the historian. Davis argues that in the future the U.S. will be involved in distant conflicts, which do not pose an immediate threat to national survivability. Instead it will be drawn into conflicts where the fabric of the international system and its values are threatened. Both the Gulf War in 1991 and more recent NATO operations in the Balkans may support this theory.

Post-Cold War Missile Defence and the ABM Treaty

The debate over BMD in the post-Cold War era stems directly from the debate surrounding SDI during the Cold War. Given the impact of the ABM treaty on both of these debates, it is necessary to understand the respective motives of the superpowers for signing on. For the Americans, missile defense was used largely as leverage to enter into an arms control agreement with the USSR. Arms control was deemed necessary because it was believed that it would facilitate détente and promote Soviet-American stability. The Soviet Union signed on to SALT I and the ABM treaty not because it viewed missile defense and weapons proliferation as destabilizing factors *per se*, but because it could not indefinitely out-produce the US in any kind of a strategic arms race.

In 1972 it was becoming increasingly apparent that US ability to develop and deploy MIRV technology and ABM systems, could easily surpass that of the Soviet Union in the near future. This may best be attested by the American's one-day deployment of Safeguard, a system that took billions of dollars and years of research to develop and deploy. The inability of the Soviets to compete toe-to-toe with the US in weapons development persisted well into the 1980s. Indeed, the Soviet Union's refusal to come to an agreement with the US in the START negotiations was attributable to their insistence that SDI should be prohibited; a condition with which the United States was not prepared to agree. Furthermore, the Soviet objection to SDI was founded on the fact that they could not produce a similar system of their own. In the Cold War context of the tense ideological stand off between capitalism and communism such a sign of weakness could simply not be tolerated by the Soviet leadership.

It seems clear that, beginning at least as early as 1972, Soviet strategic defense planning policy was based on two concurrent strategies; to limit the American potential for innovation and new weapons development, while at the same time developing advanced weapons systems of their own to remain strategically competitive with the US. Gray goes so far as to suggest that the Soviets entered into arms control agreements in bad faith, and fully intended to proceed with non-compliant weapons systems of their own. At the end of the Cold War, both the US and the former Soviet Union were faced with a new security environment. Rather than facing an identifiable and relatively predictable opponent, both sides now faced an ambiguous threat. Global destruction by massive nuclear exchange was no longer a priority concern. Instead, political, economic, and social instability and regional conflict posed the greatest threat in the global security environment. As a result, greater emphasis has been placed on coalition building

and other forms of diplomatic and military cooperation as means of effecting international conflict resolution.

Today, Russian and American forces no longer stand ready to decimate each other. If Russian and American forces no longer see each other as principal threats to their respective security, then it is logical to suggest that there is a reduced need to continue the Cold War preoccupation with strategic stability. The passing of the Missile Defense Act and the subsequent attempts to amend the ABM treaty in order to facilitate the development of more sophisticated missile defense systems, and NMD systems in particular, represent a step in the right direction. By engaging in discussions geared toward treaty amendment, both sides are working to establish in policy, the fact that a new role for arms control has emerged in the post-Cold War era. Just as the ABM Treaty characterized the Cold War role of arms control by establishing the relationship between arms control and deterrence in policy, Treaty amendment will help to characterize the role of arms control in the current context. Fergusson, who argues that the impact of BMD depends, to a great degree, on the political and strategic nature of the security environment, confirms this point.

The easing of tensions between the US and Russia might lead some to ask if there is still a role for missile defense in the current context. The answer is firmly and undoubtedly in the affirmative. In addition to the argument about the vulnerability of critical space-based systems outlined above, a number of terrestrial considerations need to be taken in to account as well. To use the Middle East as an example, one could argue that Saddam Hussein's Scud attack on Israel in 1991 represents a growing preference for the use of ballistic missiles as a means to cultivate armed conflict and contribute to regional instability. In this instance the real benefits of missile defense systems are not military, but political. The use of Scuds armed with conventional, or for that matter chemical and biological warheads if they had been used, to attack Israeli cities had limited potential to cause any real damage to the state of Israel. However the Scud did function as an effective weapon of terror, causing thousands of Israelis to flee their homes in the cities. Such social upheaval could have easily led to public pressure for the Israeli Defense Forces to be sent into retaliatory action against Iraq, which would have had significant political implications for the American-led coalition.

Indeed, it seems clear that one of the greatest near-term benefits of BMD systems, much like nuclear weapons, may be in their political value. As was the case in the Gulf War, a state, namely Israel, can exercise the option of restraint if it can demonstrate an ability to at least limit the vulnerability of its population to attack. If the population feels that it is totally unprotected and that its government is doing nothing to safeguard its citizens, pressure to take action will soon be generated. It is worth noting, however, that as more sophisticated ballistic missile technology becomes more readily available, its real tactical and strategic utility will rise. Under these circumstances the ability of BMD systems to destroy incoming warheads before they reach their intended targets will begin to play a greater military role.

There is no question that a threat still exists in the Middle East, and that in the future a rogue state, such as Iraq, may once again try to destabilize the region by drawing Israel into a conflict. *The Military Balance 1998/99* notes that the Middle East is the largest global arms market, ranking the highest in the world in per capita GDP defense spending. In fact, defence spending in

that region increased in 1997 despite a decline in oil revenues. This, combined with Iraq's persistence in stonewalling the efforts of the international community to verify its adherence to UN Security Council Resolution 687, which places constraints on its possession of Weapons of Mass Destruction (WMD) and ballistic missiles, provides good reason for a commitment to TMD.

Given the far-reaching implications of the instability that could be caused by acts of aggression involving ballistic missiles, one could argue that TMD is an inadequate response to a potentially devastating threat. The high costs of forward basing TMD systems all over the world and the problems of deploying them in time to respond to a developing crisis limit the utility of TMD to the protection of forces deployed in the field. In order to respond rapidly to developing crises and to intercept missiles that may be launched either accidentally or in a 'surprise' attack, a Global Engagement capability such as that outlined in the LRP 2020 appears necessary. Such a capability can not be achieved without having acquired a certain knowledge base derived from the development of NMD type systems. Once again, this would likely require the lifting of constraints against the use of space-based interceptors and possibly on the use of interceptors based on other physical principles.

Iraq is not the only potential threat to regional stability in the Middle East. Gold notes that in spite of peaceful relations with Israel, Egypt continues to build its military. He also suggests that many Middle Eastern states see a ballistic missile arsenal as a kind of "poor man's air force," and that the continued proliferation of weapons of mass destruction is particularly worrisome in this context. Gold also advocates Israel's missile defense program on the grounds that "ballistic missiles destabilize a deterrence equation that existed for a number of years in the Arab-Israeli military balance." Here Gold is referring to the fact that, in the past, Israeli air superiority has guaranteed Israel a deep strike capability that its adversaries did not enjoy. It is also worth noting that several other countries have recently intensified their efforts to acquire increasingly sophisticated ballistic missile technology, including Iran, Israel, Libya, Syria, India, Pakistan, China, and North Korea.

With the proliferation of missile technology, Israel stands to lose its advantage over its Arab adversaries. Even the antiquated FROG-7 (Free Rocket Over Ground), in use by the Egyptians and Syrians, with its 70 km range can, with proper positioning, strike targets in Israel. The roughly 18 SS-21 launchers and 28 Scud B and C launchers in Syria's possession pose an even greater threat, to say nothing of the Scud launchers that Hussein may still be concealing. It is clear that as long as leaders such as Saddam Hussein seek to acquire the ability to marry weapons of mass destruction with ballistic missile technology, and as long as regional tensions exist, the potential for instability leading to violent conflict is high enough to demand attention.

It has been suggested that the developmental costs of BMD could be offset through participation in cooperative research and development projects. Of course the principal participants envisioned in these projects are the United States and Russia. In fact the potential benefits of cooperative BMD development are enormous. In addition to cost sharing, the benefits of which may be marginal to the US given the state of the Russian economy, cooperation could be expected to expedite the process of amending the ABM treaty to allow for full advantage to be taken of

available technology. Senator Malcolm Wallop, for one, advises that Russian interest in joint development demands an acknowledgment that the ABM treaty of 1972 is woefully out of date.

In addition to cost sharing and enabling the most productive use of available technology, essentially providing "more bang for the buck," cooperative efforts at BMD development could help to foster global security. It is possible that in collaborating to develop strictly defensive weapons systems, divergent states might also subsequently seek to enter into comprehensive cooperative security agreements. By conjointly developing a defensive weapon system, states implicitly acknowledge a common interest in defense against a common threat, even if that threat is an ambiguous one. A cooperative development program already exists between the US and Israel who are jointly developing the Arrow exoatmospheric intercept system, and the Unmanned Assault Vehicle (UAV) Boost Phase Defense system. While it may be beyond Canada's limited economic means to contribute substantially to such a huge economic undertaking as BMD development, it is certainly well within our means, abilities, and interest to further examine the notion that an important role does exist for BMD in the Post-Cold war era. Furthermore, it is also necessary to acknowledge the need to re-examine the practical utility of the ABM Treaty in light of the emergence of this new role for BMD.

Conclusion

In its original inception BMD was viewed as a means of addressing a practical military threat posed by missile technology. Throughout the better part of the Cold War the United States was concerned that deployment of missile defense systems with the ability to defend either population centers or hard targets, such as missile silos, would antagonize the USSR and lead to the destabilization of the delicate strategic balance that was emerging between the two powers. The American position changed near the end of the Johnson administration.

Under Johnson in 1967, deployment of the Sentinel ABM system was authorized. Sixteen months later it was announced that Sentinel would be replaced by Safeguard, which took advantage of technological improvements in missile defense. One day after Safeguard deployment was completed in 1975 the program was scrapped. Clearly the decision to deploy in 1967 was the result of intense political pressure being applied by the Republican Party. However deployment was executed with the objective of inducing the Soviet Union to agree to arms control agreements, and not merely as a response to political pressure. In turn, an attempt was made to employ arms control as a means of ensuring that the development of both offensive and defensive strategic weapons did not undermine conflict stability between the United States and the Soviet Union.

This is attested to by the 1972 signing of the SALT I accord of which the ABM treaty was an integral part. Soviet participation in arms control negotiations from SALT I to START have been attributed to the desire of the USSR to impede US weapons development programs while trying to proceed with their own systems development. This approach was intended to give the Soviets a "fighting chance," so to speak, in competing with the US in an arms race. However, with the collapse of the Soviet Union and the end of the Cold War, concern over the comparative strategic strengths of the US and Russia has dissipated somewhat, due primarily to an easing of political tensions.

In the post Cold War era the control that the US and the USSR had exercised over their client states can no longer be relied upon to enhance regional stability and limit the occurrence of incidents of violent confrontation. Regional instability resulting in the indiscriminate use of force as a means of conflict resolution is currently the most immanent security threat faced by states in an international system that increasingly emphasizes open access to resources and economic markets through the process of globalization.

In order to ensure that the economic, foreign, and security policies of the United States and other great powers remain relevant to the constantly changing texture of the international environment, it is instructive to recall the military theory of Carl von Clausewitz. The significance of Clausewitz, is that he defines and explains the relationship between war, which can be more generically perceived in terms of conflict, and the political needs and objectives of the state. For Clausewitz, while the dependence of military structures on the condition of the state may cause the general character of war to change throughout time, the specific nature of war as both an act of policy and a political instrument unto itself does not change. In other words, it is possible that certain factors affecting the structure of the state and its relationship to other states within a system may dictate that in one era the character of conflict and war may tend to be very limited, with open hostilities being quite rare. Furthermore, changes in those circumstances may occur over time, bringing about a state of affairs in which conflict and war are more commonly characterized by the occurrence of open hostilities. However, regardless of what changes may occur regarding the character of conflict and war in successive historical periods, the essential nature of war, and various other methods of conflict management, will always be to support and maintain the political interests of the state.

This immutable fact establishes the need to reassess the post-Cold War international environment to determine where state's interests lie. The problem with this is that it is extremely difficult to make sense of the complex network of relationships among developed, developing, and underdeveloped states. The problem is further compounded by the involvement of a variety of non-state actors, including, but not necessarily limited to, MNCs, NGOs, and various regional coalitions. Such a detailed examination is clearly well beyond the scope of this analysis. However, for the purposes of this paper, it is sufficient to make the relatively general observation that the simultaneous emphasis of the post-Cold War era on regionalism and globalism has meant that, on some level, the interests of most states are in some way tied to those of other states within the international system. This is attributable to the fact that the recent technological developments that have contributed to the emergence of "the information age" and the heightened global connectivity of states, organizations, and individuals, serve to accentuate the degree to which states' interests are tied together.

Having acknowledged this change in the way in which states relate with each other in the international system, it is necessary also to acknowledge the possibility that the general character of conflict and war may also have changed since the end of the Cold War. While the START regime and the CFE Treaty may represent confidence and security building measures that will help foster the continued development of friendly relations between the U.S. and Russia, the absence of an intensely inimical political relationship between the two countries limits the significance of the overall impact of these and other Post-Cold War arms control agreements. This fact may be attested to by the failure of the United States to ratify the CTBT. This is not to

say that arms control has no role in the current security context. However, the emphasis of arms control has shifted to the non-proliferation of weapons to states and criminal / terrorist organizations that may seek to use them to disrupt the stability of the international system, and has moved well beyond the emphasis on US-Russian relations. Arms control measures such as the Missile Technology Control Regime, the Chemical and Biological Weapons Conventions, and the Non-Proliferation Treaty, among others, continue to play an important role in slowing the proliferation of dangerous technology to those who would use them irresponsibly. However, it should be noted that the defeat of CTBT ratification efforts does set a dangerous precedent in the redefinition of Post-Cold war arms control.

Unfortunately arms control agreements can not be relied upon to impose reliable quantitative and qualitative constraints on the spread of weapons technology to the same extent as they were in the past. This is largely attributable to the fact that a deterrent relationship no longer exists between the United States and Russia. The state of affairs associated with mutual deterrence was one that gave both sides an incentive to cooperate with each other in the area of arms control. This cooperation helped to ensure that conflict stability was maintained and that nuclear war was averted. The overarching influence of both the United States and the Soviet Union throughout the world during the Cold War made it relatively easy to control conflict situations in such a way that they did not threaten to disrupt that stability.

In the current context, however, both the deterrent relationship and the overarching influence are absent. Today advanced industrialized states such as the U.S., Germany, Japan, and Canada have a great deal invested in the international system and therefore share a common interest in preserving the stability of that system. However, the threat of superpower intervention against states that threaten that stability is not what it was during the Cold War. For this reason states such as Iran, Iraq, and North Korea have less incentive to agree and adhere to international measures to restrict the flow of arms, as well as to other norms of international behavior. Consequently, arms control in the Post-Cold War era is a "stop-gap" measure, rather than a "fool-proof" means of providing stability in the international system.

As a result of the current security context, a clearly defined role for BMD technology does exist. BMD has the potential to contribute to regional stability and global security in four ways. The first way in which BMD may contribute to regional and global security, is, by being able to protect the critical space-based systems that play such a vital role in the economic and security interests of all states, and particularly those advanced industrial states that have a higher stake in the stability of the international system. The second way is, by virtue of the fact that the capability to protect population centers and intervention forces will continue to allow states to commit to international peacekeeping and peacemaking operations in conflict situations throughout the world. The third way is that a BMD capability can act to enhance the range of retaliatory options available to a state that finds itself subject to provocation by ballistic missile attack. This provides a state with a realistic range of options, from restraint to massive retaliation, in response to an attack. The fourth way is, by entering into cooperative development programs a situation emerges which may allow divergent states to enter into common security agreements which may further enhance global security.

Before BMD reasonably can be expected to make a meaningful contribution to international security it will have to be released from the constraints imposed by the 1972 Anti-Ballistic Missile Treaty. From its inception, the arguments for and against missile defence have remained largely the same. Proponents of BMD consistently cite the need to protect American citizens against a limited attack from strategic ballistic missiles, while opponents have argued that BMD deployment on a large scale would be provocative, thereby threatening strategic stability. That the issue of strategic stability and mutual deterrence between the U.S. and Russia no longer applies has already been made abundantly clear.

Current opponents of BMD argue that no threat exists to justify the development and deployment of National Missile Defence systems. The fact of the matter is though, that a threat is looming on the horizon. Aside from the very real problem of the proliferation of fissile materials and ICBM technology is the vulnerability of the space-based communications, navigation, surveillance, and reconnaissance systems on which the economies and security of all advanced industrial states rest. Rather than remaining a casual bystander in one of the most significant developments in strategic theory in recent years, it would behoove the Government of Canada to assume a leadership role in promoting the necessary changes to the way in which the role of the ABM Treaty, and arms control in general, are understood in the Post-Cold war era.

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