Going Ballistic? Reversing Missile Proliferation

India celebrated the anniversary of its constitution Jan. 26 with the annual Republic Day parade along New Delhi’s imperial Rajpath. All the armed services were there, including horse and camel companies, but the culmination was the passing Prithvi and Agni ballistic missiles. Two months later, it was Pakistan’s turn, rolling out four ballistic missiles, including the 2,000-kilometer-range Shaheen-2, for the Pakistan Day military parade and cultural pageant.[1]

As symbols, missiles remain unsurpassed. They are the ultimate visible manifestation of many countries’ military power (nuclear bombs are best kept out of sight). Although it has been decades since missiles were on the technological cutting edge and more than 60 years since Germany launched the first V-2, they have lost little psychological resonance. Celebrated in parades and praised by national leaders, they are valued as a reaffirmation of national identity, strategic power, and importance. Their value as a symbol of high-tech destruction transcends military logic. After all, in purely military terms, it is what the warheads carry that matters, and the most significant concerns arise in their coupling with nuclear weapons. Ballistic missiles have come to symbolize both the erratic threats of paranoid dictators and the final defense of insecure nations.

The public display of ballistic missiles testifies to their widespread acceptance. It also illustrates the difficulties that have been encountered by countries seeking to control their spread. Unlike weapons of mass destruction, there is no taboo inhibiting their acquisition or forbidding their use.

Some observers maintain that we are approaching a tipping point in world history, as the nonproliferation and arms control accomplishments of the last two generations become vulnerable to reversal.[2] Ballistic missiles illustrate this risk. None of the existing barriers to ballistic missile proliferation are sufficient to prevent a setback.

One of the most important legal elements of the current framework, the Missile Technology Control Regime (MTCR), is in serious danger of being rendered ineffective as missile technology spreads. Other arms control approaches remain underdeveloped. Military responses such as pre-emption and missile defense do not work well enough to become full substitutes. Instead of a strong single mechanism, we are gradually shifting to an era in which security against ballistic missile threats depends on a collection of instruments, none fully effective, several working at cross purposes.

Rather than accepting this patchwork, it is time to re-evaluate our fundamental attitude toward the ballistic missile itself. Although the moment for visionary schemes such as banning ballistic missiles has not arrived, this is the right time to take steps in that direction. In particular, leading countries should reconsider the role of ballistic missiles in their force structures and begin to reduce their salience and visibility.

Three Multilateral Dialogues

Diplomatic responses to missile proliferation range across a broad spectrum, from the bilateral to the universal. The risks of the unrestrained spread of missile capabilities have inspired considerable imagination. Among the prominent proposals of the last few years are concepts such as globalization of the 1987 Intermediate-Range Nuclear Forces (INF) Treaty, Russia’s more recent Global Control
System for universal rocket launch notification, and proposals for unification of export control systems or a UN verification agency. None have acquired much momentum.

Instead, it is the more familiar MTCR, the Hague Code of Conduct, and to a lesser extent the UN Panel of Government Experts that dominate multilateral activity. Although the three are often described as different approaches to a common goal, they actually aim toward distinct objectives. They are based on very different and largely incompatible assumptions. That their divergences have been overlooked is possible only because their progress has been so uneven.

The MTCR, based on export controls among a select group of countries, is the oldest and most institutionalized. The Hague Code of Conduct is much younger, based on the need for a normative principle to guide nonproliferation diplomacy. The UN experts process is the least developed, responding to pressure to find a universal agenda for missile policy.

None of the three ever claimed to be a comprehensive solution to the global spread of ballistic missiles. Indeed, they are increasingly overburdened by specific missile challenges. Even so, collectively they constitute one of the most sophisticated international dialogues on arms control and disarmament in the world today.

The MTCR
The MTCR appears to be doing better than ever. Since it was unveiled in 1987, it has become about as institutionalized as a voluntary, informal organization possibly can be. It has become ever more adaptable, sophisticated, and engaged as it deals with countries other than its 34 formal members and contends with additional technologies. The interest of China, Libya, and nine other countries in joining the regime illustrates the global shift in attitudes toward a mechanism previously dismissed as a poorly disguised cartel. The formerly controversial group is acquiring global acceptance, maybe even legitimacy.

At a more fundamental level, however, the MTCR is not doing so well. It has three basic problems. First, it still lacks the right members. Like many international disarmament mechanisms, it tends to preach to the choir; others try to ignore it. Some of these problems are easing. Chinese membership, for example, would be an extraordinary step toward comprehensiveness. Nevertheless, there will always be countries outside of it—the North Koreas of the world.

Second, there are problems of technology. The MTCR was built on the assumption that it was sufficient to block a few key technologies. This was true when it was first conceived in the late 1970s and the early 1980s. Then the biggest export challenges came from France, Germany, and Italy. After considerable protest and denial, they changed their export policies dramatically. Facilitating the task was the complexity of projects such as the Condor-2. This collaborative German-Argentine-Egyptian-Iraqi effort to create a 900-kilometer-range missile relied on relatively sophisticated technologies. Such dependence, however, made them highly vulnerable to export controls. The MTCR was not trying to restrict the simple stuff; it targeted advanced technologies. By 1989, that job was completed for the most part.

The technologies available today, however, are much more difficult to restrain. At the low end, ubiquitous Scud technology is well known and readily modified. As it is available from North Korea and other secondary suppliers, it is very difficult to halt the spread of single-stage, liquid-fueled systems capable of delivering a nuclear-sized payload a distance of 280-1,200 kilometers.

No less troubling are problems at the high end of the spectrum. The revolution in global manufacturing and the shift from mechanics to electronics has created missile technologies that are much simpler, cheaper, and better. In other words, the technological bottlenecks on which export controls relied gradually are disappearing as old technologies become easier to manage and easier substitutes appear.

A prime example is solid fuel technology. With recipes from textbooks and chemicals from uncontroversial sources, amateurs are building ever-larger rockets. Last summer, a small group of American hobbyists launched a rocket weighing more than 600 kilograms that ascended several thousand feet. Another launched a smaller rocket to an altitude of almost 80 kilometers. These
folks literally work in their backyards and garages, building sophisticated, large rocket engines with minimal funding and no outside assistance. If this is what hobbyists do for fun, we need to reassess what governments and nonstate actors might be able to achieve in pursuit of mayhem.

A similar revolution has transformed guidance systems. The MTCR was based on the assumption that the best way to guide a long-range rocket was to install an inertial navigation system (INS). Inertial navigation was perhaps the pinnacle of mechanical engineering and among the most complicated objects ever manufactured. In the mid-1990s, it became obsolete, replaced with much simpler microelectronic mechanical systems (MEMS). Some of the key accelerometer technologies are in every car; they deploy the emergency airbag. MEMS gyroscopes and accelerometers are not especially precise, but they are cheap, reliable, and easy to use. Their weaknesses are readily compensated through positional inputs from the Global Positioning System (GPS) network. MEMS technology can now be used to guide ballistic missiles, and when combined with GPS guidance, its accuracy can surpass even the very best INS.

The greatest technological questions today surround acquisition of ICBMs, the issue that has preoccupied U.S. analysts since the 1998 Rumsfeld Commission report. There still are important barriers to acquiring ICBMs, but they are not largely technological bottlenecks. Instead, policy considerations pose the greatest obstacles. In other words, if countries fail to acquire ICBMs in the next decade or two, it will not be because they cannot get the essential hardware. Rather, it will be because they choose not to do so.

The third major problem confronting the MTCR is the ambivalence of key members as they struggle to protect their own preferred export activities, be it cruise missiles or missile defense technology. The dedication to export prohibitions is eroding under pressure from changing strategic priorities and commercial needs.

The desire to export cruise missiles has been extremely controversial, especially French- and British-led efforts to sell the Apache/Shaheen. The United States is struggling to reconcile export control with transferring ballistic missile defense capabilities to Israel, India, and East Asian allies. A literal reading of the MTCR’s core “Technology Control Annex” reveals that much of this is prohibited, including technologies shared by offensive and defensive systems such as propulsion, guidance and control. In the end, a formula undoubtedly will be found permitting exporters to have it both ways, but there is a cost to be paid for weakening the credibility of the regime.

The Hague Code of Conduct

Where the MTCR relies on technological criteria to guide policy among a select group of states, the Hague Code of Conduct tries to elevate a single, consistent set of principles to guide all countries in efforts to halt ballistic missile proliferation. The undertaking is all about building moral norms, rules of the road that everyone will accept. Completed in 2002, the Hague Code of Conduct is not a treaty for signature but a text to which states subscribe, pledging cooperation to:

- Prevent and curb the proliferation of ballistic missile systems capable of delivering weapons of mass destruction;
- To exercise the “maximum possible restraint” over their own ballistic missile procurement;
- Not to “contribute to, support or assist” any ballistic missile program in countries violating international obligations; and
- To implement transparency “to increase confidence and to promote non-proliferation.”

With 119 subscribing states to date, this is the most important effort to correct the greatest shortcoming of the MTCR: its lack of a unifying normative principle to guide all action against the spread of ballistic missiles. With its focus on collective ideals, this European initiative represents
perhaps the last surviving initiative of universalist arms control and disarmament from the 1990s.

First appearing in 1999, almost exactly as the U.S. Senate rejected the Comprehensive Test Ban Treaty, the prospects for such an approach never were bright. Despite the burdens of swimming against the tide, however, the Hague Code of Conduct is integrated into the fabric of international arms control and disarmament.\[13\]

Although it appeals to international sensibilities, the Hague Code of Conduct was the creation of a small, self-appointed group. The founders labored to distinguish their creation from the MTCR but could not avoid the stigma and weaknesses of a concept conceived by a few and presented to the many. As it struggled to gain support— the clearest measure of success and legitimacy—the document came under strong pressure to adapt to the demands of later signatories. The result is that a relatively weak document is coming under progressively greater pressure to become even more diluted.

In this regard, the Hague Code of Conduct runs into the multilateral arms control tendency to degenerate into political logrolling. The only way to broaden voluntary participation is through appeals to specific national interests, but in doing so, universal principles and norms are diluted. The compromises inherent in negotiating a consensus tend to undermine any set of norms.

The most immediate problem is pressure to include cruise missiles. Although the original authors worried most about ballistic missiles, many subsequent and potential signatories worry more about attacks with cruise missiles, whether from the United States and its allies or from emerging powers such as India and its new Brahmos system. If it is to prosper, expanding the Hague Code of Conduct to include cruise missiles probably is inevitable, if only because so many governments want it. There are good strategic reasons to control cruise missiles,\[14\] but the issues are very different from ballistic missile control, involving technologies much easier to acquire, more difficult to regulate, and more widely accepted.

Nor is there any reason to believe the process will end there. If we include cruise missiles tomorrow, what about stealth attack aircraft such as the Joint Strike Fighter, designed to perform virtually identical military missions as a cruise missile? Do we include other tactical aircraft? What about precision munitions such as the Joint Direct Attack Munition?

Strong regimes depend on strong norms. Rather than watering down these restrictions, they should be made more explicit. The Hague Code of Conduct establishes a useful norm when it declares its “[r]ecognition of the need to comprehensively prevent and curb the proliferation of ballistic missile systems capable of delivering weapons of mass destruction.” A much stronger principle would declare the possession or use of ballistic missiles unacceptable. Until we have a norm establishing that ballistic missiles are a taboo, just as landmines and biological, chemical, and nuclear weapons are for most countries already, we will not have a strong missile technology control regime.

A missile taboo remains far away. A modest step is missile test notification, an acknowledgement that with ownership comes responsibilities. As a stronger step, the Hague Code of Conduct should consider formally advocating ballistic missile dealerting. Although removing warheads or essential components for storage elsewhere does not affect the missiles themselves, it slows crisis escalation and strengthens stability. It reduces risks of unauthorized or accidental launch. To be meaningful, however, de-alerting requires someone to take the first step. De-alerting is one area where the established missile powers can take the lead, pioneering a path for others to follow.

The UN Panel of Government Experts
In theory, norms do not have to be enunciated fully mature like visions from above. It should be possible to create them through deliberation and consensus building. That was the goal of the process undertaken in 2001-2002 and 2004 by the UN Panel of Governmental Experts on Missiles, a process scheduled to resume in 2007 and representing the mirror image of the Hague Code of Conduct. Instead of allowing a like-minded faction to create a principle to be sold to the rest of the world, this process started with a diverse group representing the world in pursuit of some kind of consensus. Where the Hague Code of Conduct was essentially an effort of deductive persuasion, the UN process was a project of inductive exploration.
No one thought this was going to be easy. Many assumed it was impossible. Indeed, the greatest accomplishment of the first Panel of Governmental Experts was avoiding disaster. It completed the task of producing a report in July 2002, albeit only by cutting so many corners there was precious little left on which to agree. Most blatantly, the troublesome word “missiles” was left undefined. Instead, much of the report was devoted to a seemingly anodyne list of international arms control and disarmament instruments. Included over the initial opposition of some delegations, this made the implicit point that the international community does indeed have the right to address the issue.

When the second panel met in July 2004, the guarded tolerance of the first round had dissipated. The exercise collapsed with recognition of the impossibility of drafting a consensus report, with criticism of the exercise coming from several quarters, including Iran (the original sponsor of the exercise); Pakistan, who feared becoming a target of missile controls; and Egypt and other Islamic states preoccupied with Israeli nuclear weapons. Unable to establish a consensus, there was nothing left to do. Near-term hopes for a global missile norm all but died then and there, but the process refuses to die. A new study and a third experts panel was authorized by the UN General Assembly later that year. In an oblique acknowledgement of the frustrations, however, the new panel will not begin until 2007.

Although it has not dropped the ballistic missile issue, the United Nations’ attention has shifted. Rather than getting stuck on the hard realities of ballistic missiles, a recent report of the UN Advisory Board on Disarmament Matters recommends focusing on man-portable air-defense missiles. These have emerged as the common denominator, the technology where agreement is broadest.

The UN process has not been helped by a sense that it must make an original contribution to be worthwhile. This asks too much of its delicate formula. As it tries to recover momentum, the UN process will move faster if it primarily reinforces progress elsewhere, focusing on areas where consensus is most mature already. Above all, this means reinforcing the Hague Code of Conduct. Missile test notification is a modest but concrete measure well suited to consensus machinery. More ambitiously, missile de-alerting belongs on the UN agenda as well.

No Diplomatic or Military Panaceas

One thing that none of these three arms control and disarmament avenues has created is confidence. This is of particular concern to the United States, whose global engagement makes sensitivities to nonproliferation failures especially acute. It is a measure of U.S. weariness and insecurity that its most recent innovations rely not on cooperation but coercion. Although these offer important contributions to the emerging future security architecture, they cannot solve our proliferation problems.

- Proliferation interdiction, most spectacularly through the Proliferation Security Initiative, offers a valuable tool of last resort against destabilizing exports. Whether it would prevent the recurrence of incidents such as the interception in December 2002 of the North Korean ship So San, with a cargo of 15 Scud missiles bound for Yemen, is not clear. As Libya’s renunciation of its weapons of mass destruction programs showed, interdiction can help enormously, but it is too narrow and reactive to halt basic proliferation trends.

- Missile defense remains technically rudimentary and has not been adequately tested. Intended to respond to deterrence failures, it is not reliable enough to inspire confidence. It joins the global security equation as a source of additional doubt rather than transcendent certainty.

- When interdiction fails and missile defense is inadequate, pre-emptive nonproliferation warfare may become more difficult to resist. It has been tried roughly a dozen times since the Allies tried to destroy Norway’s Vemark heavy-water plant and the German V-2 program at Peenemünde in 1943. Operation Iraqi Freedom did not enhance preemption’s image, but we have not seen the last of it.
As dramatic as these three military departures appear, in at least one vital aspect they are identical to the three diplomatic avenues. None offer a comprehensive solution and none are sufficient responses to the challenges of missile proliferation. Missile defense is not a solution to the problem. Pre-emptive war amounts to a very costly way of slowing down a determined proliferator, not halting them. We have searched through the diplomatic and military vernaculars, only to prove there are no panaceas for missile worries.

Indeed, military alternatives might best be appreciated as vehicles enabling us to pursue an arms control agenda more aggressively. Like all other active approaches to the problem, they ultimately can only buy time. Although this is not glorious, it is not bad either. Time is useful if used well.

First Steps to Reverse Proliferation
Multilateral approaches lack the tools, but they undoubtedly have the right idea. The only enduring solution to ballistic missile proliferation is to degrade the missile itself. In lieu of a taboo making procurement inconceivable and use unacceptable, proliferation will continue. As long as ballistic missiles are maintained as a source of pride, they will continue to arouse jealousy and imitation. As long as major powers invest in ballistic missiles for their security, it is only with luck that others can be convinced not to do the same.

The most straightforward alternative is banning ballistic missiles outright. In its current form, the idea originated with President Ronald Reagan at the surreal 1986 Reykjavik summit where he and Soviet leader Mikhail Gorbachev may have come near to a deal to ban all “offensive ballistic missiles.” Since then, it has acquired a gentle stream of support. Advocates of an outright ballistic missile ban have everything in their favor: logic, stability, and security[22]—everything except any prospect of near-term success.

The 1990s showed that most major powers were willing to trim their ballistic missile forces substantially. Rather than building momentum toward eliminating such systems, however, these efforts appear to have run their course. Ballistic missiles remain fundamental elements of their deterrent forces, and have often only increased in importance. For some countries, they serve as totems of national identity as well. The trends in development and deployment favor modernization, if not expansion.

Such trends do not portend a global arms race—far from it. The stability of ballistic missile forces, however, reaffirms the importance of such weapons, forming an additional barrier to global progress against proliferation. Even if a country’s missiles endanger no one, the mere fact that someone is clinging to them sends out a message that others are bound to hear.

If we are serious about dealing with ballistic missile proliferation, we have to stop making distinctions between missiles— theirs are destabilizing, mine are just fine. To be sure, some owners are infinitely more alarming than others. In the short run, such distinctions are essential for effective security policy. A long-term solution, however, requires that we begin to see all ballistic missiles as undesirable. Recognizing the connection between the ballistic missiles of established powers and those of relative newcomers is an essential step for ending proliferation.

Agreement on the elimination of chemical and biological weapons and anti-personnel mines became feasible only after leading powers declared they lacked any intrinsic interest in having them. This is not yet true of ballistic missiles, a weapon that remains much more legitimate. Yet, once we express a desire to be free of these weapons, however distant the ambition, we will achieve a crucial step toward global prohibition.

The first concrete steps toward a ballistic missile taboo need not be revolutionary, nor need the final goal even be part of the process. Test notifications will help build stability. De-alerting would achieve even more. Above all, what is needed is a ban on new weapons. A process could be initiated with one country’s unilateral statement of intent not to procure additional ballistic missiles or to modernize current inventories. A more ambitious declaration would announce phased reductions.

To be effective, policies to end reliance on missile forces would require widespread international support, but the first steps could come from any of the major powers. Even the modest acts of one of
the secondary ballistic missile powers would be enough to start the creation of a taboo. Although others might continue to modernize or expand their forces, they would be compelled for the first time to justify such steps before a global audience. In the business of norm creation, the simple act of justification is tantamount to accepting the principle’s existence. By creating a cloud of doubt around the probity of ballistic missiles generally, reversal of proliferation will become truly feasible.

### The Status of the Major Nuclear-Weapon States' Ballistic Missile Forces

#### China
China continues gradual introduction of a new generation of solid-fuel ballistic missiles, including the DF-31, China’s first fully modern ICBM. Initially deployed in 1999, approximately eight were in service as of mid-2004.\(^1\) Early versions reportedly have a range of 8,000 kilometers with a single warhead, but extended range versions with multiple independently targeted re-entry vehicles have been reported as well. Another ICBM, the DF-41, has been reported in development since the mid-1980s. This weapon is said to be much larger, but details remain obscure. Whether these systems will complement or replace the country’s inventory of roughly 20-24 deployed DF-5 liquid-fueled ICBMs remains unclear.

Production of short-range systems continues at a much faster pace, with about 50-70 additional missiles reportedly deployed opposite Taiwan annually, about 700 in all so far.\(^2\)

#### France
France abandoned its land-based ballistic missiles in the 1990s but has just ordered final development and production of the M51, a new generation of sea-launched ballistic missiles (SLBMs). With a range of more than 6,000 kilometers, these reportedly will be able to reach China from normal patrols.\(^3\) Deployment is scheduled to begin in 2010 and production is expected to total 50 missiles.\(^4\) Prime Minister Jean-Pierre Raffarin justified the project as “a basic component of France’s independence.”\(^5\)

#### Russia
Russia is simultaneously cutting and modernizing its ICBM and SLBM forces. A recent report notes that the land-based ICBM force is expected to decline from 496 missiles today to about 313 by 2010.\(^6\) Meanwhile, President Vladimir Putin has publicly praised strategic modernization efforts.\(^7\) The service lives of older, liquid-fueled SS-18 and SS-19 ICBMs are being extended for an additional 10-20 years of operation.\(^8\) Simultaneously, development is being completed on a new generation of solid-fuel systems: a road-mobile version of the Topol-M solid-fueled ICBM, scheduled for deployment in 2006, and the Bulava-30 solid-fuel SLBM.\(^9\) Development of a new short-range ballistic missile, the 280-kilometer-range Iskander, also has been completed.

#### The United Kingdom
The United Kingdom stands out for its apparent contentment with a force of 58 Trident-2 SLBMs, acquired in the 1980s and 1990s to arm its four Vanguard-class submarines.\(^10\) A decision on whether to replace the Trident missiles and Vanguard submarines is likely in 2007.\(^11\)

#### The United States
The United States began a 15-year service-life extension program for the 500 Minuteman-3 ICBMs in 1997. No new Minuteman ICBMs have been built since 1979, but modernization includes new motors, guidance, and ground-support systems.\(^12\) There are further plans to improve the range and accuracy of the existing fleet under the “Minuteman-3 Elite” program.\(^13\) The Navy’s D5 Trident-2 SLBM remains in low-rate production, with orders for six to 12 annually. There has been official discussion about fielding a new land-based ICBM, possibly beginning in 2018, but there are no firm plans.\(^14\) Current debates focus more on the possibility of adapting long-range ballistic missiles to conventional missions.\(^15\) The last of the 50 MX Peacekeepers will be deactivated this September.\(^16\)
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implementation has been tough. This was illustrated by the fate of the proposed U.S.-Russian Joint Data Exchange Center, conceived to minimize confusion over ballistic missile launches that could be mistaken for a first strike. Presidents Bill Clinton and Boris Yeltsin agreed to set up a Moscow-based center in September 1998. Details were finalized in June 2000, requiring pre-notification of all ballistic missile tests greater than 500 kilometers.\footnote{Memorandum of Agreement Between the United States of America and the Russian Federation on the Establishment of a Joint Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches, signed June 4, 2000.} As of this writing, however, the center still has not opened, ostensibly because of lack of interest on both sides.

The idea is extremely relevant anywhere missile flights are a strategic concern. It is endorsed by the Hague Code of Conduct and has support in South Asia, where tests are highly publicized and provocative political signals. India and Pakistan agreed to notify each other of such tests in the 1999 Lahore Memorandum of Understanding: “The two sides undertake to provide each other with advance notification in respect of ballistic missile flight tests, and shall conclude a bilateral agreement in this regard.”\footnote{Memorandum of Agreement Between the United States of America and the Russian Federation on the Establishment of a Joint Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches, signed June 4, 2000.} Subsequently, both countries have usually warned each other, and often the United States, a few days before major flight tests.

After India’s Congress Party formed a new government in May 2004, the two countries have attempted to construct a more formal regime. Talks in July 2004 in Islamabad between Indian Foreign Minister K. Natwar Singh and Pakistani President Gen. Pervez Musharraf authorized formal negotiations. At a meeting last December, the two “discussed and narrowed further their differences on the draft agreement on pre-notification of flight testing of ballistic missiles, and agreed to work towards its early finalization.”\footnote{Memorandum of Agreement Between the United States of America and the Russian Federation on the Establishment of a Joint Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches, signed June 4, 2000.}

Although the participants hope to complete an agreement this summer, several serious issues remain unresolved:

- The types of missiles to be included. Pakistan wants to include all missiles, including the Russian-Indian Brahmos cruise missile, while India wants an agreement limited to “long-range” ballistic missiles, possibly to exclude their short-range Prithvi missiles.

- The location of tests. India wants to restrict launches to sites at least 100 kilometers from any national border. Pakistan, citing geographic constraints, seeks to test from sites closer to its boundaries.

- The number of days before a test that notification would be required.
  - The directions in which test launches would be permitted.

- How much information to provide about the size of areas that could be impacted by missiles. Negotiators are attempting to reconcile the requirements of maritime and aviation safety with preservation of secrecy of missile accuracy.

- The rules governing notification of third parties, such as the United States.

- What mode the two countries should employ in notifying each other.

As the talks continue, the negotiating agenda has grown and bogged down. It increasingly appears that the process can be rescued only by high-level intervention. Meanwhile, both sides continue with informal notification of major ballistic missile tests.\footnote{Memorandum of Agreement Between the United States of America and the Russian Federation on the Establishment of a Joint Center for the Exchange of Data from Early Warning Systems and Notifications of Missile Launches, signed June 4, 2000.}
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15. For the analysis by the primary consultants to the panel, see W. Pal S. Sidhu and Christophe Carle, “Managing Missiles: Blind Spot or Blind Alley?” Disarmament Diplomacy, no. 72 (August/September 2003) pp. 25-29.


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