

# **The New Nuclear Arms Control Environment:**

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## **Trip Report and Project Conclusions**

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*Think, in this batter'd Caravanserai  
Whose Portals are alternate Night and Day  
How Sultán after Sultán with his Pomp  
Abode his destined Hour, and went his way.*

*The Rubáyát of Omar Khayyám*  
Edward Fitzgerald



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## ABOUT THE PARTICIPANTS

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Four U.S. scholars participated in multiple meetings abroad under “The New Nuclear Arms Control Environment” project. These people were Clifford Singer of the University of Illinois at Urbana–Champaign, Amy Sands of the Monterey Institute for International Studies, Rose Gottemoeller of the Carnegie Endowment for International Peace, and Dinshaw Mistry of Stanford University. This report was edited by Clifford Singer with the cooperation of these participants and with contributions as indicated in various sections. Renee de Nevers of the John D. and Catherine T. MacArthur Foundation and James Goodby cooperated with the inception of the project and participated in the 20 June 2001, meeting reported upon herein. A more complete list of the workshop and meeting participants is given in Appendix A.



## EXECUTIVE SUMMARY

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This report describes the outcome of nine sets of workshops and private meetings on current diplomatic and security problems related to nuclear arms control. Part One of the report starts with key observations from each of the five countries visited in a series of workshops and meetings from 18 March–6 April 2001. It also summarizes relevant information from subsequent meetings in Geneva and from Annecy in France from 21-23 May, and in Washington on 20 June 2001. Part Two provides a longer narrative explaining how these observations inform an overall understanding of the current impasse on multilateral aspects of nuclear arms control, and how this impasse may eventually be broken. Key to this is finding a mechanism to convince China that U.S. national missile defense (NMD) efforts will not require further additions to already planned Chinese strategic modernization in order to avoid undermining the credibility of China's nuclear deterrent. If and when this understanding can be achieved, those interviewed in China seemed convinced that other impediments to an agreement on an end to unsafeguarded fissile materials production might be overcome. This was not inconsistent with the view from South Asia, provided that sufficient time elapses for Pakistan to build up its nuclear capabilities and other issues do not induce Japan, Israel, and other key countries to block agreements necessary to get India and Pakistan on board.

Four appendices are also included with this report. Appendix A gives a list of participants in meetings in London, Paris, Beijing, Islamabad, New Delhi, Geneva and Annecy, France, and in a follow-on meeting with Russian interlocutors in Washington, DC. Appendix B gives a list of questions posed at the workshops in the first five of these locations. Appendix C gives the questions posed for the Washington meeting. Appendix D updates the previous work in light of events and meetings after the 11 September 2001 attacks on the United States. These include a workshop on U.S. views of Russia and multilateral nuclear disarmament on 12 October 2001 at the University of Illinois at Urbana-Champaign and a series of private meetings on the same subject in Berlin from 8–12 November 2001. It was concluded from these meetings and subsequent events that the current U.S. administration is unlikely to be willing and able to address China's concerns about NMD adequately to unblock the current impasse on nuclear arms control. Nor did the U.S.–Russian summit that commenced during the Berlin meetings address Russian concerns on NMD in a way that would also satisfy China.

The conclusion in Berlin was that a potentially fruitful activity for the time being may be to investigate approaches to possible future discussions on military activities in outer space. Three possibilities were discussed that could plausibly become mutually agreeable to the United States, China, and other interested states, should the key problem of clarifying the extent of U.S. NMD deployments eventually be adequately addressed. These include a) providing the demilitarized international space station with a status similar to the treaty protection afforded to Antarctica, b) discussing limitations on military activities beyond geosynchronous orbit, and c) clarifying the status under the "Outer Space Treaty" of extraterrestrial bodies and materials extracted from them.



## PART ONE: TRIP REPORT

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### Introduction

(This part contains C. Singer's revisions to a report by A. Sands and R. Gottemoeller.)

In London and Paris, Cliff Singer and Amy Sands were joined by Dinshaw Mistry of the Stanford University Center for International Security and Cooperation. The team conducted workshops in London on 19 March and Paris on 23 March 2001. In Beijing, Cliff Singer and Amy Sands were joined by Rose Gottemoeller of the Carnegie Endowment for International Peace, and this team conducted three additional workshops in Beijing on 30 March, Islamabad on 2 April, and New Delhi on 6 April. In addition to these workshops, meetings with governmental and non-governmental specialists were held in each of the five capitals. Cliff Singer then participated in a seminar and workshop arranged by the Monterey Institute of International Studies respectively in Geneva and nearby in Annecy, France from 21-23 May. Finally, Cliff Singer, Amy Sands, Rose Gottemoeller and Jim Goodby participated in a meeting for the project with Russian interlocutors in Washington on 20 June.

Two common questions emerged during our discussions in London and Paris:

- **What is necessary to come to an accommodation with China on multilateral aspects of nuclear arms control?** Is it just an understanding that U.S. NMD will not attempt to undermine the credibility of the Chinese nuclear deterrent, or does China have critical broader concerns about U.S. plans for military dominance based in outer space? This seems to be an open question in Europe, to which the answer must be sought in China.
- **Will European concerns really be taken into account during strategic consultation with the United States concerning NMD and military uses of outer space?** Neither the current British nor French governments have much enthusiasm for national missile defense nor interest in any kind of weaponization of outer space. The French may be more vocal than the British in questioning policies they see as upsetting the strategic balance, but neither feels public opinion pressing them to either make an open rift with the United States nor yet re-open the question of their own levels of nuclear armament.

### Major Points from Discussions and Workshops in London and Paris

#### London

The group held an open meeting with two keynote Member of Parliament speakers in London and held private meetings at the Foreign and Commonwealth Office (FCO), at the Ministry of Defense, and with non-governmental specialists. The impasse in the Conference on Disarmament (CD) over Prevention of an Arms Race in Outer Space (PAROS) blocking Fissile Materials Production Cutoff Treaty (FMCT) negotiations was a central topic in many of these talks. Key points of discussion included the following:

- 1) Trends in international context:
  - a. Much uncertainty remaining in the international political system
  - b. Certainty of spreading availability of WMD technology bases
  - c. Shift from capabilities to vulnerabilities as a basis of U.S. threat assessments

- 2) NMD is a looming issue that could be a catalyst to a worsening situation in the arms control arena, depending on what the Bush Administration proposes and how they pursue it diplomatically.
  - a. Russia will probably be willing to cut a deal (deep nuclear weapons cuts, funds for cooperative threat reduction, modify ABM Treaty, no NATO expansion, possibly CTBT).
  - b. China will be the real problem.
  - c. The British see threat a bit differently from the United States (valuing deterrence more and not seeing a scale of threat justifying NMD costs), but do not want to publicly “rock the boat” within special relationship with Americans.  
One comment: Britain should seek more from the United States than support for European Rapid Response Force, and base its interactions with the United States on its own definition of its own national security needs.
  - d. NMD will not be available to deal with “rogue” threats in the near term, so there will be continued reliance on deterrence.
  - e. Verification may become more informal, but needs to reassure states on irreversibility of the process.
  - f. The UK is not terribly engaged yet on PAROS issues.
- 3) Possible solution to CD being stalled: Take PAROS out of the CD and start discussions with the United States if necessary. See if the telecommunications industry will encourage the United States to re-engage. Start pre-FMCT discussions out of the CD and have full time scoping discussions start there, eventually to be taken back into the CD. Some questioned whether this would really be that useful.
- 4) A fully “non-discriminatory” approach to limits on nuclear weapons holdings that supplements the NPT might be problematic for the Japanese body politic.
- 5) Europe needs to seek alliances with non-aligned countries and to engage Chinese and South Asian states more extensively. Comment: Europe needs to do its own threat assessment.

## Paris

The group was hosted by the *Institut de Relations Internationales et Stratégiques* (IRIS) for an open meeting and held private meetings at the Defense and Foreign Ministries and the National Assembly, and attended a separate meeting dealing with energy supplies. The IRIS meeting was originally conceived as a debate over NMD policies but evolved into a more cooperative approach covering a broader range of security questions. Key points from these meetings were as follows:

- 1) The French see benefit and logic in NMD, but question the politics of it.
  - a. NMD deserves legitimate discussion, but key is the nature of U.S. announcements on NMD and nuclear strategic reductions. (How deep are cuts; do they include tactical nuclear weapons; and what is scale and scope of NMD?)
  - b. The net effect is seen as probably negative in the international context, but became better understood during our discussions as being seen as important in the U.S. domestic context.
  - c. The decision on NMD is happening in a context where pessimism within Russia, Europe, and China pervades relationships because of the CTBT ratification fiasco, Kosovo campaign bombing of the Chinese embassy, no START II, landmine treaty rejection, and Kyoto accord rejection.
  - d. Europe needs a deal with Russia on NMD and deep cuts in nuclear weapons for both Russia and the United States, including tactical nuclear weapons. It also needs NMD not to be or appear to be targeted at China—this would not sit well with Europeans. Also, it will be problematic if NMD involves weapons based in space.

- e. The French tend to see the threat very differently—in terms of a need for theater missile defenses and regional defenses, not for territorial defenses where deterrence still works.
  - f. The United States is trying to eliminate a sense of vulnerability while Europeans have learned to live with vulnerabilities.
- 2) The French are realistic and pragmatic on South Asia: they see a need to set aside the legitimacy issue and pursue practical approaches to containing deployed capabilities, with the FMCT capping the nuclear programs of China, India, Pakistan, and Israel.
  - 3) Europe is an “aging power” and not very interested in issues of power.
    - a. Nuclear reductions by French are irreversible (with testing and fissile production capabilities permanently dismantled), but may have reached a plateau that France will remain at until others “catch up” and the French public is ready for further reductions.
    - b. The public and press are concentrating on domestic and regional issues, so the French government is not very interested except where French jobs and local concerns are affected.
  - 4) France is looking for the following from the United States and Russia before it will engage in nuclear arms reduction discussions: strategic stability retained (ABM Treaty or like remains); U.S.-Russian levels of nuclear weapons go down; and nonproliferation efforts effective on horizontal and vertical levels. French won’t say this officially because there is no consensus on being committed to it.
  - 5) The French do not care for weapons being put into space, but also do not want to limit their own other military options in space as they have new capabilities in pipeline.
    - a. The French believe that Chinese have concerns about PAROS that go beyond NMD.
    - b. There is a possibility of new coalition against the United States if it does not contain NMD.
    - c. Putting interceptors or other offensive weapons into space is a major threshold for the French, who would be worried about negative ramifications of such a move.
  - 6) U.S. unilateralism may become a problem, even if reductions occur in parallel.
    - a. Lack of a formal treaty encourages all to hedge, since there is no guarantee of irreversibility and it appears that the United States wants to keep all of its options open.
    - b. The United States appears aloof to norm-based arms control.
    - c. Mutuality of security concerns appears muddled and to be being questioned.

### **Major Points from Discussions and Workshops in Beijing, Islamabad, and New Delhi**

Three overarching questions emerged during our discussions in Beijing, Islamabad and New Delhi:

- **Why does the United States feel so insecure?** As one Chinese specialist said, “If the United States is not secure, then China must be in hell.”
- **Why is the United States trying to upset the stable balance between offense and defense by emphasizing defense?** Offensive deterrence still holds true: nobody is undeterrable, including Saddam Hussein. “Rogue” leaders know that if they attack the United States, they risk being blasted to total destruction. The United States can be prepared to “deal ruthlessly” with rogues through counterproliferation measures, not waste money on missile defenses.
- **Why is the United States going it alone?** Why this push toward unilateralism? The United States cannot have good intentions in this regard, it must be seeking further global superiority.

## Beijing

The group visited Beijing prior to the aircraft incident in early April. Therefore, the last U.S.-Chinese interaction had been the rather successful visit of the Chinese Vice Premier to Washington immediately before our arrival, and this success colored the tenor of the discussions in a positive manner. Interlocutors were Ambassador Sha, head of the Treaty and Legal Directorate in the Chinese Foreign Ministry; General Pan, head of the Strategic Studies Department of the National Defense University; and a number of impressive younger researchers (see attached list in Appendix A). Key points were as follows:

- Prior to the aircraft incident, the Chinese were stressing the “let’s talk” theme. The Vice Premier had heard a positive message from President Bush during his visit, that there was a real threat requiring the construction of a missile defense system but this system would not be designed against China. The Chinese stated that on that basis they were ready to enter into a dialogue with the United States so that the Americans could make their case.
- The Chinese stated a firm preference for continuing with existing nonproliferation and arms control regimes. They outlined three scenarios: (a) “steady as she goes” with existing regimes, and energetic efforts to negotiate new regimes, principally the Fissile Material Cutoff Treaty (FMCT); (b) negotiate on a completely new basis, e.g., start from scratch on the ABM Treaty; (c) take a wholly unilateral approach, with no cooperative diplomacy. According to our interlocutors, China prefers scenario (a), which is a different view from that often expressed a year earlier, when Chinese experts were conveying regret for having participated in the Comprehensive Test Ban Treaty (CTBT) process and were arguing that negotiated arms control efforts had somehow failed China.

## Islamabad

Interlocutors in Pakistan included a number of senior retired diplomats and academic experts (see attached list in Appendix A). The discussions indicated a number of clear directions for Pakistan’s arms control diplomacy, and a considerable amount of pragmatism in the ideas offered:

- Most of the interlocutors indicated that Pakistan can and should de-link from India on the issue of ratifying the CTBT. They argued that the move would have immediate economic benefits, in that the Japanese would release the hold that they had placed on assistance to Pakistan after the May 1998 nuclear test. What is more, the ratification would not have much practical meaning because the Treaty could not enter into force until the United States had ratified it, which was not going to happen anytime soon.
- The Pakistani experts stressed that the impact of U.S. actions on the South Asian regional nuclear situation was strong. For the situation to stabilize, they argued, they need an atmosphere where arms control is being promoted. By contrast, U.S. insistence on missile defenses and unilateralism is a setback for regional stabilization. For example, if Russia is tempted by U.S. emphasis on missile defenses to sell theater missile defense technology to India, then the impact on Pakistan would be “severe.”
- Several of the experts argued that if we cannot find a comprehensive solution to the problems posed by the relationship of India and Pakistan to the Nonproliferation Treaty regime, then we should find a way to de-link nuclear safety and security from these problems. In particular, the Pakistanis argued that there is an urgent need for material protection, control and accounting measures in India, to address the threat of nuclear thefts from unsafeguarded Indian nuclear reactors. (When we asked about unsafeguarded Pakistani nuclear facilities, they stressed that Pakistan did not really have a sizeable civilian nuclear power industry, and therefore needed no such help.)

## New Delhi

By contrast with their Pakistani counterparts, our interlocutors in India conveyed a lesser degree of pragmatism in their comments to us. They were not at all interested, for example, in ratifying the CTBT in order to gain diplomatic points or economic advantage, despite a situation where the Treaty would not enter into force anytime soon. They did convey a clear sense, however, of some of the major regional implications that they saw in strategic shifts underway elsewhere:



- The Indian experts argued that a shift is occurring away from an emphasis on the U.S.–Russian strategic relationship to an emphasis on the U.S.–Chinese strategic relationship. They argued that the airplane incident, which had occurred by this time in our trip, would have no more than an ephemeral effect, but the strategic shift would be permanent, and would have a “colossal effect” on Indian security. (Most of the Indians who discussed the issue were not particularly impressed with the current importance of Russia.)
- One Indian expert well-known for his criticism of the NPT regime surprised some of us by asserting that the regime is actually fine for those who are already signed up to it. What we need, he stressed, was a parallel and complementary regime for countries outside of the NPT. (From this viewpoint India now has a parallel interest with the NPT nuclear weapons states in limiting the number of nuclear weapons states, even while it refuses to join the NPT as a non-nuclear weapons state and promotes the idea of a more comprehensive “non-discriminatory” approach.)
- Several participants in the New Delhi workshop expressed general support for the Lahore Declaration and argued that that was the means by which Pakistan and India should return to nuclear confidence building. They did not seem particularly keen to involve the United States in these activities; one highly placed retired diplomat, for example, argued that nuclear risk reduction should only be conducted on a “global basis,” not through the specialized, individual attention of the United States. (He was not very clear about what that would mean in practice.) Their expressed support for the Lahore Declaration was also not backed up by any particular enthusiasm for taking practical steps with Pakistan—in fact, the statements about Lahore stood in contrast to statements about a distaste for bilateral work with Pakistan on nuclear matters.
- Unlike the Pakistanis, the concern that the Indian experts expressed about missile defenses was with regard to China, not their neighbor on the subcontinent. If the United States insists on deploying missile defenses, they said, they would not care if China builds up its ICBM force—the problem for India would be in a build-up of Chinese medium- and shorter-range ballistic missile systems.

### Major Points from Discussions and Workshops in Geneva and Annecy, France

Three overarching conclusions emerged during observations in Geneva and Annecy:

- **An FMCT could probably be drafted, given a mandate for negotiation.** A possible impasse over existing stocks of fissile material is potentially manageable by encouraging the placement of excess stocks in verified secure storage. A new move to conduct a preliminary multilateral dialogue on this issue outside of the CD is, however, fraught with difficulties.
- **An ad hoc working group on nuclear disarmament is likely to concentrate on a broad menu of issues.** The question of just what is the meaning of the “unequivocal” commitment to nuclear disarmament, accepted by the permanent UN Security Council Members at the 2000 NPT Review Conference, is likely to be buried under a plethora of discussion on individual topics. This discussion may be along the lines of the 13 Steps toward Nuclear Disarmament agreed to at the Review Conference.
- **There is a perceptual gap between the United States and China on the relevance of PAROS.** The Chinese approach gives the appearance of being rigid and thoroughly incompatible with domestic political reality within the United States. On the U.S. side the Chinese seem actually to be perceived as making unreasonable demands by insisting that negotiations on PAROS be coupled to those on the FMCT.

One cannot help but be struck by the very different tenor of discussions in and near Geneva compared to those we had with international interlocutors in the various capitals, even outside the settings of formal meetings. It seemed much easier to engage underlying issues constructively in those capitals, while in Geneva there are two impediments to this. The first of these is inevitable frustration with the formality, procedural wrangling, and posturing that goes on in and around a CD deadlocked on issues related to the FMCT. One also gets the impression that there are constraints on effective communication even outside official forums on the key underlying issue of how the PAROS question might eventually be effectively dealt with. Whether these are self-imposed or a response to bureaucratic constraints matters little to the point that information flow back to the

home offices is unlikely to be adequate under such conditions. Within this context a mixture of encouraging and cautionary messages were received in Geneva and Ancey.

- A number of parties with strong interests in the FMCT appear to have adopted either a constructive or hands off approach to the key problem of how to deal with existing stocks. These include Japan, South Africa, Canada, and Israel, all of which have substantial capacity for production of various isotopes that are particularly useful for nuclear weapons. The developing U.S./Russia/IAEA Trilateral Agreement on this is seen by many as a politically and technically practical useful precedent for constructing a compromise on an irreversible mechanism for reducing stocks of weapons programs' fissile materials. Even Pakistan appears to envision the possibility of an FMCT being set up in a way that allows for sufficient but not excess stocks of weapons-usable fissile materials.
- However, there is frustration that the FMCT is blocked within the CD, and an initiative spearheaded by the Netherlands to discuss it temporarily outside the CD is moving slowly. Netherlands is part of the so-called NATO Five (also including Belgium, Germany, Italy, and Norway). The CD was still awaiting the impact of a new conservative government being elected in Italy. The German delegation was helpful in hosting a meeting earlier this year that dealt with FMCT issues. However, despite the present Green Party foreign minister in Germany, one gets the impression that nuclear power reactors and genetically modified organisms are getting more attention in that country than nuclear and biological arms control.
- Outside the United States there was a seemingly universal preference for avoiding the placement of weapons in space. Even from U.S. quarters there was a caution that ambitious plans for placing weapons in space come largely from Air Force brainstorming and represent neither a national consensus nor a national policy.
- One Russian view saw the third millennium providing opportunities in space beyond our current imagination. This is a recurring theme in Russia; and it suggests that the question of further constraining military activities in space beyond geosynchronous orbit might eventually provide a more fruitful avenue than discussion of more immediate but contentious issues in regions of space closer to the earth.
- Another party who considers the NPT of critical importance noted that the three countries that haven't abjured nuclear weapons appreciate the value of the treaty even though they don't want to sign it. This echoes a comment related above from India and suggests a subtle but important shift from the situation prior to the 1998 nuclear tests in South Asia.
- There was clear equivocation in Ancey about what is entailed in the unequivocal commitment to nuclear disarmament accepted by the nuclear weapons states parties to the NPT at the 2000 review conference. One participant said that their country's view was hopefully well known and widely shared, but that others have a different view of what unequivocal means. The response to a question about whether it would be a good idea to try to clarify this was several resounding answers of "no."
- There was public and private discussion at the meetings of the possibility of a Fourth UN Special Session on Disarmament. This is formally overdue and may find some support amongst parliamentarians and senior diplomats, but it could be quite difficult to organize. At some point, however, it could provide an interesting forum for discussion of broader issues. This is because the CD seems more likely to focus on the "trees" of a 13-point plan for nuclear disarmament rather than the "forest" of how a global commitment to comprehensive nuclear management and continuing disarmament might be structured from an overall political perspective.

It was illuminating to see how perceptually isolated is the U.S. perspective on missile defense, particularly in the sense of giving no credence to China's idea that there is a substantive as well as political link between PAROS and the FMCT. The idea that China might primarily want to avoid negotiating a commitment to a fissile material production cutoff while it faces the potential prospect of an open-ended offensive-defensive arms race with the United States seems not to resonate. This suggests that an alternate mechanism may eventually be needed to connect bilateral Sino-American discussions on missiles with the practicalities of getting the CD unblocked on the FCMT.

### Major Points from a Meeting with Russian Interlocutors in DC

The 20 June gathering at the Carnegie Endowment for International Peace in Washington was a brief preparatory meeting for a workshop of U.S. experts on Russia at the University of Illinois on 12 October 2001. It addressed three principle questions, with the following outcome:

- **A cap on U.S. missile defenses adequate to ensure the credibility of China's first strike capability would be seen as adequate to ensure the credibility of Russia's second strike capability.** Russia would also like to preclude increase of intermediate range ballistic missiles in China and Europe and is likely to continue to support the Intermediate Nuclear Forces treaty.
- **De facto rather than *de jure* limits on combined Anglo-French nuclear forces are likely to be sufficient to allow continuing U.S./Russia nuclear disarmament.** It is understood that UK reductions of nuclear deployments have bottomed out for some time, and that any future reductions in French deployments (e.g. on aircraft) are likely to be of marginal importance if and when they eventually become politically feasible. Russia would prefer proportional cuts in Anglo/French nuclear deployments if and when the U.S. and Russia move below c. 1,000 (strategic?) nuclear weapons each, but it is realized that France could have institutional inertia against such proportional cuts. The last round of European cuts in nuclear deployments has apparently helped defuse this issue, and it is not expected to provide a major impediment to progress on other aspects of multilateral nuclear arms control for the readily foreseeable future.
- **It is actual expansion of NATO into former Soviet republics rather than the open possibility thereof that would seriously complicate U.S./Russian relations on nuclear arms control.** It would be preferable if specific assurances could be given that NATO would not expand into former Soviet republics over Russia's objections, but it is understood that the structure and politics of NATO's Founding Act makes it difficult for clear assurances of this type to be provided.

One Russian commentator at the Carnegie Nonproliferation meeting noted in effect that Russia is at least as susceptible to the dangers of proliferation or unauthorized access to nuclear weapons as any other country. This provides a considerable incentive for cooperation with the United States, which has broad similar concerns. One suggestion at our meeting was that a special U.S. envoy on multilateral aspects of nuclear arms control should be appointed to visit at least all of the countries that have declared nuclear weapons tests. A novel suggestion was that a **joint team of U.S. and Russian envoys** should be appointed for the same purpose. Given the unique nature of this latter suggestion, it is interesting that it was not rejected out of hand by either the U.S. or Russian participants.



## PART TWO: PROJECT CONCLUSIONS

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### Overview

Production of weapons grade nuclear materials epitomizes the symbol and substance of nuclear arms competition. A global halt to production of weapons grade plutonium and uranium would symbolize the capping of nuclear arms races around the world. It could also give impetus to the quest for comprehensive global nuclear management. By this we mean the secure storage of all nuclear weapons and weapons grade materials. Secure storage constitutes global nuclear management if it is transparently comprehensive enough to build confidence that these materials are not available to entities that did not themselves produce them.

It is widely believed that a global fissile materials production cutoff is an extraordinarily difficult challenge that is unlikely to be met by the end of the current decade. It is also widely believed that there are extremely serious impediments to achieving comprehensive global nuclear management in the sense described above. The theme here is that these views are based on a set of twentieth century perceptions that do not necessarily apply to the new nuclear arms control environment of the twenty-first century. A key perception pertains to China's reasons for remaining at an impasse with the United States on progress towards a fissile materials production cutoff agreement. Others important perceptions involve the intention behind U.S. missile defense programs, India's reasons and methods for promoting global nuclear disarmament, the level of interest in nuclear arms reductions in Russia and the United States, Japan's reaction to the question of India's nuclear status, Pakistani recalcitrance, and the role of Israel. We also look at Chinese attitudes towards verification and the durability of international confrontations that have a nuclear dimension.

These perceptions were tested against the results of a series of six spring 2001 workshops and ancillary private meetings in the capitals of the seven states that have declared nuclear weapons tests. The results present a different picture, wherein substantial progress towards a global fissile materials production cutoff may be possible in the present decade. This would likely be accompanied by and facilitate substantial progress on comprehensive global nuclear management in the present and next decade. Of course there are reasons that these perceptual problems exist in the first place. Thus, that their solutions be highlighted as in the present work is by no means alone sufficient to ensure timely progress. It nevertheless points out that progress is possible given adequate mechanisms for communication and analysis, and may thus be worth the attempt.

### Current Impasse

The most visible forum for work on a fissile materials production cutoff agreement is the Geneva Conference on Disarmament (CD). There, progress is blocked by inability to agree on an agenda for negotiation of a Fissile Materials Production Cutoff Treaty (FMCT), discussions or negotiations on Prevention of an Arms Race in Outer Space (PAROS), and an ad hoc working group on nuclear disarmament. This is not just a procedural problem resulting from CD requirements for universal consensus on the entire agenda before proceeding on its individual components. Rather, it results from an underlying disagreement on how to achieve mutually compatible approaches to these three items.

In particular, the members of the CD have agreed in principle to proceed with negotiations on an FMCT and with discussion of an ad hoc working group on the future of nuclear weapons. The most visible current difficulty lies with PAROS. This leads us to the first perception to be challenged here:

- China has broad-based concerns on PAROS that require negotiation incompatible with U.S. plans for military use of outer space.

We encountered this view particularly in the United Kingdom and France. These countries themselves do not favor weaponization of outer space, preferring to limit military activities there to reconnaissance and communications. However, they are unlikely to effectively oppose a U.S. vision for a broader military role in outer space. They see China as deeply concerned about the broader implications of this issue, and thus likely to block progress on a broader agenda as long as the United States pursues such a vision.

In China, however, we uniformly encountered a different view. This was that the core issue concerning military uses of outer space concerns the threat that space-based components of missile defense pose to China. Within this core issue, the key concern is that an open ended U.S. national missile defense program could undermine the credibility of China's nuclear deterrent. Thus, China would not close off an option for resuming fissile materials production in case of the development of an open-ended Sino-American offensive/defensive arms race.

China is of course also concerned that theater missile defenses could undermine its perceived capability to threaten Taiwan in case the Taiwanese authorities take unacceptable steps that undermine the policy of "one China, two systems." The key here, however, is not weapons systems development but whether or not missile defenses are actually provided to Taiwan. Provision of missile defenses to Japan is also an issue, but again the central concern here is what level of military assistance is actually provided to Taiwan. Since the Nixon era the United States has always managed to avoid crossing the critical line that separates support for Taiwan from encouraging Taiwanese independence. The results of early high level contacts between China and the George W. Bush Administration suggest that this will continue to be the case up through the point that China integrates into the World Trade Organization, and beyond.

### **Missile Defenses**

In China we found it broadly understood that the United States could not in fact prevail in an offensive/defensive arms race with that country. One view which was not broadly disputed was that China could counter U.S. defenses by spending as large a fraction of its military budget on offensive modernization as the fraction of its own military budget that the United States spends on missile defenses. In any case it was also universally agreed that China would and could spend whatever becomes necessary to keep U.S. missile defenses from undermining the credibility of China's strategic nuclear deterrent. There is thus a crucial perception in China that needs to be dealt with before further multilateral progress is plausible.

- The United States may enter into an open-ended defensive/offensive strategic nuclear arms race with China.

As we discussed in several meetings in China, there are five reasons why this will probably not in fact happen. First, the international diplomatic and security ramifications of an open-ended arms race give serious pause for thought on this question to about two-thirds of the U.S. public, and to the U.S. Administration as a whole. Second the armed services in general and the United States Air Force in particular are seriously concerned about the budgetary impact on other capabilities. Third, the U.S. Navy would much prefer theater missile defenses, and China's geographic depth is sufficient that these would not likely threaten its strategic deterrent. Fourth, the core constituency of support for pursuit of national missile defense derives from Reagan's vision of space-based defenses, which are likely to drain some research and development resources away from more limited systems likely to be most effective against China. Fifth and most important, the technical difficulty of pursuing ever larger scale missile defenses against a determined and increasingly wealthy antagonist like China are fairly transparently unmanageable. It seems likely, albeit by no means certain, that the passage of time over the coming decade will clarify this state of affairs and help dispel this particular perception. It is even possible that sometime in the coming decade a U.S. administration will assign importance to this problem and take proactive measures to make the required reassurance on this point more explicitly clear to China.

### **Nuclear Disarmament**

South Asia is a critical region for a fissile materials production cutoff. It is also a potentially significant region with respect to comprehensive global nuclear management. Within South Asia, India has long coupled restraints on its own nuclear programs with global progress towards nuclear disarmament. India is thus likely to join declared non-nuclear-weapons states in pressing for a more substantive agenda for discussions on nuclear disarmament in concert with any progress towards a fissile materials production cutoff.

There would be an impassable roadblock if India were to hold fast to a demand for a rigid time-bound framework for the elimination of nuclear weapons in concert with a fissile materials production cutoff. A view

held by some non-proliferation advocates is that India is likely to do just this, or the functional equivalent. This is based on the following perception:

- India's pursuit of a commitment to global nuclear disarmament is just a smoke screen to mask its own nuclear ambitions.

A test of this perception is India's response to the suggestion of flexibility rather than rigidity in the approach to global nuclear disarmament. It is unrealistic to expect a commitment to continuation of recent U.S.–Russian nuclear weapons disassembly rates to zero holdings within one to two decades, as implicit for example in Rajiv Gandhi's widely touted nuclear disarmament plan. More realistic for the readily foreseeable future is a continuing exponential decline in these assembled nuclear explosives holdings, roughly in concert with the radioactive decay of the tritium that many of them rely upon. In round numbers, this corresponds to a half-life of about twelve years. Moreover, the expectation of continuing decline at this rate is necessarily tempered by the possibility that operational nuclear weapons holdings may well level off at some point, at least temporarily. This is exemplified by the fact that the United States has made contingency plans for restart of tritium production, even though it has not as yet executed those plans.

With rare exceptions, in India we have found a widespread understanding that some flexibility is both necessary and possible for that country to be able to participate in more substantive global discussions of comprehensive nuclear disarmament. This is reflected both in response to specific suggestions for a conditional exponential decline in a universal upper limit on assembled nuclear explosives holdings and in official Indian statements on the question. A good example is one of Indian Ambassador Ghose's statements in connection with Comprehensive Test Ban Treaty (CTBT) negotiations on 20 August 1996, at the Plenary of the Geneva Conference on Disarmament:

We were not seeking to prescribe a specific time frame, which we realise requires detailed consideration. What we were seeking was a commitment which could have acted as a catalyst for multilateral negotiations for the elimination of nuclear weapons within a reasonable time frame. The striving itself would have rendered the momentum irreversible.

Whether serious engagement would indeed provide irresistible momentum is disputed by many, but the point here is that there is a widespread feeling in India that this could be the case. Within this context, India's desire for progress on global nuclear disarmament is indeed a serious one, albeit one that has been frustrated by the Cold War and the subsequent impasse over strategic arms reduction treaties (START) since the late 1990s.

### **Strategic Reductions**

One of the reasons that India's press for global nuclear disarmament is readily dismissed as mere incantation has been the apparent interest of the United States and Russia in maintaining far larger nuclear arsenals than all other countries combined. Until recently, the following perception augmented the idea that India (and also China) was hiding behind unrealistic expectations on global nuclear disarmament.

- Neither Russia nor the United States is seriously interested in deep reductions of their nuclear arsenals below immediate post-Cold War levels.

During the Yeltsin era, this perception would have been accurate, particularly with respect to total operational nuclear weapons holdings. Powerful political elements in Russia viewed Cold War nuclear weapons holdings as Russia's legacy of power. There remained considerable disdain for China, which manifested itself in the idea that eventual nuclear parity between Russia and China was unthinkable. The depth of the coming fiscal crisis and its impact on nuclear operational readiness was also not fully anticipated in the early 1990s.

With the dawn of the twenty-first century, Russia has been transformed from a reluctant partner to a clear advocate of much deeper cuts in strategic nuclear arsenals. President Putin's declared willingness to discuss eventual strategic reductions well below an initial drop to 1500 deployed (strategic) nuclear warheads should not be dismissed as pure rhetoric, much as Reagan's "double zero" offer for theater nuclear weapons was initially discounted. This is because Putin's offer reflects two strategic realities. One is that a level of 500–800 operational strategic nuclear warheads would be much more manageable for Russia and also provides it with

sufficient strategic deterrence under readily foreseeable future circumstances. The other is that these levels of Russian warheads would lead to substantially less residual damage to the United States under an operational scenario where the U.S. launches a preemptive counterforce strike following detection of preparations or execution of an unauthorized launch of part of the Russian arsenal. Under this same nightmare scenario, Russia would also suffer substantially less collateral damage with a prompt U.S. counterforce attack at the 500–800 level than at the 1500–3000 level. Thus, under appropriate political circumstances the lower levels might also look less unattractive to Russian operations planners.

The confluence of the push towards missile defenses and a Republican presidency has also transformed the U.S. approach to the question of nuclear disarmament. This committed the new administration to unilateral cuts of operationally deployed strategic nuclear weapons to below START II levels of c. 3000. It even opened up the possibility of cuts to as low as the 1500 level preferred by President Putin. Now it should be cautioned that this is not likely to immediately precipitate a further deep reduction in the number of assembled nuclear explosives held by the United States. The current administration is likely to want to keep its options open in this regard. However, it may allow some postponement of a decision on restart of tritium production. It may also later allow substantial cuts in U.S. assembled nuclear explosives holdings as confidence grows in the durability of parallel reductions in operational Russian strategic holdings. Moreover, if Cold War spillover tensions in Europe gradually subside, Russia may well be willing to make more transparent the likely decline in the number of its fully operational “tactical” nuclear weapons holdings.

### **Fissile Materials Production Cutoff**

Even if the above-mentioned perceptions can be adequately dealt with, a universal halt to production of weapons grade fissile materials can't occur as long as any country considers such production essential to its security. Pakistan must thus first produce enough material that it feels it has an adequate deterrent against India, so long as Pakistan feels this is necessary due to tension over its “core issue” of Kashmir. This underscores the obvious point that Pakistan wants existing fissile stocks dealt with in any fissile material production cutoff treaty. This approach is not favored by any of the permanent five (P-5) members of the UN Security Council. This approach would be particularly unacceptable to China as long as the United States and Russia maintain much larger nuclear arsenals, since in this case China prefers to maintain some ambiguity about the size of its holdings. One perception based on these observations is the following:

- Pakistani recalcitrance prohibits agreement on a fissile materials production cutoff in the foreseeable future.

This point of view fails to take account of three basic points: approach to parity, relevance of global arms control to India's nuclear capabilities, and the impact of global nonproliferation regime breakdown on Pakistan's security. We consider these points in turn.

Based on commonly used estimates of Pakistani and Indian production capabilities, by c. 2010 Pakistan is likely to approach as close to parity with India as it is likely to get for some time thereafter. This is because India's national budget and its plans to replace an aging production reactor give it substantially more potential unsafeguarded production capability than Pakistan in the following decades. While informed Pakistanis may feel that commonly quoted estimates understate the difference between Indian and Pakistani production capabilities, they nevertheless appreciate the point that the closest approach to parity in fission weapons production capabilities may occur roughly within a decade.

At first glance it may seem implausible that global nuclear arms control could have much impact on an arsenal as small as that planned for India in the time frame of interest here for fissile production cutoff and global nuclear management. However, the maintenance of a global arms control regime that a fissile production cutoff would require and symbolize would require restraint on a Sino-American offensive/defensive arms race, which should feed back into India's perceptions of its strategic needs. The subsequent combination of continued global nuclear build-down and approach to comprehensive nuclear management could well then temper both China's and India's procurement plans for expensive and long-lived delivery platforms such as nuclear submarines.



General stress on the global non-proliferation regime could act to the disadvantage of Pakistan's security similarly to that of many others, but in greater than average measure. Given the security situation in central Asia and its already problematic spillover from Afghanistan to Pakistan, leakage outside of state control of nuclear weapons or weapons components from the former Soviet Union could disproportionately threaten Pakistan's security. Moreover, possible spillover of offensive/defensive nuclear missile capabilities is viewed in Pakistan as a possible major problem if it facilitates India acquiring functional missile defense capabilities from Russia or elsewhere.

For all of these reasons the Pakistani establishment is by no means happy to simply hide behind global nuclear chaos to free its own nuclear program from the threat of sanctions. Rather, there is considerable interest in Pakistan in an orderly global process. This is despite the possible difficulty of sanctions if Pakistan delays a fissile production cutoff that has become otherwise unblocked globally. There is, however, another side to this coin. As most effective economic sanctions look likely to have completely evaporated, there is also the possibility that Japan or others may eventually offer Pakistan positive incentives for timely accession to a fissile production cutoff.

### **Implementation**

Given their military nuclear capabilities and combined importance for export markets, progress on multilateral aspects is unlikely to occur unless the United States and Russia are capable of acting together to stimulate it. This raises the question of whether the following perception is correct:

- The United States and Russia remain too greatly at odds over issues like national missile defense and security in Europe to actively cooperate in promoting multilateral nuclear arms control.

In fact Russia's concerns about U.S. national missile defense appear to be effectively subsidiary to China's. That is, for the present at least Russia is likely to remain convinced that the credibility of its second nuclear strike capability will not be threatened by a U.S. missile defense capability limited enough not to threaten the credibility of China's first strike capability. Sorting this out with China is a prerequisite for further substantive progress on multilateral aspects of nuclear arms control, so U.S.–Russian relations on this question don't appear to pose any additional serious constraints.

The current Russian administration appears to be fairly pragmatic about the symbolism of NATO expansion. There are serious concerns about logistical connections to Kaliningrad, but an insistence that NATO formally forswear the possibility of expansion into the Baltic states without Russian approval seems understood to be infeasible. Poland will no doubt continue to advocate expansion that would place it behind the old front line between East and West in Europe, and expansion to provide physical contiguity with Hungary appears to be understood to be quite likely. On the other hand, Germany and some other western European states are likely to be very reluctant to pass off on NATO expansion into former Soviet republics over Russian objections that lead to a serious disruption of East–West relations. Thus it seems likely, albeit not certain, that the issue of NATO expansion will not prove to be a serious complication for cooperation on multilateral aspects of nuclear arms control.

A challenging question is how to move past the bilaterally dominated Cold War dialogue on arms control to deal with a strategic triangle involving China and accounting for the new roles of Western Europe and South Asia. A fully trilateral U.S./Russia/China set of treaties or other agreements is problematic both because Russia shares sensitive START I data with the United States and because China wants the other two to build down substantially before explicitly limiting its own arsenal. A novel suggestion is that the United States and Russia should send a paired team of special envoys to at least the other states that have declared nuclear weapons tests in order to coordinate approaches to multilateral arms control. Such a mission would certainly not be quick in the making, but if adequately prepared and supported it might achieve results at a speed that would be impossible by any other mechanism.

## **Issues for Future Examination**

### **Japan's Reaction**

Even if India is willing to be flexible in its approach to discussions of global nuclear disarmament, there remains the problem of whether this question can be engaged in a manner acceptable to the states that have abjured possession of nuclear explosives. Japan plays a potentially critical role here. This is partly because of the massive virtual nuclear capability in its reactor and reprocessing facilities and partly because of its substantial commitment to backing up its nuclear nonproliferation agenda with financial resources. Japan has been particularly adamant against expanding the number of states with nuclear weapons "status" beyond the current (P-5) permanent veto members of the UN Security Council. This can lead to the following perception.

- Japan would block substantive discussion on the future of nuclear weapons unless they provide for differential treatment of India and the P-5.

Given the current and foreseeable situation in India, such an approach would preclude discussions of nuclear weapons futures that include that country. This in turn could very well preclude India's timely concurrence with development of a fissile materials production cutoff.

A preliminary analysis of this question suggests that while it is indeed a delicate issue, it is also potentially manageable. The key is to adopt an approach that bypasses rather than confirms or denies the status of India as a nuclear weapons state. For example, discussions of a conditional declining universal upper limit on assembled nuclear explosives holdings would be acceptably non-discriminatory from an Indian perspective (c.f. Addendum to Appendix B, below). This would perhaps not be to Japan's liking on its own. However, if necessarily coupled with substantial progress on an understanding limiting China's, India's, and Pakistan's production of weapons-usable fissile materials, this possibility is reasonably likely to be acceptable to Japan. The key is careful wording and explanation of any proposal and careful attention to the nuances of the internal political situation in Japan, so that the disarmament bureaucracy has adequate support for interpreting such a pragmatically constructive approach to a broader domestic constituency. Assuming this can be managed, one of the key barriers to making such an approach acceptable to a broader set of non-nuclear-weapons states may also have been successfully dealt with.

### **Israeli concerns**

Another possibility is that Israel may block a fissile production cutoff. Indeed, Israel was the state most reluctant to agree to brief CD discussions of the FMCT in August of 1998. Moreover, the collapse of the Middle East Peace Process over the symbolism of Jerusalem's status after agreement on substantive economic issues does not inspire confidence that Israel's requirements for broader agreement on nuclear disarmament will readily be met. This leads to another perception:

- Although it has incentive to allow negotiations to proceed, Israel will not allow agreement to a fissile materials production cutoff within the present decade.

This neglects the likelihood that Israel is likely to have more than adequate fissile resources for its perceived security needs well before 2010. While there is a potential issue with highlighting continuing Israeli tritium production, it is unlikely that the UK, France, or China will agree to halt tritium production by then. Thus any verification mechanism will need to allow for the possibility of continued tritium production, and thus likely concentrate on signature fission products from reprocessing rather than actual reactor operations.

What the Israeli, Pakistani, and Chinese cases do suggest is that a conditional moratorium on weapons-usable fissile materials production is more likely in the c. 2010 time frame than a permanent halt by ratified treaty. Israel may well link a permanent production halt with development of a better security environment in the Middle East, in case of future escapees from the Nonproliferation Treaty. Pakistan is likely to link a permanent production halt with the question of existing stocks. China may well link a permanent halt with a more formal commitment on the part of the United States to avoidance of an open-ended offensive/defensive arms race.

When it comes to comprehensive global nuclear management, Israel's case is somewhat different than it is for the FMCT. This is in part because Israel is only indirectly linked to the continuous nuclear security chain involving NATO members, Russia, China, and Pakistan. Thus, the continuing progress on global nuclear build-down that might need to accompany evolution of global nuclear management need not necessarily sweep up Israel immediately in a formal process. The expectation of tight internal security control on comparatively modest fissile materials holdings and lack of complications from commercial nuclear power may also allow Israel to be set aside until later on in this process.

### **Medium Term Possibilities**

Dealing successfully with all of the above perceptual problems is a tall order, but not conceptually beyond the realm of possibility. This could allow a scenario something like the following. Maximum assembled nuclear explosives holdings continue to decay with roughly a twelve year half life from a value of over 20,000 c. 1988 to 10,000 c. 2000, to 5,000 c. 2012, and possibly lower on a similar trajectory through the following decade. The United States and Russia may thus avoid restart of tritium production throughout this time period. A tacit agreement on avoiding an open-ended offensive/defensive Sino-American arms race is reached in the current decade and perhaps converted to a more formal understanding in the following one. Pending resolution of the above-mentioned problems, only a global understanding on a fissile materials production moratorium is reached by about the end of the current decade. This may well be accompanied at least by confidence building demonstration safeguards procedures in most or all of the relevant countries. Then previous experience on cooperative threat reduction could later lead to nearly comprehensive global nuclear management, with all weapons-usable materials expected to be confined to declared sets of facilities and well-inventoried transportation systems. During this period Anglo-French cooperation might evolve to the point where a more explicit response could be given to Russian concerns about combined Anglo-French nuclear capabilities, should there indeed remain such concerns after decades of continuing economic interdependence between Russia and the European Union.

All of this could set the stage for subsequent multilateralization of the nuclear arms reduction process, including increasingly broad-based declarations of pre-existing stock levels. Nominally this schedule would lead to universal upper limits on assembled nuclear explosives holdings of 2,500 in 2024, 1,250 in 2036, and 625 in 2048, but of course over such long time frames the actual course of events is almost completely unpredictable. Still, being explicit about such possibilities does have the advantage of pointing out an additional relevant perception:

- Chinese reluctance to engage the verification issue will scotch global nuclear arms control.

The counterpoint here is that China has already agreed in principle to the idea of verification of a fissile materials production cutoff, so long as such verification does not compromise confidential information concerning past production history. And with a continuing Chinese production moratorium and no more than factor of two uncertainty in an estimate of 600 weapons worth of existing stocks, baselining China's past production in preparation for multilateral reductions would nominally not be necessary for a third of a century. Thus, although an earlier global baseline might be desirable for building confidence in the absence of significant secreted stocks during subsequent reductions, it should by itself hardly be a necessary condition for a continuing U.S.–Russian tritium production moratorium for more than another human generation.

### **Long Term Considerations**

Within the present context the question of nuclear reductions continuing to the point of parity with conventional military capabilities may seem so remote as to be unworthy of comment. However, the question of eventual elimination of assembled nuclear explosives holdings appears to be conceptually significant to both proponents and opponents of continuing nuclear disarmament, so it does deserve brief mention here. Indeed, this brings us to one final misperception:

- Enduring conflict will prohibit indefinite extension of a continuing global nuclear disarmament process.

Confrontations over three areas involve states that have not abjured nuclear weapons and are thus directly relevant here: Palestine, Kashmir, and Taiwan. For each of these dialogue came tantalizingly close to apparent success in the year 2000 and then receded. The Middle East Peace process faltered over the status of Jerusalem. The Lahore declaration movement towards normalizing Indo-Pakistani relations foundered over the Kargil adventure. Cross-straits dialogue ran afoul of the semantic question of whether acceptance of the one China principle was a precondition or topic of discussions. In each of these cases the sticking point was symbolic rather than of economically relevant territorial substance. The status of Jerusalem was primarily a question of state symbolism rather than commercial reality. The line of control in Kashmir is a *de facto* border given the political/military realities in South Asia with the possible exception of the economically worse than useless Siachen glacier, so argument over its formal status is futile from an economic perspective. Cross straits tensions are merely an impediment to more efficient trade between Taiwan and the mainland, and the “one China, two systems” concept does not necessarily imply substantive changes in economic relations aside from possible mutually beneficial completion of normalization. It is indeed the symbolic rather than economically substantive nature of the remaining issues that makes each of these confrontations so resistant to the process of trade normalization that has helped alleviate classical seventeenth–nineteenth century sources of international conflict between major powers.

Another common element in these three confrontations is that they reflect incomplete evolution of political systems in the post-Cold War environment. The end of the Cold War removed Soviet support for Syria and helped precipitate limited Palestinian self-governance, but Palestine has yet to evolve a stable enough governance system to allow its leader to negotiate a peace settlement on the basis of an established popular mandate. Pakistan is still reeling from heavy military involvement in governance. This in turn produced a dynamic and unstable interaction with policy on Kashmir resulting from and influencing justification for unsustainably high levels of military spending. The political process in Taiwan is only now recovering from the imposition throughout the Cold War of Nationalist rule imported from the mainland, and the new Taiwan leadership has yet to formulate a convincingly stable policy on the question of declaring independence.

The history of the past sixty years on the European continent, in Ireland, and around the globe should give one serious pause for thought about the idea that historically durable conflict will necessarily persist in anything like its present form for the next sixty years. Yet on a continuation of the above nuclear arms reduction schedule many countries could maintain the 300 assembled nuclear weapons sufficient to totally devastate a rival throughout all of the next sixty years. Thus it hardly seems plausible to predict with any confidence that a process leading to reductions below such a level more than sixty years from now is predictably precluded by what now seems the intractable nature of the three conflicts discussed above.

Additional antagonists that might become visibly nuclear armed could arise in Korea, the Persian Gulf, or some other unspecified location. However the confrontation in Korea hardly seems headed in a direction where other states being limited to c. 300 nuclear weapons would be militarily relevant. Such a level of nuclear weaponry is also quite sufficient to totally devastate Iraq or Iran. Trends in the declining petroleum intensity of industrialized countries’ economies also require attention. They bring into question the idea that a program of reductions leading to industrialized countries holding no more than 300 nuclear weapons over sixty years from now is predictably precluded by concerns over dependence on Persian Gulf oil in such a distant future. With respect to other unspecified conflict in such a distant future having a nuclear dimension that prevents continuing nuclear disarmament, the idea that globalization trends cannot dispel such concerns is a very hypothetical construct to place in the way of practical international diplomacy in the here and now.

## Conclusion

Based on pre-existing analysis and an intensive set of international consultations conducted particularly for this study, we have examined nine variously held perceptions related to the questions of fissile materials production and comprehensive global nuclear management. We have constructed plausible cases for how these perceptions might be successfully dealt with. This demonstrates the possibility of considerable progress on these matters over the course of about two decades. What this analysis does not do is to determine the probability of such progress. It is clear that perceptual difficulties have evolved out of a long process during the nuclear age in the twentieth century. What is not yet clear is how twenty-first century events and passage of

generations will change perceptions and allow or disallow substantive progress. The purpose here is not to make a prediction on this matter, but merely to be part of the process.



## APPENDIX A: DETAILS OF TRIPS

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### 1) London Meetings (19-20 March 2001)

#### a) Ministry of Defence

Paul Schulte, Director, Proliferation & Arms Control Secretariat  
Matthew Shaps, Proliferation & Arms Control Secretariat  
Commodore Tim Hare  
Sue Emblar Edwards

#### b) Meeting at Royal United Services Institute (RUSI)

Richard Cobbold  
Jonathon Eyal  
Michael Codner  
Chad Peterson

#### c) WORKSHOP: "The New Nuclear Arms Control Environment: A Parallel Bilateral Approach," Royal United Services Institute (RUSI)

##### Session 1: Views from the United States

Chair: Steven Simon, International Institute for Strategic Studies

Beyond Phase 1 Missile Defense and Unilateral Strategic Reductions  
Clifford Singer, University of Illinois

The Far East: Requirements for Multilateral Cooperation  
Amy Sands, Monterey Institute of International Studies

South Asia and Fissile Materials: Is There Flexibility?  
Dinshaw Mistry, Stanford University

##### Session 2: Views from Europe

Chair: Stephen Pullinger, ISISUK

The UK Role in Europe's Approach to Multilateral Arms Control  
Rebecca Johnson, The Acronym Institute

Anglo-French Cooperation and European Defence Capability  
Ken Aldred, Centre for Defence Studies

The Role of Verification  
Oliver Meier, VERTIC

##### Session 3: The Challenge of Constructing a Synthetic Global View

Session Chairs

## London Workshop Participants:

Mr. Ken Aldred OBE (workshop speaker), Centre for Defence Studies  
Mr. Andrew Barlow, Foreign and Commonwealth Office  
Prof. Frank Barnaby, Technical Advisor to the Oxford Research Group  
Rt. Hon. Menzies Campbell CBE QC MP PPC (luncheon speaker)  
Adm. Richard Cobold, Royal United Services Institute  
Mr. Michael Codner, Royal United Services Institute  
Mr. James de Waal, Foreign and Commonwealth Office  
Ms. Sue Emblar Edwards, Ministry of Defence  
Dr. Jonathon Eyal, Royal United Services Institute  
Mr. David Fisher, Ministry of Defence  
Air Marshall Sir Timothy Garden  
Commodore Tim Hare, Ministry of Defence  
Ms. Natalia Jimenez, International Programs and Studies, University of Illinois  
Ms. Rebecca Johnson (workshop speaker), The Acronym Institute  
Mr. Oliver Meier (workshop speaker), VERTIC  
Mr. Tom Milne, Pugwash UK  
Dr. Dinshaw Mistry (workshop speaker), Stanford University  
Dr. Steve Pullinger (session chair) ISISUK  
Mr. Nick Richey, Oxford Research Group  
Ms. Sheila Roberts (workshop supervisor), University of Illinois  
Prof. Joseph Rotblat  
Rt. Hon. Malcolm Savidge MP (luncheon speaker)  
Prof. Amy Sands (workshop speaker), Monterey Institute of International Studies  
Mr. Paul Schulte, Ministry of Defence  
Mr. Matthew Shaps, Ministry of Defence  
Mr. James Sharp, Foreign and Commonwealth Office  
Mr. Steven Simon (session chair) International Institute for Strategic Studies  
Prof. John Simpson, Montbatten Institute of Strategic Studies  
Prof. Cliff Singer (workshop speaker), University of Illinois

## d) Foreign and Commonwealth Office

James de Waal, Policy Planning Staff  
Andrew Barlow  
James Sharp



**2) Paris Meetings (21-23 March 2001)**

a) Ministry of Foreign Affairs (21 March 2001)

Olivier Caron

b) National Assembly (22 March 2001)

Pierre Lallouche and Cécile Maisonneuve

c) Ministry of Defense (22 March 2001)

Guillaume Schlumberger

Bruno Tertrais

Alain Munier

Daniel Kiffer

d) WORKSHOP: “The NMD and the New Nuclear Arms Control Environment”

*Institut de Relations Internationales et Stratégiques, 23 March 2001*

Session 1: *Positions américaines et françaises sur la NMD*

Speakers: Dinshaw Mistry, Stanford University

Lieutenant-Colonel Philippe Steininger, *Etat Major des Armées*

Session 2: *Enjeux stratégiques et dissuasion*

Speakers: Amy Sands, Center for Nonproliferation Studies, Monterey Institute

Bruno Tertrais, *Chargé de mission auprès du directeur, DAS*

Session 3: *Le dialogue européen sur la NMD*

Speakers: Clifford Singer, University of Illinois

Colonel André Var, *Affaires Internationales et Stratégiques, SGDN*

## Paris Workshop Participants:

- M. Jean-Luc Albert, *Officier de coherence opérationnelle, EMA, Division forces nucléaires, Ministère de la Défense*
- M. Pascal Boniface, *Directeur de l'IRIS*
- Général Jean-Vincent Brisset, *Conseiller militaire, Sénat*
- M. Géraud Brun, *Officier de zone Royaume-Uni, DGA/DCI, Ministère de la Défense*
- Mlle Aurore Chevallier, *Assistante de recherche, IRIS*
- M. Yves Cottin, *DGA/DSP/SASF/PRO, Bureau de la Prospective, Ministère de la Défense*
- M. Barthélémy Courmont, *Chercheur questions nucléaires/Etats-Unis, IRIS*
- M. Bruno Garnier, *Responsable Etudes et Prospectives Technico-Opérationnelles, DGA/SPNuc, Ministère de la Défense*
- Mme Caroline Gorse-Combalat, *Déléguée à l'information politico-militaire, Ambassade des Etats-Unis*
- M. Nicolas Kasprzyk, *Doctorant, CESIM*
- ICA Michel Lorenzi, *DGA/DSP/SASF/Dissuasion, Ministère de la Défense*
- Mme Cécile Maisonneuve, *Administratrice, Commission de la Défense Nationale et des Forces armées, Assemblée Nationale*
- M. Timothy McBride, *Assistant de recherche, IRIS*
- M. Dinshaw Mistry, *Center for International Security and Cooperation, Stanford University*
- M. Laurent Molard, *Chef du bureau RU/Italie, DGA/DCI, Ministère de la Défense*
- Capitaine de Vaisseau Morel, *Pôle Affaires Internationales Stratégiques, SGDN*
- Mme Valérie Niquet, *Chercheur Asie, IRIS*
- M. Guillaume Parmentier, *Chef du CFE, IFRI*
- Colonel Mattieu Pellissier, *BEPG/OCEM Dissuasion, EMAA*
- M. Cédric Prieto, *Responsable Etas-Unis, Ministère des Affaires étrangères*
- Mme Amy Sands, *Center for Nonproliferation Studies, Monterey Institute*
- M. Clifford Singer, *Director, Program in Arms Control, Disarmament and International Security, University of Illinois at Urbana-Champaign*
- Lieutenant-Colonel Philippe Steininger, *Division <Euratlantique>, Section OTAN, MA*
- M. Bruno Tertrais, *Chargé de mission auprès du directeur, Délégation aux Affaires Stratégiques (DAS), Ministère de la Défense*
- Colonel André Var, *Affaires Internationales et Stratégiques, SGDN*

### 3) Beijing Meetings (25-31 March 2001)

a) Dinner with Ambassador Sha and his Deputy (28 March 2001)

b) CIIS (29 March 2001)

Luo Renshi  
Zhang Yunling  
Liu Chao

c) Dinner banquet w/CIIS (29 March 2001), hosted by Pei Changhong and Han Feng

d) WORKSHOP: “Cooperative Global Approaches Against Nuclear Tensions”  
Institute of Asia-Pacific Studies, CASS (30 March 2001)

#### Session 1

Speakers: Chair: Mr. Han Feng  
Mr. Clifford Singer on “Cooperative Approaches to Arms Control”  
Comments: Mr. Li Bin  
Mr. Shen Dingli on “Friendly relations w/ US and Russia”  
Comments: Rose Gottemoeller  
Ms. Amy Sands on “Global Considerations”  
Comments: Mr. Tang Shiping

#### Session 2

Speakers: Chair: Ms. Amy Sands  
Mr. Gu Guoliang on “Suggestions for Improvement or Alternative Approaches”  
Comments: Mr. Clifford Singer  
Ms. Rose Gottemoeller on “Facilitating Progress”  
Comments: Mr. Xu Weidi  
Summary by Mr. Pan Zhenqiang and Ms. Amy Sands

## Beijing Workshop Participants:

Fang Jinying, Associate Professor, China Institute of Contemporary International Relations  
Gu Guoliang, Deputy Director, Institute of American Studies,  
Chinese Academy of Social Sciences  
Rose Gottemoeller, Senior Associate, The Carnegie Endowment for International Peace  
Han Feng, Assistant Director, Institute of Asia-Pacific Studies,  
Chinese Academy of Social Sciences  
Han Hua, Associate Professor, School for International Relations, Peking University  
Li Bin, Associate Professor, Institute of International Studies, Qing Hua University  
Liu Huaqiu, Research Fellow, Program on Arms Control and Disarmament,  
China Defense Science and Technology Information Center  
Pan Zhenqiang, Professor, Institute for Strategic Studies, National Defense University  
Amy Sands, Professor, Monterey Institute of International Studies  
Clifford E. Singer, Professor, University of Illinois at Urbana-Champaign  
Shen Dingli, Professor, Center of American Studies, Fudan University  
Tang Shipling, Assistant Fellow, Institute of Asia-Pacific Studies,  
Chinese Academy of Social Sciences  
Xu Weidi, Associate Professor, Institute for Strategic Studies, National Defense University  
Zhang Yunling, Director, Institute of Asia-Pacific Studies,  
Chinese Academy of Social Sciences  
Yao Yunzhu, Professor, Department of Foreign Military Studies,  
Academy of Military Science

#### **4) Islamabad Meetings (1-3 April 2001)**

a) WORKSHOP: “The New Nuclear Arms Control Environment: A Parallel Bilateral Approach,”  
The Institute of Regional Studies Islamabad (2 April 2001)

Luncheon

Session 1: Discussions led by US Participants: Bridging the Gap on Nuclear Arms Control Dealing  
with the United States and Russia: Global Consideration

Speakers:           Cliff Singer  
                          Amy Sands  
                          Rose Gottemoeller

Session 2: Discussions led by the Pakistani Participants: Resolving the  
Impasse – Alternative Approaches Facilitating Progress

Speakers:           Ambassador (Retd) Najmuddin Shaikh  
                          Lt General (Retd) Kamal Matinuddin  
                          Lt General (Retd) Talat Masood  
                          Dr. Shireen M. Mazari  
                          Prof. Sayed Riffat Hussein  
                          Maria Sultan  
                          Brig. Naeem A. Selik  
                          Amar N. Butt  
                          Brig. Feroz Hassan  
                          Brig. Bashir Ahmed  
                          Maqsudal Hasan Nuri

Islamabad Workshop Participants:

Cliff Singer  
Rose Gottemoeller  
Amy Sands  
Ambassador (Retd) Najmuddin Shaikh  
Lt General (Retd) Kamal Matinuddin  
Lt General (Retd) Talat Masood  
Dr. Shireen M. Mazari  
Prof. Sayed Riffat Hussein  
Ambassador Khalid Mahmood, Director  
Maqsudal Hasan Nuri  
Brig. Feroz Hassan  
Brig. Beshir Ahmed  
Amar N. Butt  
Brig. Naeem A. Selik

### 5) New Delhi Meetings (5-7 April 2001)

a) Jasjit Singh, Institute of Defense Studies and Analysis (5 April 2001)

b) K. Subrahmanyam (5 April 2001)

d) T. C. A. Rangachari, Ministry of External Affairs (7 April 2001)

d) WORKSHOP: “The New Nuclear Arms Control Environment:  
A Parallel Bilateral Approach,” Institute of Peace and Conflict Studies (6 April 2001)

Luncheon

Session 1: Discussions led by U.S. Participants: Bridging the Gap on Nuclear Arms Control,  
Dealing with the United States and Russia, and Global Considerations

Speakers: Prof. Clifford Singer  
Ms. Amy Sands  
Ms. Rose Gottenmoeller

Session 2: Discussions led by Indian Participants

Speakers: Prof. Kanti Bajpai:  
Balance-sheet of Success and Failures in Arms Control in the Last Decade  
Dr. G. Balachandran: NMD/TMD and Nuclear Arms Control  
Dr. P.R. Chari: Prospects of Proliferation/Nonproliferation in this Decade

New Delhi Meeting Participants:

Prof. Kanti Bajpai, Disarmament Studies Division, School of International Studies, Jawaharlal  
Nehru University

Dr. G. Balachandran, Columnist

Suba Chandran, Institute for Peace and Conflict Studies

P. R. Chari, Director, Institute for Peace and Conflict Studies

Barthélemy Courmont, *Institut de Relations Internationales et Stratégiques*

Amb. Eric Gonzales, Formerly with the Ministry of External Affairs

Amb. I. P. Khosla, Indian Council for South Asian Cooperation,  
formerly with the Ministry of External Affairs

Sonika Gupta, Institute for Peace and Conflict Studies

Mallika Joseph, Institute for Peace and Conflict Studies

Bharat Karnad, Centre for Policy Research, formerly on National Security Advisory Board

Gen. Ashok Krishna, Deputy Director, Institute for Peace and Conflict Studies

Amb. Dennis Kux

Prof. Chintamani Mahapatra, American Studies, School of International Studies, Jawaharlal  
Nehru University

Maj. Gen. Ashok Mehta, regular columnist and TV commentator

Prof. Surjit Mansingh, Jawaharlal Nehru University

Amb. G. Parthasarthy, Former High Commissioner to Pakistan

Arpit Rajain, Institute for Peace and Conflict Studies

T. C. A. Rangachari, Ministry of External Affairs Additional Secretary

Karen Sawhney, Co-Director, International Centre for Peace Initiatives

Anand Verma, Formerly in Cabinet Secretariat

Lt. Gen. A. M. Vohra, Former Army Vice Chief

**6) Geneva and Annecy Meetings (21-23 May 2001)**

a) INTERNATIONAL SEMINAR: Next Steps for Nuclear Disarmament and Arms Control: Thinking Outside the Box, *Palais des Nations*, Geneva, 21 May 2001:

Monterey Institute of International Studies (MIIS) and  
United Nations Institute for Disarmament Research (UNIDIR)  
with the assistance of The Permanent Mission of Canada to the CD

- 10:00 - 10:15            Welcome / Introduction:  
                                 Tariq Rauf (Monterey Institute) and Patricia Lewis (UNIDIR)
- 10:15 - 10:30            Opening: Under-Secretary General Jayantha Dhanapala
- 10:30 - 11:30            Session I: FMCT and CTBT: The Challenge of Stocks and EIF  
                                 Chair: Camille Grand (IEP)  
                                 Lawrence Scheinman (MIIS)  
                                 Seiichoro Noboru (Japan)  
                                 Munir Akram (Pakistan)  
                                 Marc Vidricaire (Canada)
- 11:45 - 12:45            Session II: A “Pearl Harbour” in Space?  
                                 Chair: Vladimir Petrovsky (UNOG)  
                                 Tariq Rauf (MIIS)  
                                 Christophe Carle (UNIDIR)  
                                 Yuri Kapralov (Russian Federation)  
                                 Fu Zhigang (China)
- 13:00 - 15:00            Luncheon hosted by the Permanent Mission of Canada  
                                 Host: Ambassador Christopher Westdal
- 15:15 - 16:30            Session I: Strategic Stability and Reductions  
                                 Chair: Patricia Lewis (UNIDIR)  
                                 Lewis Dunn (SAIC)  
                                 Harald Mueller (PRIF)  
                                 Camille Grand (IFRI)  
                                 William Potter (MIIS)  
  
                                 Conclusions and Recommendations  
                                 Presenter: Enrique Román-Morey (UN/DDA Geneva Branch)

## b) INTERNATIONAL WORKSHOP:

Re-Assessing the Challenges to the Global Nuclear Non-Proliferation Regime  
*L'Imperial Palace Hôtel*, Annecy, France, 21-23 May 2001

Monterey Institute of International Studies

21 May (Monday)

19:00-21:00                      Dinner  
 Speaker: Under-Secretary General Jayantha Dhanapala  
 The State of the Global Nonproliferation Regime: 2001

22 May (Tuesday)

09:30 - 09:45                      Welcome / Introduction: Tariq Rauf (Monterey Institute)

09:45 - 11:45                      Session I: Combating Challenges to the NPT Regime  
 Chair: William Potter (Monterey Institute)  
 Patricia Lewis (UNIDIR)  
 Harald Mueller (PRIF)  
 Perla Carvalho (Mexico)  
 Seiichiro Noboru (Japan)

12:15 - 13:15                      Session II: Preparing for the 2002 NPT Preparatory Committee  
 Chair: Hannelore Hoppe (DDA/UN)  
 Tariq Rauf (Monterey Institute)  
 Ben Sanders (PPNN)  
 Darach MacFhionnbhairr (Ireland)

15:30 - 17:00                      Session III: Missile Defence and Preserving International Stability  
 Chair: Tariq Rauf (Monterey Institute)  
 John Simpson (Mountbatten Centre)  
 Yuri Kapralov (Russian Federation)  
 Camille Grand (IEP, France)  
 Lewis Dunn (SAIC)

17:30 - 18:30                      Wrap Up Discussion and Recommendations: Sessions I, II, III  
 William Walker (St. Andrews) and Rebecca Johnson (Acronym Institute)



**7) U.S./Russia Meeting (20 June 2001)**

Carnegie Endowment for International Peace, Washington, DC

Participants:

Renee de Nevers, MacArthur Foundation  
James Goodby, former U.S. Ambassador  
Rose Gottemoeller, Carnegie Endowment for International Peace  
Yevgeny Myasnikov, Moscow Institute for Physics and Technology  
Alexander Pikayev, Nonproliferation Program, Carnegie Moscow Center  
Vladimir Rybachenkov, Russian Ministry of Foreign Affairs  
Ivan Safranchuk, PIR Center for Policy Studies in Russia  
Amy Sands, Monterey Institute for International Studies  
Clifford Singer, University of Illinois at Urbana-Champaign  
Chris Wing, Ford Foundation



## APPENDIX B: QUESTIONS POSED ABROAD

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### Background

For this project a group of U.S. participants will gather input in the United Kingdom, France, China, Pakistan, and India concerning steps that the United States and Russia might plausibly be expected to take over the coming decade to facilitate progress on multilateral aspects of nuclear arms control. These suggestions will be discussed first with experts from the United States and Russia and then with those from other countries. The project has identified four specific background questions and one generic question for comment in the five countries to be visited. The background questions are:

1. Is Anglo-French dialogue likely to progress sufficiently over the coming decade in a European context to allow a coordinated response to Russian concerns about nuclear capabilities in Europe?
2. Assuming missile defense deployments are not open-ended and there is continued progress in reductions of U.S. and Russian nuclear deployments, at what point might China be willing to enter into discussions of transparency measures relevant to multilateral aspects of nuclear arms limitations?
3. Assuming that any other countries of concern show sufficient restraint in policies on deployment and use of nuclear weapons, might Pakistan eventually be willing to engage in substantive discussions on phased approaches to more comprehensive and global understandings concerning nuclear weapons materials?
4. Given adequate signals of global interest in continuing reduction of nuclear arms deployments, does India have flexibility concerning the form that discussions of global nuclear futures might take?

Comment is also sought on issues related to these questions. The generic question is:

- a) What are feasible and plausible actions that the United States and Russia might undertake that would signal an interest in continuing progress on nuclear arms control and could lead to more constructive multilateral engagement with other countries?

In particular, need these signals involve active encouragement of multilateral dialogue on continuing reductions of nuclear arms deployments or mere demurral to other countries' interests along these lines? If neither is forthcoming, would it suffice that there eventually be additional progress in the coming decade on reductions beyond the intent announced by the new U.S. administration, along with collateral Russian actions? Then how much transparency will other states seek concerning the U.S.–Russian bilateral arms control?

The project participants are open to hearing concerns about current policies, but the primary purpose is to look for constructive and realistic suggestions about what may emerge in a new nuclear arms control environment beyond current difficulties.

### The New Nuclear Arms Control Environment

More dramatically than ever since the years immediately following the demolition of the Berlin Wall, the new U.S. administration is poised to mold a completely new nuclear arms control environment. Indeed, we are entering a period when the United States is going to be reducing its strategic nuclear arsenal whether or not others reciprocate, meaning in particular Russia. President Bush said during his campaign that “it should be possible to reduce the number of American nuclear weapons significantly further than what has been agreed under START II,” and without having to rely on “years and years of detailed arms control negotiations.” Bush cited approvingly the example of the 1991 unilateral reductions in tactical nuclear weapons in the Soviet Union and United States: “Huge reductions were achieved in a matter of months, making the world much safer, more quickly.” In his first comments on foreign policy after inauguration, Bush reiterated his determination to reduce

U.S. nuclear weapons unilaterally: “I think it’s important for us, commensurate with our ability to keep the peace, to reduce our nuclear arsenal on our own. I am going to fulfill that campaign promise.”

While he was talking about unilaterally reducing U.S. strategic nuclear weapons, Bush restated his determination to build a national missile defense (NMD) system: “My point is that I want America to lead the nation—lead the world—toward a more safe world when it comes to nuclear weaponry...On the offensive side we can do so, and we can do so on the defensive side, as well.” There are of course serious domestic concerns about a U.S. decision to deploy any NMD system (including a Phase 1 system with about 100 missile interceptors). These include the technical feasibility of starting to deploy a functional system at this time, the need for anticipating future threats that have not actually materialized, and the utility of NMD in face of various other available methods for delivering weapons of mass destruction. Indeed, polling has shown that a substantial majority in the United States would fail to support NMD deployment if “many scientists” doubt the system will work, as in fact “many scientists” do both for current Phase 1 plans and longer term prospects for destroying warheads accompanied by penetration aids. Nevertheless, if the U.S. President continues to hold firm in his resolve to reduce U.S. strategic nuclear weapons deployments below START II levels and deploy an NMD system, it is unlikely that skeptics in the United States will be able to derail either one of these initiatives.

President Putin, for his part, has clearly signaled that he is ready to go beyond the 2,000–2,500 limit for strategic nuclear weapons agreed to in the Clinton–Yeltsin Helsinki Protocol of May 1997. In a November 2000 statement, Putin stressed his readiness to reduce to a limit of 1,500 or even lower. What is more, he expressed a willingness to move forward unilaterally, just as Bush had proposed: “We agree with an opinion being voiced in the USA, that such an agreement will not require protracted talks or a fresh beginning...most importantly now, Russia and the USA should start to smoothly move forward jointly or in parallel towards radically lower ceilings for nuclear warheads.” At the same time, while noting the need to adjust to new circumstances, Putin restated Russian commitment to the ABM Treaty regime. Russian spokesmen had for over a year been issuing dire warnings that if the United States walked away from the ABM Treaty then Russia would walk away from START, the Intermediate Range Nuclear Forces Treaty (INF), and other long-standing treaty and arms control agreements.

Thus, if the U.S. and Russian governments follow through with their declared policies, the Phase 1 NMD deployment decision could shatter like a hammer striking crystal the current framework of bilateral arms control agreements. However, the possibility would remain that the United States, and perhaps in parallel Russia, would continue with unilateral reductions below START II strategic nuclear weapons deployment levels. The Bush Administration approach clearly is one in which negotiations and treaty instruments take a back seat to consultations, discussions and less formal interactions between the United States and other countries on the future of the strategic balance. Informal approaches clearly have their risks for U.S. counterparts, since they do not in the end tie the United States or any other party at the negotiating table to legally binding government-to-government agreements. However, this new environment also presents opportunities, because shifting from START I to below START II deployment levels is a necessary step in the march towards more comprehensive multilateral nuclear arms control measures. The issue addressed here is whether the vestiges of the previous bilateral arms control framework will impede or enable further progress.

Many would argue that much more progress is needed. For as dramatic as they may be in percentage terms, reductions from START I to below START II nuclear weapons deployments will still leave two countries without an ongoing military confrontation but still each possessing thousands of readily deliverable nuclear warheads. Is this situation to continue indefinitely? If so, then the current policies of the other countries that have declared nuclear weapons tests will at best preclude further reductions on their part. If not, then the world may be approaching a state where more serious multilateral dialogue is pertinent to further progress. There are two types of dialogue that will have to be improved in the process.

### **The Multilateral Arms Control Impasse**

For the time being, the multilateral arms control agenda is hung up on a triangle of three issues. These are

- a) Prevention of an Arms Race in Outer Space (PAROS)
- b) The Fissile Materials Production Cutoff Treaty (FMCT)
- c) Discussions on the overall future of nuclear weapons

Clearly the difficulties over PAROS will not be resolved until questions have been resolved about U.S. NMD deployments and other countries have decided upon deployment responses if and as they deem appropriate. An interesting question is whether at that point it might be possible to either drop PAROS from the agenda or reconfigure discussions along more mutually acceptable lines. Examples might be enhancing barriers to interference with non-military uses of outer space or solidifying barriers against the use of extraterrestrial materials for military purposes. In any case it will take some time, perhaps much of the present decade, until technical and political considerations clarify any likely U.S. NMD deployments and any responses they precipitate.

It may take a comparable amount of time before each of the relevant countries is comfortable enough with the interplay between its own capabilities and those of its neighbors and global counterparts to engage in serious discussion of either an FMCT or functionally equivalent understandings. However, progress on this issue in a broad multilateral framework may be difficult without some parallel discussion concerning the overall future of assembled nuclear explosives holdings. One can envision three different types of approaches to this more general topic. In one, the states with the largest assembled nuclear explosives holdings actively promote discussions aimed at the goal of more comprehensive global management. Another approach is for these states to demur to the wishes of other states to explore this topic, without either impeding or actively encouraging this. In the addendum below, an excerpt of a possible conceptual framework is provided that might help avoid contentious, formal posturing during such a multilateral discussion. A third approach is for the United States and Russia simply to report on further bilateral progress towards comprehensive nuclear management, with the continuing pace of this progress being sufficient to avoid impeding progress on multilateral issues.

### **Internal Dialogues**

A necessary condition for multilateral progress will be constructive internal dialogue, particularly within the various countries that have declared nuclear weapons tests. Progress in the Middle East peace process could also be helpful. However, for obvious reasons, raising this question within the Middle East lies outside the scope of the present project.

The U.S. body politic has long been fatigued with policies based on Cold War logic and the concept of mutually assured destruction of entire national infrastructures. However, there is also unresolved tension between the ideas of parity, stability, and the *alternative* of deterrence through collateral damage from a “counterforce” nuclear strike. In Russia there remain questions concerning the role of nuclear weapons referred to as tactical. In Europe there are questions concerning Anglo-French cooperation and the relationships between each country’s nuclear forces and European and NATO defense policies. China will presumably want to make an evaluation of the likely technical capabilities resulting from U.S. missile defense activities and whether or not these influence its own plans. India has a draft nuclear doctrine but will undoubtedly evolve its approach as a result of external developments and continuing internal dialogue. Pakistan will no doubt keep an eye on other countries’ capabilities and conduct an internal dialogue on resource allocations.

### Project Goals

The primary purpose of the present project is not to try to influence the internal dialogues of the countries being visited, but rather to bring home constructive and practical ideas that may influence approaches to internal, bilateral, and multilateral dialogue. For indeed all of these dialogues are necessarily interrelated. Internal dialogue conditions approaches to bilateral and multilateral issues. Conversely, perceptions of potential threats posed by the capabilities of the largest arsenal abroad and globally distributed mass destruction capabilities also fashion the internal dialogue concerning nuclear diplomacy and strategy. All of the countries to be visited for this project now have significant opportunities to shape and influence U.S. thinking in particular at a time when a new U.S. administration is trying to move the debate on nuclear weapons well beyond its Cold War origins. This is why an exercise like this project is so important. It would be very helpful to obtain as much constructive input as possible, particularly on both the relevant background question and the generic question raised above.

#### Addendum to Appendix B: Excerpts from a Declaration Concerning Nuclear Explosives Holdings

The following excerpts illustrate one possible approach to bridging the gap between calls for a prescribed time-bound framework for elimination of nuclear weapons and the less specific commitments concerning nuclear disarmament that have been made by a number of states that have declared nuclear weapons tests. One of the two key points is item I.2, which call for “non-discriminatory” periodic proportional reductions rather than a linear reduction to zero. The other is item II.1 which allows for the possibility that future generations may or may not encounter a point where further reductions can not be accomplished at least as fast as originally envisioned. The dates and numbers deliberately left blank here could in principle be filled in through a formal negotiating process aimed at a declaration to be made with or without a designated depository. However, the basic purpose of this text is not to suggest a formal negotiation structure but merely to provide a conceptual vehicle for recognizing the concerns embodied in various approaches to the problem of nuclear disarmament. The remainder of the full text has articles dealing with use of nuclear weapons materials; encouraging additional agreements that further limit the production, testing, possession, or means of delivery of nuclear weapons; and allowing for cancellation of adherence with specified advance notice on grounds of supreme national interests. A version of the full text and background discussion can be found in *The Washington Quarterly* 20 (summer 1998), pp. 199–210, and is available in various languages through the “Publications” link at the <http://www.acdis.uiuc.edu> website. (For a complementary approach, see Michael Mazzar’s monograph on virtual nuclear arsenals at the [http://www.csis.org/pubs/wr\\_vnaintro.html](http://www.csis.org/pubs/wr_vnaintro.html) website.)

#### I. Limits on Possession of Nuclear Explosive Devices

1. Beginning in (\_\_\_) the number of nuclear explosive devices held by any country subscribing to this Declaration will be no more than (\_\_\_).
2. Subject to the limitations under Article II of this Declaration, the limit on the number of nuclear explosive devices held by any country subscribing to this Declaration [hereinafter, Adherent] shall be reduced by a factor of (\_\_\_) at the end of every subsequent (\_\_\_) year period.

#### II. Exemptions from Lowered Limits

1. Any Adherent may exempt itself from a lowering of the limit on the number of nuclear explosive devices it may possess by giving notice (\_\_\_) years in advance of the effective date of such lowered limit. This notice shall include a statement of the reasons for its refusal to accept a lower limit.
2. The limit on the number of nuclear explosive devices held by any active Adherent shall not be increased.

## APPENDIX C: QUESTIONS FOR U.S./RUSSIA MEETING

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Here we pose three sets of questions raised by a recent set of workshops and meetings in London, Paris, Beijing, Islamabad, and New Delhi. These meetings and questions are aimed at defining conditions for breaking the current impasse on multilateral nuclear arms control.

The current impasse is reflected in a disagreement within the Geneva Conference on Disarmament (CD) on whether discussions or negotiations on prevention of an arms race in outer space (PAROS) should accompany negotiation of a fissile materials production cutoff treaty (FMCT) and discussions in a working group on nuclear disarmament. Discussions in the above-mentioned capitals suggested that progress on the PAROS question might allow progress in negotiation of an FMCT over the present decade, provided that undue discord in a working group on nuclear disarmament can be avoided. Whether FMCT negotiations would lead to a ratified treaty or merely a broadened moratorium on fissile production for weapons production is an open question. More contentious are the following types of questions related to what a working group on nuclear disarmament would actually discuss, and what the conditions are for breaking the impasse on PAROS.

China and India appear to have somewhat flexible approaches to discussions on nuclear disarmament. They are nevertheless likely to insist in the long run on embracing a concept of eventual rough interim international parity in total operational nuclear weapons holdings, albeit not necessarily in the technical sophistication of those weapons. This raises the following questions:

- Even without a profound change in the current international security situation, might Russia be willing to entertain the concept of eventual parity with other political entities in total operational nuclear warheads, albeit for quite some time at substantially higher total numbers than those for operational strategic nuclear warheads? If so, is it sufficient for the coming decade that France and Britain exercise restraint in deployments and cooperate on discussions of multilateral arms control, rather than making formal declarations accepting the idea of future limits on their combined holdings of operational nuclear weapons?

Assuming adequate Anglo-French restraint on nuclear deployments, there remains the question of the state of Russian dialogue with NATO. With respect to the historically sensitive question of the theoretical possibility of NATO expansion into the former Soviet republics, one presently finds serious interest in this in very few NATO countries. This raises the following questions:

- Given the organizational difficulty of NATO members formally precluding expansion into the former Soviet republics before including Russia, is the absence of this sufficient for substantial mutual reductions in total operational nuclear weapons holdings? Is it even necessary?

Finally, a necessary and perhaps sufficient condition for China and the United States to agree to unblock CD negotiations is for China to become convinced that U.S. national missile defense deployments are expected to be capped at a level that will not undermine the credibility of China's modernizing nuclear arsenal. This raises the following question:

- If and when the United States gives China assurances on missile defense that suffice to resolve the PAROS impasse, are these assurances also likely to be sufficient for Russia?

The answers received will serve as a basis for briefings in Washington and Moscow and a final report on a project sponsored by the John D. and Catherine T. MacArthur Foundation.





## APPENDIX D: AFTER 11 SEPTEMBER 2001

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This appendix was prepared by Clifford Singer and has three purposes. First, it reports on the results of an afternoon meeting on “Multilateral Nuclear Disarmament: Unblocking the Impasse on Nuclear Arms Control” held at the University of Illinois at Urbana-Champaign on 12 October 2001. Second, it summarizes general impressions based on meetings on the same topic between Clifford Singer and various governmental and non-governmental interlocutors in Berlin from 8-12 November 2001. These were both made possible by support from the John D. and Catherine T. MacArthur Foundation. Third, it contains a brief discussion of the impact of the 11 September 2001 attacks on the United States and subsequent events, including the U.S.–Russian summit in early November of 2001. This appendix ends with some comments on prospects for future constructive work relevant to multilateral aspects of nuclear arms control.

### **Can the United States Engage on Multilateral Nuclear Arms Control?**

For the 12 October meeting, a panel of three experts and a score more in the audience were provided with the above material and asked to comment on its implications and pose and respond to relevant questions. The panel consisted of:

Gen. (ret) William Odom  
Director of National Security Studies at the Hudson Institute  
Formerly Director of the U.S. National Security Agency

Prof. David Holloway  
Director of the Institute for International Studies at Stanford University

William Smirnov  
Head of the Department of Political Science  
Institute of State and Law, Russian Academy of Sciences

In the audience were the European Union’s Washington political representative Jonathan Davidson and a variety of interested parties from the Russian and East European Center and other organizations at the University of Illinois at Urbana–Champaign. The primary purpose of the exercise was to analyze the likely U.S. response to the conclusions that had been drawn from interactions with foreign interlocutors. What follows are some major points from this meeting. These points are an amalgam of various points made by various speakers and do not necessarily represent consensus views.

- Russia will not return as a “major power” for at least two decades, and quite possibly never.
- Russia has been trapped in a path dependent lock of weak institutions and economy due to vested interests in the status quo. Russian generals have resisted change contributing to military decay. A weak tax system keeps the government incapable of re-funding the military. These realities are in conflict with a legacy of imperial culture.
- The June 2001 Sino–Russian cooperation recognized Chinese influence in central Asia and left Russia with a need for a highly cooperative relationship with the West.
- NATO remains relevant because it is not just a military alliance but, with the International Monetary Fund and World Bank, part of a global liberal governance system that has survived after the Cold War and keeps other conflicts such as Turkey/Greece at bay.
- One view was that, objectively, there is little that either the United States or Russia can do about each other (in the intermediate term). This is despite the observations that, subjectively, many Russian leaders Putin has to deal with would like to frustrate the other states courting of the United States while many in the United States would like to help Russia.

- One question that raised some interest was whether Russia might be guaranteed stable oil and gas prices (by the European Union and possibly the United States) in return for a longer term commitment not to join the Organization of Petroleum Exporting Countries.
- In the 1990s, the United States lost some illusions it had on Russian ability to integrate with NATO, and Russia lost some illusions about the sustainability of its power. After 11 September 2001, the Russian approach is getting more focussed on the Russian national interests of rescuing the Russian state in terms of international security, building an effective market economy, and constructing a foreign policy that recognizes the predominance of the United States in the international system.
- Russian foreign policy experts recently have expressed only moderate concerns about U.S. national missile defense (NMD) developments, with NMD being cited as a major threat by about one fifth, as a possible threat by two fifths, and as not a threat by the remaining two fifths.
- Underlying Putin's position that other treaties pertinent to nuclear arms control are conditioned on continuing ABM treaty compliance is a realization that at least 5–7 years are needed to reform the Russian military. One conclusion is that discussions on nuclear arms control are not likely to work out evenly between the United States and Russia.

The following day at a companion workshop on more general aspects of U.S.–Russian relations, Clifford Singer gave a summary of how the above input and the events since 11 September influence a view of the global situation relevant to multilateral nuclear arms control:

The question to be addressed here is where recent events may signal the start of a new global concert, analogous to the “Concert of Europe” after the Napoleonic Wars. It is true that the Concert of Europe experienced some difficulties at the margins, particularly with Italy in 1818. Nevertheless, it arguably managed to transform thinking in Europe since 1648 from how to manage war to how to keep the peace, for about two generations. A century later Woodrow Wilson's attempt at a new global concert failed. Half a century after that there was a new European concert, but only in the West.

Now a global concert is needed to maximize domestic security against non-state actors. Key questions are whether such a global concert can be constructed, and what Russia's role will be. With respect to Russia, domestic reform will be a gradual process, where the role of Europe will be much more important than that of the United States. Energy is an important relevant factor. The United States may be able to help catalyze and facilitate the evolution of more stable energy markets, but Europe is Russia's largest energy customer and would have to take the lead on this.

What about nuclear weapons? Precisely because they are not now and cannot become militarily important in relations between NATO and Russia if there is to be an adequate concert between them, it is now possible to tackle the potentially very important problem of nuclear material protection, control, and accounting in Russia. The history of cooperative threat reduction between the United States and Russia has inevitably had many problems but also a number of successes. Soviet nuclear materials were widely dispersed during the Cold War partly to avoid target concentration. The cleanest mechanism for dealing with nuclear weapons materials is to acquire them promptly from Russia and place them in secure facilities elsewhere (or in a single very secure facility in Russia) and then denature them in an orderly way over the following years. To get Russia to agree to more of this, however, requires an overall set of non-treaty agreements on deployment of much smaller levels of nuclear weapons. This in turn may require capping NMD at some level that deals with U.S. concerns on escapees from non-proliferation but is not perceived by Russia as undermining the credibility of its nuclear arsenal.

It is of course not certain what will actually happen concerning the broader question of global concert and the narrow question of nuclear arms control over the present decade. A reasonable guess is that the United States and Europe will learn to live with less security than they otherwise could have because they will fail to grasp the opportunity to establish a truly global concert. More likely, but still uncertain, is that it will prove possible over the coming decade to bring Russia into a more limited concert. In this process it may prove possible to substantially reduce the chance of weapons of mass destruction falling into the hands of non-state actors and being used against participants in the concert.

### **German Perspectives and Future Prospects**

Despite the remarkable degree of rapprochement evident between the United States and Russia, it was already apparent during our 8-11 November Berlin meetings that the United States was not prepared to give Russia any substantive assurances concerning eventual limits to U.S. NMD deployments. The analysis given above seemed to be viewed as reasonably convincing, so conversations turned to the question of what might be fruitfully discussed concerning military uses of outer space that might eventually become acceptable to a U.S. government and still of potential utility vis-à-vis China and Russia.

Concerning weapons in outer space, German interlocutors had two things in common with their British and French counterparts. One was a reluctance to see weapons placed in outer space. The other was a belief that their government would be reluctant to challenge U.S. policy on this matter. Thus, neither the European Union nor its three largest states are likely to directly challenge current U.S. vision for military activities in space. They could nevertheless well look favorably on any plausible approach that would resolve the impasse between the United States and China on the question of Prevention of an Arms Race in Outer Space (PAROS).

In the meetings in Germany the three topics for possible eventual discussion of PAROS were received with interest:

- a) providing the demilitarized international space station with a status similar to the treaty protected afforded to Antarctica
- b) discussing limitations on military activities beyond geosynchronous orbit
- c) clarifying the status under the “Outer Space Treaty” of extraterrestrial bodies and materials extracted from them

It was understood that the international space station has even higher construction cost and comparable symbolic value to the World Trade Center and is highly vulnerable to a comparatively simple sounding rocket with accurate guidance system. A coordinated international approach to its protection could thus be of interest to the United States and many other parties. This could involve building confidence that that neither state nor non-state actors have earth-based assets configured in such a way as to be an immediate threat to the space station. It could also prepare a coordinated international response in the event that such a threat materialized or was carried out.

Limiting or banning military activities beyond geosynchronous orbit would seem to have negligible impact on all current military plans. The current situation beyond geosynchronous orbit is fairly analogous to the situation with Antarctica before that continent was demilitarized by international treaty. While the region beyond geosynchronous orbit is remote, its size is literally astronomical and its demilitarization could be of considerable long-term importance.

While the “Outer Space Treaty” prohibits military use of extraterrestrial bodies, it is mute on the question of military use of materials that might be extracted from them. A possible example is hydrogen, oxygen, or other chemicals for rocket fuel. The dollar cost of launching these materials from earth is currently lower, but the energy cost is higher than bringing them to earth orbit from extraterrestrial sources such as earth-approaching asteroids or the moon. With sufficient operating experience in space, this could eventually be of potential military significance, but it does not figure in any current military plans. As with the more general question of military activities beyond geosynchronous orbit, this raises the question of what mechanisms, if any, should eventually be put into place to interpret or verify the provisions of the “Outer Space Treaty.”

The possibility of convening a one day workshop c. June of 2002 in Berlin on these questions was discussed and will be pursued.

Another question that was raised in some of the Berlin meetings was investigating the possibility of a fourth UN Special Session on Disarmament. This was in the context of the “Declaration on Reductions of Nuclear Explosives Holdings” referred to and excerpted from in the Addendum to Appendix B, above. This calls for a universal exponentially decaying upper limit on any country’s assembled nuclear explosives holdings, subject to the important caveat that such reductions would be suspended (but not reversed) upon advance notice of reasons why upcoming reductions will not be realized. When it was first written in 1995 and

published in 1997, this suggestion looked incompatible with the stalemate on post-START I U.S.–Russian nuclear arms control treaty negotiations in the Yeltsin–Clinton period. The Putin–Bush November 2001 summit and the continuing de facto U.S.–Russian moratorium on tritium production shed a different light on this. Now the idea that maximum operational nuclear weapons holdings might decline by a factor of two every 10–12 years from their Cold War peak for an indefinitely long time into the future seems not only possible but even probable. For after a decade or more of future functioning strategic partnership between Russia and NATO it would be peculiar indeed if the United States and Russia each still felt compelled to maintain thousands of operational strategic nuclear warheads only for the reason that the other also maintained such large numbers. Should this come to be realized, then further reductions are to be expected. If instead the NATO–Russia relationship unexpectedly sours to the point where this is not the case, then this would be just the kind of the situation envisioned in the above-mentioned caveat on suspending future reductions.

A virtue of addressing such an over-arching vision in a UN special session on disarmament is that it helps avoid the technical minutiae that the Geneva Conference on Disarmament often gets entangled in. A difficulty is that a modest change in the political climate in Europe and elsewhere and a significant change in the political climate in the United States would likely be necessary before such a special session could actually be called. Nevertheless, the process of discussing the calling of such a session to take up what is at least in principle a politically practicable outcome might possibly make a useful contribution to the needed changes in political climate.

### Questions for EU Day

The present comments have been prepared to make the connection between two workshop sessions that follow the 3 April 2002 “State of the European Union Address” by John B. Richardson, the Ambassador of the EU to the United States, at Illinois’ annual European Union Day. These two sessions are entitled “The Coalition against Terrorism: U.S.–EU Cooperation” and “Global Security and Arms Control: The European Role.” Unilateralist tendencies in U.S. foreign policy were dealt a serious but not decisive blow by reevaluation following last 11 September. Clearly Europe is now centrally important for interdicting financing for violent non-state actors, any serious attempt at long term stability in Afghanistan, and any large scale U.S. operations in its Central Command area that includes the Middle East. The interactions of NATO’s EU countries with Russia will also be very important for the future of securing storage of weapons-usable nuclear materials in dealing with post-Soviet weapons of mass destruction expertise more generally. Weapons of mass destruction will themselves remain on center stage. The now-transparent vulnerability of developed countries makes the idea that these weapons would gradually fade away as an issue of concern after the Cold War is now thoroughly demolished.

For the current Bush administration, the die is pretty much cast when it comes to policies dealing with weapons of mass destruction. Four critical decisions have already been made. These are the rejection of a broadly supported agreement on the Biological Weapons Convention (BWC), unilateral rejection of the Antiballistic Missile (ABM) treaty over the objections of Russia and China, the completion of a Nuclear Posture Review, and the reversal of an earlier intention to gut the Cooperative Threat Reduction program with Russia. There seems little prospect that the current Bush administration will visibly cap national missile defense (NMD) plans, start disassembling thousands of de-mounted nuclear weapons, nor restart nuclear testing of deep earth-penetrating warheads. The time has thus come to look forward to succeeding U.S. administrations and how Europe and the rest of the world might interact with them on questions related to weapons of mass destruction.

Neither the current Bush administration’s policies nor some more ambitious suggested alternatives are likely to be politically viable in the current decade, even if a successor U.S. administration is far more inclined to emphasize global cooperation when it comes to dealing with weapons of mass destruction. In particular, the current administration’s policies contain at least two inherent contradictions. One contradiction is that an unbounded U.S. national missile defense program puts the country on a collision course leading to an unbounded offensive nuclear weapons build-up by China, while at the same time cooperation with China on economic matters and arms transfers is essential. A second contradiction involves maintaining operational readiness of thousands of demounted nuclear weapons that have no plausible use as far as the eye can see. By about the end of the decade the decay of tritium stocks needed for operational readiness will bring this into

focus, and a succeeding administration will very likely override the decision to maintain such large numbers in operational readiness. There is also some tension between maintaining a moratorium on nuclear testing and designing more rugged earth-penetrating nuclear weapons delivery packages. Whatever the technical viability of doing such designs with only zero yield nuclear testing, it seems likely that political stalemate will preclude either renewed testing and or the ratification of the Comprehensive Test Ban Treaty (CTBT) promoted by some advocates of more aggressive international engagement on cooperative multilateral arms control.

On CTBT ratification in particular and on a number of other military denuclearization steps, more ambitious plans are very likely to find the needed support in the U.S. administration and Congress. These include strengthening the ABM treaty, and ratification of new formal U.S.–treaties on nuclear weapons and their delivery vehicles, as called for in a 13–step program agreed upon at the year 2000 Nonproliferation Treaty review conference.

So what is potentially feasible within the current decade, given a successor U.S. Administration with a stronger interest in multilateral cooperation on reducing the likelihood of use of weapons of mass destruction? There are six initiatives that might provide the basis for a broader consensus between such an administration and the U.S. Congress and the wider public.

- Cap U.S. NMD deployments, at least until another country deploys ICBMs.
- Establish regular consultations with China on WMD and military use of outer space.
- Put priority on a global moratorium on production of fissile materials for nuclear weapons.
- Agree to a plausible agenda for discussing the future of nuclear weapons in Geneva.
- Enhance cooperative threat reduction programs with Russia.
- Sign a BWC agreement, and then work for broader global cooperation.

The first four of these are almost inextricably intertwined, and successful pursuit of the package they constitute could facilitate the last two.

After the current U.S. administration, abandoning U.S. NMD deployments altogether is likely to be politically difficult but also not necessary. Simply maintaining as a test bed for the technology a planned four deployed launchers, and even a comparable number more in the production pipeline, is not likely to be a major impediment to good relations with other countries. What is necessary from a Chinese perspective is that the U.S. not be engaged in an unbounded missile defense build-up that would substantially alter China's plans for nuclear force "modernization." This could be clarified through a program of regular consultations with China, which might have the added benefit of helping to avoid an unbounded competition on threat and protection of space-based military assets such as communications and reconnaissance satellites. What satisfies China in this regard is likely to satisfy Russia, and other countries are unlikely to deploy an ICBM threat in time to derail progress during the current decade on the remainder of the program outlined above. Within this context negotiations on a fissile materials production cutoff treaty (FMCT) could recommence at the Geneva Conference on Disarmament (CD). While this is unlikely to result in an FMCT entering into force in the current decade, it could well result in a global production moratorium if the United States and Japan cooperate effectively on providing incentives for Pakistan to cooperate.

Unblocking the impasse in the CD also requires agreement on a discussion program for an ad hoc group on the future of nuclear disarmament. One possible approach to this is a universal and exponentially declining upper limit on assembled nuclear explosives held by any country, configured in a manner to be permanently compatible with no further tritium production by the United States or Russia (c.f. Clifford Singer and Amy Sands' Program in Arms Control, Disarmament and International Security July 2002 report on "Keys to Unblocking Multilateral Nuclear Arms Control" and references therein). Such an approach appears compatible with those of China and India, if not all that those countries espouse in their formal positions. The United States and its European partners need not actively endorse such an approach; it would be sufficient for them to simply abide its discussion while taking actions expected in any case to configure their arsenals for the readily foreseeable future to be compatible with it (as discussed above).

A moratorium on new production of fissile materials for nuclear weapons programs is a necessary condition for establishing comprehensive global cooperation on fully securing such materials against unauthorized use by state or non-state actors. However, the primary problem with inadequately secured nuclear materials still lies in Russia, and without enhancement of the cooperative threat reduction program this is likely to remain the case throughout the present decade. As the recent generation of specialists who insist that plutonium is an economically valuable material gradually lose their influence in Russia and elsewhere, it may become possible to streamline the cooperative threat reduction program to concentrate on accelerating secure storage of fissile materials and disassembly of excess weapons rather than on more expensive programs to promptly use excess weapons plutonium for energy production. In this case it might become possible to enhance the effectiveness of cooperative threat reduction programs without any net increase in financial outlays.

Finally, while the international agreement on the BWC that the current Bush administration rejected was far from ideal, accepting it as a base for further progress would almost certainly be more effective than trying to start over again “from scratch.” If a future administration is willing to sign such an agreement, then they might most fruitfully try to move on to a comprehensive and more effective global licensing mechanism to help keep dangerous organisms and technologies out of unauthorized hands. Elementary licensing constraints have been lacking on a global basis, are in the interests of major commercial interests as well as almost all states, and should be more readily negotiable than intrusive inspection procedures aimed at detecting large scale state-sponsored biological weapons programs. In the end, however, a broadly based and effective licensing program may be just as effective in complicating the establishment of new biological weapons programs and the spread of new types of biological weapons technology.

To address all of the questions raised here is beyond the scope of the present discussion, but we will examine three particular questions in more detail. First, what is likely to be technically practical for U.S. NMD deployments for the current and next U.S. administration? For a given level of funding, this will determine what deployments future administrations are likely to inherit and then possibly freeze. Second, what are U.S. Air Force plans for use of outer space and defense of space assets? Answers to this question may help shed light on whether there is anything in the works other than unbounded NMD that is likely to preclude cooperation with China on multilateral approaches to WMD. Third, how is continuing EU integration likely to impact EU and member countries’ approaches to multilateral cooperation on WMD? So far the other EU countries have largely deferred to France and Britain on these matters, especially in the context of EU policymaking. It would be interesting to have some insight on whether and when EU countries may become more effective in pulling together on these matters as this decade wears on, and if so in what directions they are likely to pull.

In addition to these questions being posed following the address by Amb. John Richardson, there were presentations on 3 April 2002 by the following speakers. (The conclusions drawn from the presentations of Amb. Richardson and other speakers and interventions from the audiences are those of the editor only and should not be taken as representing the views of the speakers themselves.)

Lt. Col. David LaRivee, United States Air Force  
Academic year 2001-2002 National Defense Fellow  
Program in Arms Control, Disarmament, and International Security  
University of Illinois at Urbana–Champaign

Malcolm Savidge  
Member of Parliament, Aberdeen North, UK  
Convenor of the all-party parliamentary group on global security and non-proliferation

Prof. Jeremiah Sullivan  
Department of Physics  
University of Illinois at Urbana–Champaign

Of particular concern in the context of EU day was the perception in Europe of U.S. foreign policy in the early part of 2002, with a few months’ distance from the immediate reaction from the attacks on the United States of 11 September of the previous year. Concern that the U.S. administration was perceived in Europe as having not sufficiently pulled back from its early unilateralist approach appeared uniform amongst those who addressed this topic. U.S. national missile defense policies remained a bone of contention at the time. The U.S. approach

to broader concerns relating to international agreements such as the biological weapons convention, the Kyoto accord on global warming, and international courts were also seen as complicating relations between the United States and the European Union. As noted above, there are also substantial differences between the United States and the three largest EU countries on the question of military uses of outer space, but in this case European preferences for avoiding weapons in space are generally expressed as a policy preference rather than a policy priority. Of course a determination clearly remains in Europe to make common cause with the United States on foreign policy wherever possible. Still, these differences do point out the potential utility of the United States accommodating European wishes on issues such as broadening the moratorium on production of fissile materials for weapons programs, where the primary source of disagreement is on the means to this end rather than on the goal itself.

Technical considerations suggest that the differences between U.S. and EU approaches to national missile defense and military uses of outer space may not prove to be particularly important in the long run. One view was that U.S. national missile defense development has been driven by domestic politics and ideological commitment at the expense of inadequate attention to integration of technology and policy. This has led to unrealistic deployment schedules for a system that will be vulnerable to disruption, not cost effective at the margin, and perhaps not functional at all. According to its management, the system being developed is a layered approach to boost, mid-course, and terminal interception. This leads to serious problems and massive expenditure requirements for adequate coverage (particularly for boost and terminal interception) and for target discrimination (particularly for mid-course interception). Adequate coverage is also a concern for mid-course interception. Any more sizeable angle between target and interceptor trajectories that in tests performed so far will make mid-course interception even more difficult than it has been. By 2004 a “symbolic” system might possibly be fielded, but anything effective will take until at least 2008–2010. Russia has had greater problems with U.S. withdrawal from the Antibalistic Missile Treaty than China, but in fact budget limits will probably impose the cap on U.S. national missile defense that was inferred above to be necessary for China to cooperate fully with broadening of a moratorium on production of fissile materials for weapons programs.

With respect to military uses of outer space, it is a sober analysis of mission requirements rather than technical feasibility that is most likely to constrain activities of the type that the United States’ larger European partners have little enthusiasm for. First consider the possible need for further developing U.S. anti-satellite technology beyond the level that was developed but not made operational in the 1990s. It is possible that replacing c. ten billion dollars worth of U.S. military assets currently in space over the next ten years with comparable technology could leave them vulnerable in about ten years to capabilities of one or more other countries. The loss of these assets would risk setting U.S. military operations back to c. 1980, and would thus be considered a very serious occurrence. (Anti-satellite technology could be particularly relevant to defense of these assets if maneuverable satellites rather than ground-launched interceptors were developed by other countries as a potential space weapon.) However, a trend towards miniaturization could increase survivability of U.S. space assets (e.g. from c. 25 percent to c. 75 percent survivability) even in the absence of other defensive technologies, leaving enough assets in space for the United States to complete ground operations (without necessarily having to turn attention to preventing or deterring threats against space assets at the same time).

Next consider a possible future need for U.S. interference with other countries’ space assets. So far this has not been necessary. For example, the United States simply bought out other countries’ space-based reconnaissance capabilities during the recent Afghan campaign. Even if an occasion where capability threat of use of force against other space-based assets is desired, there remains the question of whether this would be done from the ground without putting objects in orbit, using orbiting objects launched only for the occasion, using orbiting objects not primarily designed for that purpose, or using pre-positioned orbiting space weapons. There is also the question of whether the capabilities of another countries’ assets would be temporarily interfered with (e.g. by blocking a signal or line of sight) or permanently damaged or destroyed. Whether threatening or proceeding to non-destructively block a signal or line of sight would be considered a threat or use of force raises interesting questions concerning the legal status of space objects. Thus, even if it is considered inevitable that there will be conflict in space (or at least the need for deterring certain uses of space), this does not necessarily imply that the permanent stationing of weapons in space will be viewed as essential.

Finally, consider ground strike. For ground-based assets traversing space this is of course a well-established technology (embodied in the intermediate and long range missiles of many countries). Thus, even though new

non-nuclear-weapons technologies of this type are under consideration, we consider here only attacks on the earth using assets pre-positioned in orbit. Of these the most difficult to emulate with assets that are normally ground-based is fielding a space-based laser system but this is unlikely to be accomplished until beyond at least 2030.

This material provides an interesting background perspective for material relevant to subsequent discussions in international forums. Reported below are some comments on the Nonproliferation Treaty review conference in May of 2002. Of particular interest are subsequent discussions of military uses of outer space that took place in Berlin 10-11 June 2002, where a new proposal for the Geneva Conference on Disarmament later that month received its first public airing.

### **NPT 2002 Prepcom**

Prof. Clifford Singer and Malcolm Savidge, MP, were invited by the Institute for Energy and Environmental Research (IEER) to a 9 April workshop and the events open to non-governmental organizations (NGOs) of the April 2002 preparatory committee for the 2005 review conference of the parties to the Treaty on Non-proliferation of nuclear weapons (the "NPT 2002 Prepcom"). As a result of recent changes in security arrangements, it turned out to be necessary for the Program in Arms Control, Disarmament, and International Security to register as an NGO with the United Nations for this purpose. Under the "Reaching Critical Will" project, a 7 April meeting to coordinate 10 April NGO presentations at the Prepcom was coordinated by Emily Schroeder for the International Women's League for Peace and Freedom (WILPF) with the active participation of Merav Detan for International Physicians for Prevention of Nuclear War (IPPNW) and Physicians for Social Responsibility (PSR). The schedule for the 9 April IEER workshop and reception speakers was as follows:

#### Nuclear Dangers and the State of Security Treaties

Conference hosted by the Institute for Energy and Environmental Research

11:00 - 11:10	Welcome and Introductions – Michele Boyd (IEER)
11:10 - 12:30	The state of treaty compliance Compliance with security treaties: Overview – Nicole Deller State of the ABM, CTBT, and Kyoto Protocol – Arjun Makhijani (IEER) NPT compliance – John Burroughs (Lawyer's Committee on Nuclear Policy)
2:00 - 3:30 pm	The role of treaty compliance and nuclear nonproliferation The function of treaties in international security – Merav Detan (IPPNW/PSR) International law related to terrorism Peter Weiss (Lawyer's Committee on Nuclear Policy)
3:45 - 5:00 pm	Technical issues related to nuclear proliferation
7:00 - 7:30 pm	The Non-Proliferation Treaty, nuclear disarmament, and terrorism Jayantha Dhanapala (UN Under-Secretary-General for Disarmament)
8:00 - 9:00 pm	Panel response and discussion (Arjun Makhijani, IEER, moderator) A new era of proliferation: View from Russia Alla Yaroshinskaya (Ecological Foundation, Russia) Response by Admiral (Ret.) L. Ramdas India-Pak People's Forum for Peace and Democracy

Information from the United Nations on the NPT 2002 Prepcom was accessible as of 8 July 2002 at <http://www.un.org/depts/dda/WMD/NPT/2005/>.

The NPT 2002 Prepcom was designated with a status evaluation rather programmatic focus. This was done in order to avoid a retread of the experience that many delegations had with the frustration of a more product-oriented agenda at the NPT 1997 Prepcom. Of the nuclear weapons states parties to the NPT, Russia made a particularly strong statement in favor of deep bilateral reductions of nuclear weapons holdings, reiterating its



willingness for a prompt reduction in a bilateral context to a limit of 1500 strategically deliverable warheads. Russia also supported multilateral reductions to minimum levels consistent with strategic stability, which would presumably imply much deeper reductions. The United Kingdom and France supported the principle of irreversibility of nuclear build-down with examples from their own activities. A number of non-nuclear-weapons states, on the other hand, expressed particular exasperation with the results of the most recent U.S. nuclear posture review, and amongst all states parties to the NPT there was no support and much derision of the U.S. announcement of intent to withdraw from the Antiballistic Missile Treaty. While there was some approbation for the willingness of states not parties to the NPT to allow fissile materials production cutoff treaty negotiations to proceed, this was tempered by repeated expressions of annoyance with the non-universality of the NPT. NGO presentations at the Prepcom and other meetings referred to above continued and expanded upon this litany, with particular attention to the importance of existing and improved international legal commitments and recent problems with compliance in spirit and arguably also in letter.

Despite apparent stalemate on issues beyond the bilateral delivery vehicle build-down moving forward by the United States and Russia, there was an undercurrent suggesting the possibility of productive cooperation on improved security for storage of radioactive materials. Several countries emphasized the importance of this issue in light of the current international situation. However, the 2002 Prepcom followed fairly quickly on the heels of the attacks of last 11 September and was not product oriented. It was thus not expected that more specific proposals along these lines would be forthcoming.

In the evening session of the IEER meeting it was pointed out that the United Nations Secretary General had expressed an interest in another special UN session on disarmament, but this did not meet with favor from any of the five nuclear-weapons states parties to the NPT. Given the unsurprisingly discouraging response that queries on this issue had produced a year earlier in Geneva, it was noteworthy that the Secretary General would have nevertheless floated this idea. Now that it has been more explicitly confirmed that the time for this is not ripe, it will likely be at least a couple of years before the eventual prospects for such a special session can even be used as a conceptually convenient mechanism for developing more detailed proposals for nuclear weapons build-down than already afloat in the context of the 13-step program described above.

### **Space Weapons**

Whether to negotiate or simply discuss prevention of an arms race in outer space is the contention that is formally blocking progress at the Geneva Conference on Disarmament. This issue has been of particular interest to a set of German analysts since 1984, when a group of them drafted a proposed Treaty on the Limitation of the Military Use of Outer Space. To explore avenues for unblocking the impasse at the Conference on Disarmament, the project being reported on here supported a workshop in Berlin on 10 June 2002 entitled by the organizer "Space Weapons Ban—How Can It Be Achieved?" The conference was organized by Regina Hagen of the International Network of Engineers and Scientists Against Proliferation (INESAP). On the afternoon of 11 June the conference participants met for a discussion with Rudiger Lüdeking from Nuclear Disarmament and Nonproliferation in the German Foreign Ministry. The program for the 10 June discussions is listed at the end of this section.

An important theme of this conference that is relevant to the rest of the activities reported here was a continuing tension. This is between proposals for broad-based bans on military activities in space and what is plausible to achieve given the increasingly important military role that space assets have acquired in the past two decades. Ground launched anti-satellite capabilities are of particular concern in this regard, and will be discussed here first. Then attention will be turned to the stationing of weapons in space, and the problem of distinguishing between weapons use and weapons capabilities.

A draft "Treaty on the Limitation of the Military Use of Outer Space" was presented by H. Fischer, R. Labusch, E. Maus, and J. Scheffran at a 1984 conference in Göttingen. This draft treaty paid particular attention to anti-satellite issues not dealt with in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, commonly known as the "Outer Space Treaty." The Outer Space Treaty reserves "the moon and other celestial bodies" for peaceful purposes. With respect to the rest of outer space, the Outer Space Treaty guarantees universal rights of passage

and scientific investigation, but says only that the use of outer space shall be “carried out for the benefit of and in the interests of countries...” (from Article I) “in accordance with international law, including the Charter of the United Nations, in the interest of international peace and security and promoting international cooperation and understanding” (from Article III). There was discussion at the conference on whether this merely treats outer space like the high seas, which would allow extensive and various military activities, or should be interpreted more restrictively given the more evolved international political context in which it entered into force. What is clear is that the Outer Space treaty calls for no specific verification mechanisms beyond a unspecified consultation mechanism, except than notification of the United Nations of peaceful uses of outer space and open access as practicable to facilities on the moon or other celestial bodies.

The Göttingen draft treaty recognizes the international security role of outer space more explicitly than the Outer Space Treaty. The Göttingen draft treaty preamble explicitly recognizes “that satellites with verification and reconnaissance functions are an indispensable element of strategic stability...” It also declares the prospective States Parties “CONVINCED that, as long as nuclear deterrence appears to be an indispensable means of preserving world peace, stability would be jeopardized by satellite systems whose deployment drastically changes the basis of this stability...” It goes on to require prospective States Parties “not to destroy, damage, disturb the normal functioning or change the flight trajectory of space objects of other states”; “not to develop and test or deploy in outer space, in the atmosphere or on the earth any weapons or weapons systems which serve this purpose”; “to undertake by mutual agreement to observe minimal approach distances between their space objects”; and “to destroy any anti-satellite systems that they may already have.” (A “space object” is defined as “any object, manned or not, stationed on celestial bodies, in orbit around the earth or any other manner in outer space.”) U.S. national missile defense systems were generally agreed to have anti-satellite capability and would be incompatible with this draft treaty, which in any case reaffirms the objections to the Anti-Ballistic Missile (ABM) Treaty.

It is interesting to contrast the draft Göttingen treaty with the draft of a “Joint Working Paper by the Delegations of China and the Russian Federation” that was given its first public airing at the Berlin meetings being described here. The preamble to this joint draft concentrates on the danger of “armed confrontation and combatant activities being extended to outer space”; the prevention “of the deployment of weapons and an arms race in outer space”; and “the prevention of the threat or use of force against outer space objects...” This draft would prohibit the placement of weapons in orbit around the earth. It would also prohibit threat or use of force against outer space objects, but not explicitly their testing or even their deployment on the ground for launch. By working with Russia on a joint proposal, China has evidently managed to focus on a proposal which skirts several very problematic issues. One is the potential use of maneuverable satellites or other means to interfere with the normal functioning of satellites without actually damaging them (e.g. by temporarily obstructing their line of sight or transmissions). Another is the development and testing of ground-launched systems with anti-satellite capability, including but not necessarily limited to U.S. exo-atmospheric missile defense systems. Nor does this joint proposal refer to maintenance of strategic stability or the ABM Treaty. As such it both transcends the Cold War context of the Göttingen draft treaty and avoids the clearly fatal flaw from a practical point of view of being incompatible with current U.S. administration policy and a previously passed U.S. Congressional policy on national missile defense.

Where the Göttingen draft treaty and the new joint Chinese and Russian proposal both run afoul of current U.S. administration policy is in their call for a treaty implementation, and one that would permanently ban the placement of weapons in space. In the Göttingen draft treaty the prospective States Parties would undertake not only “not to resort to the use of space-based weapons against targets in outer space, in the atmosphere or on the earth,” but also “not to develop and test or deploy in outer space any weapons of this kind” and “not to utilize any space-based system for direct guidance of nuclear weapons” (e.g. on cruise missiles or bombers). The new Russian/Chinese proposal is less expansive on this, but would still create a basic obligation “not to place in orbit around the Earth any objects carrying any kinds of weapons, not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner.” Another space preservation treaty draft discussed at the conference was even more aggressive in its prohibition of research and development activities than the Göttingen draft treaty.

The continuing impasse on these issues at the Geneva Conference on Disarmament raised the issue of how progress might actually be made, a matter discussed in the editor’s comments in the next section.

## Space Weapons Ban – How Can It Be Achieved

Berlin–Brandenburgische Akademie der Wissenschaften

Convened by

Program in Arms Control, Disarmament, and International Security (ACDIS)

International Network of Engineers and Scientists Against Proliferation (INESAP)

Federation of German Scientists (Vereinigung Deutscher Wissenschaftler, VDW)

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| 9:30 - 10:00  | Welcome and workshop introduction<br>Jürgen Scheffran (INESAP, Darmstadt/Berlin)<br>Götz Neuneck (VDW, Hamburg)  |
| 10:00 - 10:30 | Peaceful Use and Common Security in Outer Space<br>Detlev Wolter (Berlin)  |
| 10:30 - 11:00 | Peaceful Use of Outer Space – Obstacles and Challenges<br>Wulf von Kries (German Space Agency, Köln, Germany)  |
| 11:00 - 11:30 | The Link Between Missile Defense and Space Weaponization<br>Ivan Safranchuk (Center for Defense Information, Moscow)   |
| 12:00 - 13:15 | Possible Elements of the Future International Legal Instruments on PAROS<br>Joint Working Paper of China and Russia, to be introduced at the Conference on<br>Disarmament in June 2002, presented by Fu Zhiang (Permanent Mission of the<br>People’s Republic of China to the UN Office at Geneva)<br>Commentary: Bernd Kubbig (Frankfurt Peace Research Institute, Germany) |
| 14:15 - 15:30 | Space Preservation Act of 2002 and World Space Treaty<br>Carol Rosin (Institute for Cooperation in Space, Ventura CA, USA)<br>Commentary: Ian Kenyon (Mountbatten Centre for International Studies,<br>Southampton, UK)  |
| 16:00 - 17:15 | Proposed Treaty on the Limitation of the Military Use of Outer Space<br>drafted by German scientists in 1984, presented by<br>Jürgen Scheffran (INESAP)<br>Commentary: Jürgen Altman (NaturwissenschaftlerInnen-Initiative,<br>Bochum Düsseldorf, Germany)   |

## Space Weapons and the Conference on Disarmament

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Here two questions will be addressed. First, can progress on prevention of the further militarization of space take place more easily within the Geneva Conference on Disarmament or outside of it? Second, what are potentially realizable goals?

The argument for working outside of the Conference on Disarmament (CD) is that it is stuck. The CD agenda can only be approved as a whole. Since the completion of the comprehensive nuclear test ban treaty text, there have been three parts to this whole. One part is the formation of an ad hoc committee for discussions on the future of nuclear disarmament. Until recently Russia and the United States blocked this, but then each somewhat tentatively agreed to allow this on the agenda. The second part is negotiation of a cutoff of the production of fissile materials for nuclear weapons programs. This was briefly initiated until an impasse developed over the third part of the agenda. This is on the problem of prevention of an arms race in outer space (or PAROS). China insists that there should be negotiations for PAROS. The United States has been agreeable only to discussions.

The impasse on the CD agenda is not just a procedural problem. It is hardly surprising that China is reluctant to put a cap on its own strategic nuclear capabilities until the United States is willing to put a cap on its national missile defense plans. And space-based assets like infra-red detectors are essential to U.S. national missile defense plans. Nevertheless, China has recently agreed with Russia on a joint proposal on PAROS negotiations that could help move the agenda on the CD forward. The essential obligations under this proposal would be to avoid placing weapons in space or resorting to “the threat or use of force against outer space objects.”

Compared to previous Chinese proposals for PAROS that would have been clearly incompatible with U.S. national missile defense plans, this new joint proposal could in principle allow the development and even deployment of missile defense systems that also have anti-satellite capabilities, so long as these capabilities were not used to explicitly threaten or destroy objects in orbit around the Earth. It still seems unlikely that China would completely decouple other issues from missile defense if the United States looked intent on an unlimited national missile defense build-up or transfer of significant theater missile defense capabilities to Taiwan. On the Chinese and Russian sides there nevertheless now seems to be a possibility of making progress in the CD. This is perhaps with the expectation that technical and financial difficulties and political developments will ultimately provide acceptable limits on U.S. missile defense plans in any case.

The fissile materials production cutoff is widely recognized as being a logical and necessary step on the path towards cooperation on comprehensive global nuclear management that would much more reliably secure nuclear weapons materials from possible diversion to non-state actors. Much of the needed progress can be made on a bilateral basis. But it is hard to imagine all of the states with nuclear weapons potential developing the transparency and cooperation needed for truly comprehensive global nuclear management while several of them still maintain a shroud of secrecy over new fissile materials production for additional nuclear weapons. As long as the CD is meant to deal with such questions at all, it will remain the focal point for finalizing an understanding on the cutoff of production of fissile materials for weapons programs.

There is nevertheless much to be said for the idea that attempts to make progress on this nexus of issues should not be confined to the CD alone. One reason for this is that the current U.S. administration seems to have difficulty with putting enough emphasis on furthering formal multilateral nuclear arms control negotiations to successfully unblock the CD. This situation is likely to last from two to six years, and perhaps longer. Even if a

future U.S. administration does put a priority on a broader fissile materials production cutoff, however, there is still a powerful reason for taking part of the discussion on outer space outside of the CD.

The basic problem is that there is a tension between a broader goal of restricting the military use of space and the narrower range of possibilities that can be entertained within the CD without getting in the way of fissile material production cutoff negotiations. Thus what is needed is a consensus that these broader goals will be pursued outside of the CD. Then only what is mutually acceptable to the essential players will be addressed under the PAROS topic within the CD. For this to occur in a timely manner, the approach within the CD will need largely to stay away from the most central components of U.S. Air Force plans for use of space over the next twenty years or so.

One approach that might be practicable is to split discussions on military uses of outer space into two parts. Within the CD, it might even be possible to come to an agreement on banning all military activities beyond geosynchronous orbit, along with promoting related confidence-building measures. Previously this could have been difficult, because detection of energetic particles in the earth's magnetosphere from nuclear explosions was considered to be of potential military importance. Now such activities in that part of the earth's magnetosphere that extends beyond geosynchronous orbit can safely be considered a peaceful verification activity rather than a military activity. Indeed, no military activities are currently foreseen in the region beyond geosynchronous orbit. Nevertheless, banning military activities in this realm could still be of fundamental long-term importance. It would extend the concept of the de-militarization of Antarctica to the whole of the solar system and beyond, except in the tiny region of it to which we currently pay the most attention.

Discussions in one or more coordinated projects outside of the CD could then get deeper into thornier problems on definition of terms of reference and transparency and verification than is likely to be possible within the CD context over the next few years. With respect to stationing weapons in space, there may in fact be only one type of weapon on the conceptual drawing board that cannot better be launched from the ground when needed, rather than stationed in orbit. This is the space-based laser. Other missions can better be carried out by standard or high velocity cruise missiles, or perhaps with ballistic kinetic energy weapons that are launched when needed. If conventional or even nuclear weapons are stationed in space, they are generally in the wrong place in orbit to get to a target faster than their ground, air, or sea-launched counterparts. So it is overly expensive and inefficient to place them in orbit ahead of time.

In principle the space-based laser could be an exception to this rule. A large number of these devices would still be needed in orbit for continuous global coverage. However, they could in principle strike almost instantly. Nevertheless, there are many problems. They will only work, if at all, under ideal atmospheric conditions. They are comparatively easy to harden against except for a limited class of targets. They would also have very limited target coverage. They would be large, expensive, tricky to maintain, and extremely vulnerable to counterattack. Their emplacement could easily cause more security problems than it solves. They are likely to be extremely politically unpopular around the globe. They could even be viewed as a potential interference with national sovereignty and thus be viewed legally legitimate targets for deactivation by another country or consortium. With careful attention to technical detail and the relevant international and domestic politics, setting up a politically attractive mechanism for stopping the development of space-based lasers might save the U.S. Air Force from a great deal of needless and ultimately unproductive expenditure.

So far, only discussions and negotiations in a multilateral context have been covered here. For any of what is proposed here to bear fruit, there is one set of *bilateral* negotiations that must move forward. The United States and China will have to put a higher priority in their strategic discussions on developing and understanding how to manage differing views of missile defense and military use of outer space while still moving forward towards a broader-based halt on production of fissile materials for weapons purposes.

There is one possibly hopeful sign on this. President Bush recently enunciated the view that dealing with terrorism will require a new global concert, not just an enduring arrangement between Russia and NATO. It's a big "if," but *if* Bush is capable of getting his bureaucracy to follow through on the logical consequences of this, it may finally become possible to engage in a really serious and productive strategic dialogue with China on these. This would entail not just continuing to walk the tightrope between the one China policy and the Taiwan Defense Act. It would entail engaging in a serious dialogue on how weapons of mass destruction are to be handled in the relationship between the United States and China. This need not mean that China and the United

States share the same view about how much missile defense preparation is needed to deal with the theoretical possibility of more states acquiring intercontinental ballistic missile capabilities. It should be sufficient to come to an understanding that this possibility will not be used as a cover for undermining what China views to be fundamental strategic security without effective consultation.

In this context, taking part of the discussion on PAROS outside the CD could be quite helpful. This could provide another avenue for discussions on the military role of space that do not have to be officially supported by Washington. If properly constructed, this could provide a forum for various countries to express their broader concerns. Then they could no longer insist that these be engaged within the CD before any discussions on other critical issues can proceed. In practical terms, discussions starting outside the CD could even lead to an understanding on space-based lasers, and perhaps some other issues as well. In any case they could play a useful role in unblocking the CD.

Finally, it is necessary to make some comments on timing. Even after last 11 September, before the recent attack on the Indian parliament there seemed to be little or no possibility of the CD delivering a fissile materials production cutoff treaty text before the end of this decade. The fundamental reason was that it seemed that Pakistan would insist on having at least this long to build its nuclear arsenal up to what it sees as a minimum deterrence level vis-à-vis India. That Pakistan does not yet have effective minimum deterrence is evident from the fact that India is willing to threaten war even following Pakistan's explicit demonstration in 1998 of the ability to make a nuclear explosion. However, what may be coming clear from current events is that it does not really matter how many nuclear bombs Pakistan has. Pakistan's ruling elite maintains its current way of life only through external financial support, and the outside world has made it clear that India will be allowed to demand a halt to support for incursions into Kashmir, whether Pakistan has nuclear weapons or not. While it still seems unlikely, it is thus possible that a moratorium on fissile materials production for weapons programs that includes South Asia may now even become possible within the next few years. With careful attention to the appropriate division and pursuit of issues to be addressed within and outside of the CD, it could thus be possible to have such a moratorium years earlier than might otherwise be achieved.

## LIST OF ABBREVIATIONS

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ABM	Anti Ballistic Missile
BWC	Biological Weapons Convention
CASS	Chinese Academy of Social Sciences
CIIS	China Institute of International Studies
CTBT	Comprehensive Nuclear Test Ban Treaty
CD	Conference on Disarmament
DC	District of Columbia
FCO	Foreign and Commonwealth Office
FMCT	Fissile Materials Cutoff Treaty
IAEA	International Atomic Energy Agency
ICBM	Intercontinental Ballistic Missile
IEER	Institute for Energy and Environmental Research
IRIS	<i>Institut de Relations Internationales et Stratégiques</i>
ISISUK	International Security Information Service, United Kingdom
NATO	North Atlantic Treaty Organization
NMD	National Missile Defense
NPT	Nuclear Non-Proliferation Treaty
PAROS	Prevention of an Arms Race in Outer Space
P-5	Permanent Five Members of the UN Security Council
START	Strategic Arms Reduction Treaty
UN	United Nations
VERTIC	Verification, Research, Training & Information Centre
WMD	Weapons of Mass Destruction