

## CHAPTER 1

### CONFERENCE REPORT

#### EXECUTIVE SUMMARY

Over the course of the conference, several important themes emerged around which participants tended to coalesce. Some of these issues, expressed in simplified form, are as follows:

- A broader concept of “space security” deserves greater attention, as it encourages the engagement of the wider community in comprehensively considering what humanity has at stake in outer space and the importance of a weapons-free outer space for our collective security and prosperity.
- The debate surrounding space security should be widened, envisaging a greater role for civil society, corporate actors and other UN and multilateral bodies. “Cross-fertilization” between stakeholders will help ensure that all interests are taken into account and help yield effective, viable solutions.
- Greater attention should be devoted to the interests of developing countries, many of which rely on space technologies to meet vital development goals.
- For many, the ultimate goal remains an international treaty banning space weapons.
- The weaponization of space is not inevitable. Much rests on decisions taken by a small number of states in the near future. It is important for states to consider the wide range of military, commercial and scientific space uses that would be jeopardized, both today and for generations to come, by space-based weapons.
- It is not obvious that the placement of weapons in space would provide any country with a decisive military advantage. Most participants agreed that the costs of weaponization would far outweigh the benefits.

- Although early consensus on the thorny issue of non-weaponization might prove difficult to achieve, there are important unilateral steps that states can take to help safeguard outer space for peaceful uses.
- States should adopt measures, both nationally and internationally, to cope with space debris. The sooner these measures are undertaken, the safer the space environment will be.
- Confidence-building measures (CBMs), such as “no-deployment”, codes of conduct or “rules of the road”, are also desirable in the short to medium term to reduce the risks associated with increased human activity in space.
- Considerable international legal architecture already exists that could help lay the foundation for agreements to safeguard outer space for peaceful uses. The 1963 Partial Test Ban Treaty (or Limited Test Ban Treaty), the 1967 Outer Space Treaty, the 1972 Incidents at Sea Agreement and the 1989 Prevention of Dangerous Military Activities Agreement are just some of the existing legal instruments that could provide useful points of departure.
- Most participants agreed that incremental steps should be pursued in the short term. The establishment of international regulatory regimes through treaties, while desirable, is likely to remain challenging to achieve in the short term.
- International bodies such as the Conference on Disarmament (CD) should address those aspects of the issue that are ripe for discussion, which will help lay the foundation for cooperation on more controversial matters at a later stage.
- Like-minded governments and international organizations should consider forming “coalitions of the willing” to push the debate forward.

Following are summaries of the panel presentations and ensuing discussions, along with an overview of the synthesis and discussion session held at the end of the conference.

## SPACE SECURITY

Opening the debate on the current status of space security, Jeffrey Lewis (University of Maryland) contended that American commitment to space weaponization might not be as strong as it appeared on the surface. Official US space policies are articulated primarily through documents drafted during the Clinton era and therefore provide little insight into the

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actual intentions of the Bush Administration. Lewis also pointed out that broad policy documents did not indicate which programmes would successfully surmount substantial political, technical and budgetary obstacles. Through an analysis of the administration's 2004 and 2005 budget requests, Lewis reasoned that the two "weaponization" programmes most likely to reach operational status were space-based anti-ballistic missile (ABM) systems and micro-satellites capable of autonomous proximity operations. Although the latter technology has legitimate civilian applications—namely the repairing and refuelling of satellites—it also has the ability to conduct clandestine anti-satellite (ASAT) operations and is therefore a source of international concern. Were any country to test such a proximity operation, tensions would undoubtedly mount. Lewis concluded by maintaining that, since neither programme had reached operational status, the opportunity still existed to curb their further development.

Robert McDougall (Department of Foreign Affairs and International Trade of Canada) presented the findings of an independent research report entitled *Space Security 2003*, commissioned by the department, which assessed the current status of space security. The report defined "space security" as "secure and sustainable access to and use of space; and freedom from space-based threats".<sup>1</sup> In evaluating the current environment, researchers identified 12 components of space security. These elements fell broadly within the following three categories: the space environment, the intentions of space security actors and the capabilities of space security actors. On balance, experts concluded that space security decreased somewhat in 2003. However, not all indicators of the space security index revealed the same trend. Some aspects of space security have remained static, while some improved. McDougall also reported that some indicators produced a sharp division of opinion, and emphasized that their impact is therefore unclear. Noting that the report does not represent Canadian government policy, he solicited comments from governmental and non-governmental representatives on the utility of the concept as an analytical framework for space security issues.

In the discussion that followed the conference's introductory presentations, several participants expressed support for the concept of space security as a nexus around which concerned actors could mobilize. Objective analysis of the status of space security, perhaps on an annual basis, was suggested as a means to unite the efforts of governments, non-

governmental organizations (NGOs) and research institutes. Other participants expressed concerns that civilian space programmes might currently be used as smokescreens for more aggressive programmes, thereby circumventing budgetary restrictions imposed by bodies such as the US Congress. The dual-use aspect of many space technologies was identified as an area of particular concern, making it difficult to distinguish peaceful programmes from military ones.

## PEACEFUL USES OF OUTER SPACE

In his address on the civil context of the peaceful uses of outer space, Victor Kotelnikov (United Nations Office for Outer Space Affairs) highlighted the increasing difficulty associated with separating military from civilian space-based technologies. He underscored the lack of attention paid by space-faring powers to the needs of developing countries, which—often paradoxically—rely on space technology to an even greater extent than their more developed counterparts. In Afghanistan, for example, where land-based communications remain problematic, satellite technology is crucial for providing adequate health care. E-health, e-learning and disaster management are all heavily reliant on space-based technologies, as is the monitoring and protection of natural resources.

John MacDonald, Chairman Emeritus of MacDonald Dettwiler, spoke about the commercial applications of space technology. He asserted that communications is the only field in which a commercial enterprise could be successful as an operator; in all other uses of outer space, governments have been the primary user. As a result, communications is the sole application in which the commercial sector has had any influence over the uses made of its output. MacDonald stressed that “a customer is a customer” and the commercial sector did not concern itself with the applications of its products, whether peaceful or non-peaceful. Moreover, given that the three major civilian applications of space infrastructure—communications, Earth observation and navigation—have significant military uses, outputs of the commercial sector could either greatly enhance quality of life or severely damage it, depending upon the decisions of governments.

Representing the Indian Space Research Organisation, Gopalakrishnan Narayanan outlined some of the specific ways in which space technology could be applied to development goals. Programmes that targeted critical

issues such as food security and disaster management benefit enormously from sophisticated satellite imaging systems. These systems made possible the collection of important data regarding wasteland, groundwater levels and watersheds, drought and ocean productivity. Agricultural forecasting has also improved as a result of satellite imaging, helping farmers to anticipate pricing and allowing the government to determine buffer stocks for the upcoming season. In addition, monitoring of forest and coastal areas enhances the ability of policy makers to take sound environmental decisions, a principle Narayanan called “digitally empowered decision-making for development”.

Narayanan’s presentation also underlined the importance of space-based communications technology, which enables vital information such as expert medical advice to reach even the most remote villages. Narayanan emphasized that space technologies are particularly important for developing countries with poor infrastructure. It is critical, he concluded, that the peaceful uses of space be guaranteed and protected for all.

In the discussion that followed these presentations, it was emphasized that the peaceful uses of outer space could not be meaningfully considered without also addressing space security. Given the current use of civilian space infrastructure for military purposes, peaceful and non-peaceful uses of space are inextricably linked. Therefore, the continued reluctance of states to address space security in multilateral fora has hampered efforts to collaborate in achieving scientific and developmental goals as well.

In a related vein, some participants, while expressing support in principle for an international control regime restricting the militarization of space, highlighted several potential difficulties in doing so. There were strong arguments that verification of compliance would be extremely difficult, partly as a result of the currently limited capacity to monitor space-based assets after lift-off, and partly because of the difficulty posed by the increasingly dual-use (civil–military) nature of key satellite systems. Perhaps more problematically, several participants also expressed concern that control regimes might impact negatively on the use of space technologies for peaceful purposes, and that dual-use civilian space assets would be targeted in the event of a conflict erupting in space.

## MEANS TO GUARANTEE SPACE SECURITY AND ASSURANCE

Noting the continued lack of consensus at the CD, Jonathan Dean (Union of Concerned Scientists) nevertheless contended that there were steps that the international community could take to help safeguard outer space for peaceful uses. In particular, he advocated a series of individual national declarations from major space-faring nations pledging that they would not be the first to deploy weapons in space. He maintained that these declarations would, at no cost to states, protect space-based assets and provide a practical preparatory stage for negotiating a treaty that would prohibit weapons in space. Dean offered an example of what such a declaration might look like, including a working definition of “weapons” and an explanation of when such a weapon would be considered “in space”.

Dean claimed that a major motivation for the weaponization of space is that states feared that unless they seized the initiative, another state would surely do so. Such fears, he suggested, could be mitigated by the widespread adoption of voluntary declarations, both by virtue of the reassurance value of such statements of intent and also because the declarations would become invalid if any state tested a weapon in space. He also pointed out that such an approach would help test the feasibility of a treaty to ban the weaponization of space. He stressed, however, that the proposed measure would not proscribe all military activity in space. Rather, it would prohibit the deployment in space of weapons that could destroy or damage objects in space, in the atmosphere or on the surface of the Earth. Dean underscored the practicality of unilateral moves such as these, since they avoid the burden of consensus. He concluded with an appeal to CD member states to make no first deployment declarations (NFDD) a reality.

Michael Krepon (Henry L. Stimson Center) also suggested measures that states might take to help safeguard space for the peaceful use of all. He contended that the United States would soon face a fundamental choice between pursuing either space weapons or “space assurance”, the latter reflecting a policy choice to leave space unencumbered by weapons. He asserted that the weaponization of space was not inevitable, and therefore that it would be wise to strengthen efforts to promote space assurance. He outlined several key elements of a space assurance posture including unilateral initiatives to enhance situational awareness in space and reduce satellite vulnerability; research and development programmes to deter

others from crossing important thresholds; and cooperative measures, international agreements and codes of conduct for responsible space-faring nations. In pursuing these latter CBMs, Krepon emphasized that it was wise to attempt first what was politically feasible, while still pursuing other avenues of cooperation in space that were not yet ripe for accomplishment. He identified as particularly valuable a code of conduct or agreed “rules of the road” for responsible space-faring nations. Alternatively, he noted, a single state or group of states might usefully take the lead in tackling the issue of space arms control.

Krepon emphasized that there was no need for the United States to test and deploy dedicated space weapons since, like many states, it already possessed capabilities that could, if necessary, act as space weapons. He further suggested that such latent capabilities deterred others from flight-testing and deploying space weapons. Krepon concluded that if the United States retained its ability to respond if others flight-tested or deployed space weaponry, while refraining from doing so itself, there was a reasonable chance that these thresholds would not be crossed.

Addressing the issue of space debris, Theresa Hitchens (Center for Defense Information) observed that there remained challenges to characterizing the exact nature of the debris problem, as well as disagreements about the gravity of the situation and how best to address it. Failure to stem the creation of debris, however, would undoubtedly undercut the security of all assets in space. Hitchens explained that the danger of space debris stemmed primarily from its potential to collide with and/or damage objects both in space and on the ground. Space debris also caused light pollution, which posed problems both for civil astronomy and for military space surveillance efforts.

Hitchens noted that it was much easier to prevent space debris than to clean it up, and that states seemed to be moving toward recognition of this fact, but she also claimed that the current legal environment was inadequate for the task. Consequently, she proposed a series of immediate steps that the international community should take to mitigate the creation of space debris. These steps were aimed both at international bodies such as the United Nations and at Member States, encouraging national and international legislation to address the problem. Hitchens allowed that some of her suggestions, particularly those that revolved around trying to create a new body of international law, would be both controversial and

time consuming. This, she contended, was good reason to begin legislation at the national level. She concluded, however, by insisting that outer space is a global resource, and as such it would ultimately require protection by all if it is to be preserved for the benefit of all.

Jürgen Scheffran (International Network of Engineers and Scientists Against Proliferation) discussed the possibilities of verifying a weapons ban in outer space. He emphasized the close link between space security and verification. He demonstrated that a space object's ASAT capabilities are detectable by technical means. For example, satellite tracking systems and on-board sensors can detect with high probability whether an approaching space object has residual ASAT capabilities. Since any precisely manoeuvring space object can perform an ASAT attack, a regime of advance notice would also be important. Scheffran thus proposed partial arms control measures such as banning testing, deployment and use of weapons above a specific altitude, or restricting activities beyond a given stage in the life cycle of a weapon. He foresaw great danger in space-based Ballistic Missile Defense (BMD) weapons because of their inherent ASAT capabilities and urged countries to push ahead with a treaty while there are still many technical and economic obstacles to the weaponization of space.

The ensuing discussion delineated the steps that could be taken in the short term to ensure space security. Participants debated whether it would be easier to implement Dean's idea of national declarations first or to initially devise a code of conduct, with the majority calling for countries to publish national declarations first, as this was perceived as easier to achieve. It was also mentioned how similar the content of Dean's sample declaration was to the Russian–Chinese draft proposal of June 2002 to the CD (CD/1679). Some participants pointed out that "rules of the road" in space would also be practical for the United States, as they concern overall space stability. The need for an international surveillance network to monitor adherence to a code of conduct was also stressed.

Participants debated which issues should initially be included in a code of conduct. Many participants pointed out that the topics of debris mitigation and verification could be viable points of departure. One participant proposed taking the issue of ASAT weapons out of the code of conduct initially, for reasons of simplicity.

The discussion also emphasized the problem of traffic congestion and space debris. Debris in outer space could not easily be removed, participants noted, cluttering up orbits irreversibly. While some of the testing done in outer space by the United States and other countries was performed in a manner to avoid creating space debris, this was done on a voluntary basis and would presumably not apply in cases of actual conflict. One participant pointed out that the mitigation of debris was especially costly for developing countries. Furthermore, others pointed out, satellite density in lower orbits was becoming a problem; while outer space is vast, only a limited number of orbits are useful for human purposes.

## **INTERNATIONAL LEGAL APPROACHES AND THE ROLE OF THE CONFERENCE ON DISARMAMENT**

Thomas Graham Jr. (Eisenhower Institute in Washington, DC) spoke on the law and the military use of outer space. He pointed out that military activity in space is largely unregulated, and that there is as yet no legal regime preventing the weaponization of space. The Outer Space Treaty laid the groundwork for international order in outer space, but was limited in its application as it does not cover outer space *in toto*, but only celestial bodies. In addition, the Outer Space Treaty as well as the Partial Test Ban Treaty have few inspection or verification provisions. As Graham also pointed out, there is a large arsenal of international resolutions attesting to the intended peaceful uses of outer space. Examples included several General Assembly declarations, specific domestic national legislation governing space-related activities and parts of the Outer Space Treaty. This legal corpus might serve as a point of departure for devising an international legal regime securing outer space as a common good.

On the issue of international lawmaking on outer space, Lucy Stojak (McGill Institute of Air and Space Law) presented a snapshot of the current situation. She stated that effective legal norms could emerge in incremental steps and at the initiative of only a few countries. The Partial Test Ban Treaty, which prohibited nuclear weapons testing in outer space, started out as an initiative of the United Kingdom, the United States and the Soviet Union, with these countries recognizing that regulation was in their own self-interest. She also referred to the 1975 Registration Convention and the 1979 Moon Agreement as being the initial incremental steps to arms control in space, as these treaties required that certain information on satellites be

provided to the United Nations by space-faring nations. Stojak also stated that the United States, even though it withdrew from the 1972 Anti-Ballistic Missile Treaty in 2002, still adhered to the principle of non-interference with foreign-owned space objects. While the CD is the designated forum to discuss outer space issues, she concluded, countries should go ahead with designing a comprehensive legal framework on outer space in any form or forum.

Rebecca Johnson (Acronym Institute for Disarmament Diplomacy) outlined her action plan for outer space. She advocated a holistic approach, where issues fed into each other, establishing behavioural norms and eventually resulting in legally binding treaties. Johnson advocated first making better use of networking to foster cross-fertilization between commercial and government users of space. Second, while the CD should continue to work toward a treaty on the Prevention of an Arms Race in Outer Space (PAROS)—for example, by building upon the useful Russian–Chinese draft proposal of 2002—other fora should be used in the meantime. This could include the work of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) or the First Committee of the General Assembly. Such fora should begin negotiating issues such as mitigating space debris, pre- and post-launch notification of satellites or building an international space security index. And third, legal documents could be expanded to include treaties under the International Telecommunication Union (ITU) or the 1990 Treaty on Conventional Armed Forces in Europe (CFE). Alternatively, a protocol could be added to the Outer Space Treaty—for example, detailing a code of conduct or banning ASAT weapons. Johnson urged countries to take action, as she viewed the Bush Administration space agenda’s push for Mars as a clear sign on the road to the weaponization of space. More specifically, she feared that Bush’s plan to establish ABM-capable satellites by 2008 was a pretext for establishing space objects with ASAT capabilities—in other words, the first weapons in space.

Anton Vasiliev (Permanent Mission of the Russian Federation to the CD) reiterated the Russia Federation’s firm stand behind its proposal made with the People’s Republic of China at the CD in 2002 (CD/1679) on the prevention of the weaponization of outer space. This proposal urged the banning of weapons placed in space, including space objects with ASAT capabilities. However, as Vasiliev pointed out, the Russian–Chinese proposal did not prohibit the militarization of space, that is, the use of space

for military purposes such as surveillance or other data gathering operations. Vasiliev viewed the CD as ready to negotiate these issues. Transparency in space matters, he concluded, would lead to a framework of trust and world stability.

Participants varied in their views about the right approach to treaty-making with regard to outer space, though most participants favoured a step-by-step approach as opposed to trying to negotiate a comprehensive treaty all at once. They favoured treating the outer space issue in different fora and devising an international division of labour. Regional bodies were proposed as an option.

The role of the CD was also debated. Most participants favoured treaty discussions in that forum, while simultaneously addressing the subject of outer space in other bodies. Some participants expressed concern that removing the issue of PAROS from the CD would complicate matters. Many participants recommended bringing in experts and conducting informal discussion meetings at the CD.

Some participants urged certain countries to simply go ahead with a treaty. They believed that this move would have a snowball effect, drawing more signatories to the treaty at a later stage.

## TRANSPARENCY AND CONFIDENCE BUILDING

Peter Zimmermann (King's College London) asked what constituted so-called "reckless driving" in space. Zimmermann insisted that the international community required "rules of the road" and increased transparency with regard to space operations. Many satellites are not yet technically able to manoeuvre in a precise manner or to detect approaching satellites. Furthermore, a change of orbit by a satellite does not have to be disclosed, nor does the payload of a satellite have to be fully laid open. These few examples show that there are huge deficiencies in regulating space traffic. Zimmermann advocated coming up with an analogue to the Incidents at Sea Agreement, where the contracting parties agree to behave with courtesy and due regard for others. Furthermore, Zimmermann saw a real need to draw scientists and technical experts into the policy-making debate on space.

Ambassador Hu Xiaodi (Permanent Mission of China to the Conference on Disarmament) spoke about the relevance of verification in the context of a treaty banning space weapons. He stated that verification could play an important role in ensuring observance and implementation of a treaty, but it could also delay the conclusion of treaty negotiations. Hu further clarified that two types of outer space verification measures have been envisaged: remote sensing survey and on-site inspections. He emphasized that the most important step would be to agree to a legally binding treaty on PAROS/non-weaponization, and in order to achieve this it might be advisable to put the verification issue aside for the time being, owing to political, technical and financial problems that would need to be addressed before meaningful verification provisions could be codified.

James Clay Moltz (Monterey Institute of International Studies) spoke about so-called restraint regimes for space from an American perspective and the chances for current American restraint in outer space. In his view, the United States chose restraint in space weapons competition in the 1960s and 1970s, as exemplified by the Outer Space Treaty. As of 2004, however, the momentum of American policy was pointing toward keeping open all defensive and offensive options in space, especially as there was no other serious competitor in sight. This development of American space policy was reflected in blueprints such as the United States Air Force's "Vision 2020" and the report of the January 2001 Commission to Assess United States National Security Space Management and Organization (the Rumsfeld Space Commission), identifying space vulnerabilities: "The United States must develop, deploy and maintain the means to deter attack on and to defend vulnerable space capabilities".<sup>2</sup>

Nonetheless, Moltz also pointed out that the last word on American space policy had not yet been spoken. There are people in the military that doubt the practicality and strategic usefulness of weapons in space. Instead, they prefer so-called pop-up defences that could potentially be employed during crises. There is also military opposition to the debris from tests. Furthermore, even the Republican-led US Congress had considerably cut budgets for space weapons, delaying space initiatives.

Moltz stated that the position of the United States therefore seems unclear. It wants to investigate near-term ASAT capabilities for space "denial" and to limit debris, but only on a voluntary basis. A treaty to ban space-based weapons, in Moltz's view, is unlikely in the current climate.

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Moltz considered possible routes for the CD, including establishing non-offensive norms, greater civilian cooperation among key space powers, formation of “coalitions of the willing” (bilateral, multilateral), promotion of universal adherence to the Outer Space Treaty and the Partial Test Ban Treaty, and joint actions to condemn “aggressive” activities and to provide support for pre-launch notification.

Götz Neuneck (Hamburg Peace Research Institute) looked at incentives for space security and space cooperation and identified three core issues. First, the problem of congestion: satellites are overcrowding some orbits and space debris is irreversibly cluttering up orbits. Second, space warfare would put satellites at risk, including satellites vital for commercial use. In this respect, the civilian space industry might be a future ally in attempts to establish a regime for the prohibition of space-based weapons. Third, the potential advent of BMD weapons in space is leading to mistrust, as such weapons have inherent ASAT capabilities. It is thus vital to develop an international arms agreement banning ASAT weapons. This ban should include a ban on testing ASATs, “keep out zones” in space, radar detection and surveillance by international organizations as well as a ban on new weapon principles. Such a treaty would be more effective than costly investments in hardening satellites or space-based weapons. Furthermore, the current threat to American military satellites should not be met by the weaponization of space in the near future, but by passive measures and early warning mechanisms.

The discussion that followed focused on general CBMs and incentives for space-faring nations to keep outer space as a safe environment. Some participants maintained that the advent of more commercial space users would make a difference. In addition, drawing the private sector into the outer space debate would lead to a legal framework on space.

Some participants hoped that the issue could be moved forward through greater media attention, especially related to new topics such as micro-satellites, and recommended that civil society representatives begin lobbying their governments. If the awareness and engagement of a broad range of stakeholders increased, it then would be easier to generate political will and move forward on the issue of outer space security.

Some participants emphasized the role of developing countries in relation to outer space issues and they predicted great benefits from the

peaceful uses of outer space for developing nations. Reminding governments of the humanitarian aspect of the outer space issue would help in preventing the weaponization of space.

Many participants emphasized the importance of linking different stakeholders with each other in the outer space debate, especially the public with the private sector, or civil servants with respective think-tanks and scientists.

## SYNTHESIS AND DISCUSSION

Patricia Lewis, Director of the United Nations Institute for Disarmament Research (UNIDIR), provided a summary and synthesis of the issues addressed at the conference, noting a need to remain vigilant even where progress has been made. She noted that the tone of discussion during this seminar was different from that in previous seminars, perhaps because the issues had evolved. She said that the Canadian research paper *Space Security 2003* was a beneficial publication, in part because of its contribution to establishing a definition of space security, and in part because it enabled a systematic and scientific measurement of space security. Lewis continued by expressing appreciation that the conference had shown how space technology from the wealthiest countries could provide benefits to the poorest of the poor, including by contributing to education, health and environmental support. She emphasized the importance of remembering “demand issues”, as those who used space considered them, and the link between the efforts made in Geneva at the Conference on Disarmament (disarmament and non-weaponization) and in Vienna at the United Nations Office for Outer Space Affairs (commercial use). She called on commercial entities and governments to work more closely together, noting that space debris is now part of the security environment.

Lewis summarized some of the technical issues addressed by the conference, including micro-satellites, space-based test-beds and “rules of the road”. Space debris, she maintained, is clearly a danger to space access. She reminded participants that various measures had been identified to help provide a balance between use and security, including NFDDs, “rules of the road” and codes of conduct. She also added that such assurances could underpin and support an eventual treaty and that these initiatives did

not need to be seen as competing. Lewis suggested that verification and other elements of a PAROS convention required more discussion, including scientific/expert discussion. She noted that partnerships between countries are also important—for example, Russia–China—as is the avoidance of an “either/or” debate on a comprehensive versus a step-by-step approach. She called instead for an overall vision with step-by-step implementation.

Participants differed regarding the best approaches to pursuing space security and a space weapons ban. The following topics were among those considered:

- *The current American position with regard to outer space*: some participants expressed concern about indications in US policy that funding for research into space weaponization had been allocated and that deployment was already being actively planned.
- *Treaty-making in a post-Cold War environment*: most participants favoured a holistic step-by-step approach to treaty-making, and not exclusively confining discussions on outer space to the CD. Some participants favoured an open discussion of a protocol to the Outer Space Treaty, along with a drive for all space-faring nations to sign on to the treaty.
- *Concrete and complementary interim steps that could be taken while a comprehensive treaty is in the making*: concrete first steps—such as national NFDDs—could be encouraged in order to reduce vulnerabilities. Several participants pointed out that the issues of verification and debris mitigation could be starting points in devising a code of conduct, and could go forward with or without movement on the treaty side. Some participants called for an international agency for verification purposes; others advocated heightening compliance with existing outer space rules, such as those pertaining to pre-launch notifications.
- *General CBMs*: some participants suggested that the commercial sector and big investors had significant incentives for ensuring restraint in outer space; other participants hoped that more media attention would help to move the issue forward. Many participants emphasized that developing countries also had an important stake in ensuring space security. Attention to the humanitarian and developmental aspects of outer space security could also help prevent weaponization.

The differing views on these issues identified questions for further consideration, including the following:

- *Which proposals attracted the most support?* There was strong support for taking specific incremental steps to ensure space security. Among the potential initiatives that attracted the most support were the mitigation of space debris, “rules of the road” for both launches and satellite manoeuvres in line with the principle of non-interference with national technical means, and satellite quality standards.
- *What new issues were raised in the discussions of outer space security?* Four new issues were brought forward in the discussions. First, participants focused on developing countries and the great benefit they would increasingly reap from the peaceful uses of outer space. Second, in addition to the humanitarian dimension to space security, the conference touched upon the potential environmental devastation that could be caused by unregulated space weaponization. Third, ways for reforming the space debate were put forward, such as moving from a strategic to a humanitarian discourse, as well as enhancing the engagement of civil society in general and the interaction between governments, NGOs, and the business and the scientific communities. Many participants pointed out the importance of bringing NGOs to the table. One participant identified the need to define a specific set of space subjects to tackle and work on together—and to pick up the pace. Another noted that a main consideration now seemed to be the need to control behaviour in space, rather than the need to establish a non-weaponization treaty, stating that controls on how actors conducted themselves were fundamental. Since the CD would only address one aspect of space security, the CD’s contribution should, therefore, only be considered as part of a comprehensive approach. Fourth, the conference demonstrated that there were many people in the US government and armed forces who were still undecided on the weaponization of space and maintained a middle ground; their influence could be significant.
- *Why is it in the interest of the United States to have an international treaty banning the weaponization of space?* Many participants pointed out that the strategic benefit of space-based weapons is negligible, as ground-based weapons are more effective in many ways. The high costs of developing, testing and deploying space weapons, the difficulty of subsequent calibration, maintenance and repair, and the arms race that would likely ensue compare unfavourably with the greater

security, commercial and other benefits of a legally regulated weapons-free outer space.

Lewis's remarks prompted wide-ranging discussion. One participant noted that there was a need to integrate national and international efforts, adding that the document *UK Space Strategy: 2003–2006 and beyond*<sup>3</sup> was a refreshing approach that incorporated both civilian use and security considerations. Another participant identified the military-industrial complex as a crucial lobby and suggested building pressure from the bottom up by mobilizing people to call on their governments to choose non-weaponization. Another participant stated that, even if the CD ever adopted a Programme of Work, it would not have sufficient time for serious discussion of space security. While there were some dissenting voices, there was general agreement that the space security issue might have to be addressed outside of the CD.

Ambassador Paul Meyer of Canada closed the workshop by concluding that space was the final frontier and that it should not be left lawless. He suggested that perhaps it could be envisioned as a world heritage park where weapons were left at the gate and guests removed all debris that they generated.

## CONCLUSION AND NEXT STEPS

This conference presented participants with a broader picture of the factors influencing continued universal access to space for peaceful purposes. While this included the potential weaponization of outer space, it also introduced participants to an array of other issues that must be monitored and addressed in order to keep space secure. Topics included the US Air Force and its space aspirations as well as potential codes of conduct, “rules of the road” and NFDDs. The conference brought the multilateral community closer to a definition about what space security could look like and how space should best be seen—as a new frontier or as a common good.

A recurring theme of the conference was that the growth in the impact of space meant that the separation of CD and COPUOS space activities was no longer effective, and that some coordinating mechanism should be explored to integrate common objectives.

The following were identified as some of the possible ways to move forward: an initiation of discussions at the CD or elsewhere, possibly toward treaty negotiations; unilateral moratoria on space weapons; steps to lead to the development of “rules of the road” and codes of conduct; and clearer definitions of terms. It was suggested that if the middle ground on the issue could discredit space weapons, then political will in support of non-weaponization would increase in the United States. The enhanced interface between technology and policy through the heightened involvement of scientists was considered crucial. However, it was questioned whether the debate at the United Nations could be carried forward to regional bodies (for example, the North Atlantic Treaty Organisation, European Union, ASEAN Regional Forum, Organization of American States, African Union, Organization for Security and Cooperation in Europe), how the success rate of existing instruments could be increased, and how best to unite current actors.

One participant encouraged incremental approaches that included multilateral action and called for the immediate establishment of a norm through NFDDs by space-faring nations and other countries. Such steps would not interfere with the work of the CD or efforts to take the larger step of establishing a legal framework to ban space weapons. Governmental experts in science and technology and non-governmental observers could be brought together to discuss “rules of the road” and legal issues of space weapons, given that it would be considerable time before the CD would be able to do so. Another participant advised that the American Institute of Aeronautics and Astronautics had put forward a set of “rules of the road” for industry that should be investigated.

While this conference helped participants to think about these ends, it also helped them to begin to think about the means. How is it possible to push the issue of weaponization in space forward in a post-Cold War world, where there is no agreed definition of security and where the designated multilateral body for disarmament issues is deadlocked? The opinion of the majority of the speakers at this conference was to widen the discourse, draw in different stakeholders and make use of different fora and legal instruments. It might very well be that issues such as security and military strategy need rethinking in the age of single-power dominance and an ever-greater divide between the poor and the rich. Furthermore, the current times of strategic transition are an excellent opportunity to address such issues. There remains hope that all space-faring nations will realize that an

international legal regime on outer space is in the best interest of all. Conferences such as this are vital in providing information about current outer space issues and technical advances. However, these discussions must continue on a regular basis in order to share developments and to help shape the discourse on outer space.

#### Notes

- 1 Canada, International Security Bureau of the Department of Foreign Affairs and International Trade, 2004, *Space Security 2003*, at <[www.eisenhowerinstitute.org/programs/globalpartnerships/fos/newfrontier/SpaceSecuritySurvey%202003.pdf](http://www.eisenhowerinstitute.org/programs/globalpartnerships/fos/newfrontier/SpaceSecuritySurvey%202003.pdf)>, p. 2.
- 2 United States, 2001, *Report of the Commission to Assess United States National Security Space Management and Organization*, Washington, DC, Government Printing Office, p. xvi.
- 3 See <[www.bnsc.gov.uk/assets/channels/about/5818%20BNSC%20Brochure.pdf](http://www.bnsc.gov.uk/assets/channels/about/5818%20BNSC%20Brochure.pdf)>.