



Promoting Cooperative Solutions for Space Security

The 2010 Obama Space Policy: Sustainability, International Engagement and Stability in Space

Victoria Samson, Secure World Foundation Washington Office Director

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The Barack Obama administration's new National Space Policy (NSP), released on June 28, 2010, strives to ensure that outer space remains usable over the long-term for the benefit of all, thus setting the stage for future, cooperative efforts in space. Specifically, the NSP sets forth the challenge to make space sustainability a priority through global engagement and cooperation, as well as through responsible space behavior. However, the policy's ultimate success will depend on how the rest of the U.S. government interprets and implements the principles contained within the NSP. Furthermore, its efficacy is tied to both how much cooperation the United States receives internationally, and what bilateral and multilateral transparency and confidence-building measures are undertaken.

Presidential Policy Directive (PPD)-4, the NSP, is the fourth policy directive to come out of the Obama administration and is intended to provide broad guidance on how the United States intends to conduct activities in outer space. Ultimately, it will be up to the various governmental departments to decide how to implement the policies included in the NSP.

Secure World Foundation (SWF) has long supported building an increased understanding of how to best protect the space environment and improve space security for the United States and other space actors. Moreover, SWF focuses on three key areas: sustainability, international engagement, and stability in outer space. The new NSP places a heavy emphasis on these objectives, recognizing the extent that space activities have penetrated the economic, political and military framework of today's world.

SPACE SUSTAINABILITY FOR THE GLOBAL COMMONS OF OUTER SPACE

In one of its opening principles, the NSP states, "The United States considers the sustainability, stability, and free access to, and use of, space vital to its national interests." Sustainability is not defined by the NSP, but it could be described as ensuring that human activities in space do not negatively affect our ability to use the space environment in the future. Thus, the goal of

space sustainability should not be to reduce usage of the space environment, but rather to ensure that the expansion of the use of the global commons of space does not harm the long-term ability to derive benefit from it. As opposed to many commons issues on Earth, which must deal with extraction of a finite resource (for example, monitoring fish populations so they are not overly depleted), space sustainability revolves around efficient use of limited orbital zones and radio frequencies, and preventing actions that could have long-term negative impacts.

Given that the U.S. military is currently tracking over 21,000 objects on orbit, with potentially hundreds of thousands of smaller pieces of debris that could prove damaging or even catastrophic to space assets that are not yet being tracked, it is crucial that the international community work together to limit the creation of new pieces of man-made debris. Debris mitigation is a key part of ensuring that space can continue to be used for decades to come. Otherwise, using certain orbits will become prohibitively expensive and/or dangerous. International coordination to improve global space situational awareness has been one of SWF's core efforts.

The NSP gives many debris mitigation guidelines, including:

“Lead the continued development and adoption of international and industry standards and policies to minimize debris, such as the United Nations Space Debris Mitigation Guidelines;

“Develop, maintain, and use space situational awareness (SSA) information from commercial, civil, and national security sources to detect, identify, and attribute actions in space that are contrary to responsible use and the long-term sustainability of the space environment;

“Continue to follow the United States Government Orbital Debris Mitigation Standard Practices, consistent with mission requirements and cost effectiveness, in the procurement and operation of spacecraft, launch services, and the conduct of tests and experiments in space;

“Pursue research and development of technologies and techniques, through the Administrator of the National Aeronautics and Space Administration (NASA) and the Secretary of Defense, to mitigate and remove on-orbit debris, reduce hazards, and increase understanding of the current and future debris environment; and

“Require the head of the sponsoring department or agency to approve exceptions to the United States Government Orbital Debris Mitigation Standard Practices and notify the Secretary of State.”

The NSP's focus on debris monitoring and mitigation demonstrates how crucial it is that the United States and others use space in a sustainable manner. Most of these debris mitigation techniques listed in the policy document already exist as voluntary international guidelines and mandatory U.S. regulations. However, the NSP formalizes the priority and importance of limiting space debris creation and exploring debris removal technologies; as such, it opens the way for increased international cooperation on these issues. It also may give some momentum to international efforts to ensure that all space actors carry out responsible space practices in their space operations. Though the legal, policy and political aspects of debris removal are not explicitly mentioned in the policy, it lays the underpinnings for the United States to address these important matters in international fora.

INTERNATIONAL COOPERATION

Increased international outreach would also shore up the sustainable use of space. The NSP demonstrates a clear understanding by the U.S. government of the changed realities of operating in the global commons of space. With the financial stress of paying for two on-going wars and undergoing a global economic depression, the United States simply cannot afford to develop, buy, and maintain exquisite and expensive space systems by itself. And even if the United States had unlimited resources to spend on its space systems, it would need cooperation from others, because of the physics of the space environment and the fact that actions by one entity in space can negatively affect others. Thanks to the rapidly-growing number of space actors, the United States must accordingly expand its international outreach. This builds on cooperation that is already occurring. Outer space is already highly internationalized – for example, over 80 percent of the U.S. military's satellite bandwidth is provided by commercial entities that are owned by largely non-U.S. entities.

In the final paragraph of the introduction of the NSP, the call to action for international cooperation in space is very clear: "The United States hereby renews its pledge of cooperation in the belief that with strengthened international collaboration and reinvigorated U.S. leadership, all nations and peoples—space-faring and space-benefiting—will find their horizons broadened, their knowledge enhanced, and their lives greatly improved." In addition, the policy indicates that the United States strives to use its national space programs to "[e]xpand international cooperation" in order to "extend the benefits of space; further the peaceful use of space; and enhance collection and partnership in sharing of space-derived information." A very tangible result of increasing the number of actors who receive benefits from space is that it gives them a stake in pursuing responsible behavior and increases their willingness to cooperate in space (or at least lessens the chances of hostile or irresponsible actions in space).

An international approach to cooperative space efforts, as outlined in the NSP, also represents the United States' renewed interest in working within international fora on space security and

sustainability issues. For example, the State Department is charged with coordinating U.S. government efforts to “**Strengthen U.S. Space Leadership**”¹ in order to “reassure allies of U.S. commitments to collective self-defense; identify areas of mutual interest and benefit; and promote U.S. commercial space regulations and encourage interoperability with these regulations.” The NSP demonstrates that the United States also wants to “Lead in the enhancement of security, stability, and responsible behavior in space.” While the U.S. plans to take a leadership role, it does not intend to exclude other space actors. Rather, the United States wants to “Promote appropriate cost- and risk-sharing among participating nations in international partnerships.” Finally, the NSP encourages U.S. departments and agencies to “Augment U.S. capabilities by leveraging existing and planned space capabilities of allies and space partners.”

When discussing U.S. activities in and attitudes toward space, it is important to distinguish the difference between leadership and dominance. There are many space actors and those dependent upon the continued benefits from space that fear that the United States might attempt to dominate the space domain by limiting access to and use of space. “Dominance” implies a unilateralist approach to space and a level of control of systems and space environment that would solely benefit the United States, possibly to the detriment of others. Despite the concern about space dominance, it has never been an official or unofficial goal of any U.S. National Space Policy, but rather a course of action promoted by a few outspoken thinkers, both within and outside of the U.S. military. Contrast this with space leadership, which assumes that there will be some sort of collective approach to space, and implies that the United States will work to ensure some sort of international response to these challenges.

One of the most striking changes from the current NSP to the one developed during the previous Bush administration is how the United States now envisions formalizing efforts to ensure responsible space behavior. Previously, the Bush administration NSP stated that the United States would not accept legal restrictions on its space activities. However, the new NSP calls for the United States to “pursue bilateral and multilateral transparency and confidence-building measures to encourage responsible actions in, and the peaceful use of, space.” The NSP continues with the guidance, “The United States will consider proposals and concepts for arms control measures if they are equitable, effectively verifiable, and enhance the national security of the United States and its allies.”

What the policy envisions transparency and confidence-building measures to be is not spelled out, which could affect how much of a presence they have in international negotiations. On the other hand, it may give diplomats more flexibility when dealing with allies on these issues. At any rate, the wording used in this NSP about the need for arms control measures to be “equitable, effectively verifiable, and enhance the national security” goes back to variations on

¹ All bold-face from the original document.

arms control options in earlier NSPs – specifically, it is fairly close to how the NSP developed during the Reagan administration worded the phrase. The NSP does not clarify what the standards are for "equitable and effectively verifiable," nor does it include specific proposals.

Additionally, the policy may provide an avenue for tackling the current deadlock in the Conference on Disarmament over how to discuss responsible behavior in space by attempting to create norms for the sustainable use of space. This would, for the time being, help focus discussions on the most practical actions and avoid confrontation over a potential space treaty, which would be extremely difficult to achieve. In fact, Deputy Assistant Secretary of State Frank Rose told the Conference on Disarmament in July 2010 that while the United States is still not interested in a "space 'arms control treaty,'" it is working to reach out to other countries to see how best to establish confidence building measures and increase stability and security. According to Rose, this outreach is not limited to more traditional U.S. allies, as he named specifically Russia and China as potential partners for creating stability in space.

The NSP's specific emphasis on establishing norms of behavior does provide some clues as to how these international discussions might move forward. In the space policy community, there is an emerging shift away from space arms control towards space "behavior control," in large part to sidestep the issues of unambiguously defining what space weapons are. Whether this behavior control takes the form of a code of conduct or rules of the road, or simply spells out sustainable norms of behavior, establishing consensus on responsible and irresponsible actions in space is an essential step in creating stability and security in the space environment.

The NSP includes guidance for the U.S. Geological Survey, Department of Defense, Department of Homeland Security, and the intelligence community to collaborate on "providing remote sensing information related to the environment and disasters that is acquired from national security space systems to other civil government agencies." It also requires the Department of Defense, NASA, and the intelligence community to "maintain and improve space object databases; pursue common international data standards and data integrity measures; and provide services and disseminate orbital tracking information to commercial and international entities, including predictions of space object conjunction." These are all solid steps toward increasing transparency and thus smoothing the way for increased cooperation, both inside and outside the U.S. government.

Finally, under guidelines for civil space, the NSP includes a directive to NASA to "Pursue capabilities, in cooperation with other departments, agencies, and commercial partners, to detect, track, catalog, and characterize near-Earth objects to reduce the risk of harm to humans from an unexpected impact on our planet and to identify potentially resource-rich planetary objects." Near-Earth Objects, or NEOs, represent a type of threat that is very remote, yet has the potential to be extremely destructive. The threat posed by NEOs is more and more being seen by the international space policy community as a way in which to determine how it can

work out the governance issues for a host of international threats beyond the NEO one. At any rate, because the threat of potentially hazardous NEOs can affect a large portion of the planet, the response to them must be approached from a cooperative, international perspective, which includes mechanisms to detect and track them. Subsequently, the response by the international space community to a planetary threat should be executed in a coordinated way such that potential impact areas are informed and evacuated, if need be.

STABILITY IN SPACE

The NSP is correct in identifying security as one of the stratagems for creating a sustainable space environment. How the United States defines “security” in terms of the space domain is not spelled out in the new NSP, but this may be elucidated by later policy decisions and budgetary allocations. The NSP does list how the United States wishes to strengthen stability in space, through:

“[D]omestic and international measures to promote safe and responsible operations in space; improved information collection and sharing for space object collision avoidance; protection of critical space systems and supporting infrastructures, with special attention to the critical interdependence of space and information systems; and strengthening measures to mitigate orbital debris.”

The NSP states, “The United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent with the inherent right of self-defense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.” Security for space assets may be improved by undertaking efforts to deter interference. Part of how space deterrence can be effectively undertaken is illustrated by the NSP’s emphasis on responsible use of space. It notes, “All nations have the right to use and explore space, but with this right also comes responsibility. The United States, therefore, calls on all nations to work together to adopt approaches for responsible activity in space to preserve this right for the benefit of future generations.” And in a later principle, the NSP argues, “It is the shared interest of all nations to act responsibly in space to help prevent mishaps, misperceptions, and mistrust.”

For space to be used responsibly, space actors must agree as to what responsible space behavior entails. Currently, the international community has not yet agreed on what proper norms of behavior in space are. When a global set of responsible space behavior norms are defined, and agreed upon, the issue of deterrence in space can be more closely addressed. This would also ensure that there are common definitions as to what deterrence means so that different space actors are not making assumptions about how final others perceive escalatory steps to be. Clarifying common definitions would also improve the chances of strategic communications being both received and understood by a variety of space actors.

Over the past year or so, the Department of Defense has been changing how it envisioned deterring attacks on U.S. space assets. This shift in thinking coincides nicely with the NSP's emphasis on responsible space behavior. Along those lines, the Department of Defense is focusing more now on the establishment of norms of behavior, international partnerships, denial of benefits (deterring attacks by making U.S. space systems more resilient), and imposition of costs (typically seen as a military response to attacks). This last step is now the lowest priority of all levels of deterrence, a downshift in priority that is a change from earlier deterrence thinking, which had placed it as the first response to threats to U.S. space assets. For example, the 2001 Rumsfeld commission report on space and its warning of a "space Pearl Harbor" did much to shape earlier thinking on how best to handle space security issues – namely, in a manner that tried to impose costs first and carry out other deterrent steps later, if ever.

Another NSP goal requires the United States to "**Increase assurance and resilience of mission-essential functions** enabled by commercial, civil, scientific, and national security spacecraft and supporting infrastructure against disruption, degradation, and destruction, whether from environmental, mechanical, electronic, or hostile causes." By working to ensure that U.S. capabilities will not be immediately lost should a particular space asset be targeted, this policy, if followed through with programs to carry it out, would remove much of the incentive an enemy might have to attack U.S. space assets.

Per the NSP, the United States is striving to "Develop and implement plans, procedures, techniques, and capabilities necessary to assure critical national security space-enabled missions." Again, the administration clearly highlights, through the NSP, that a cooperative approach to assuring space stability could have a large payoff by emphasizing, that "Options for mission assurance may include rapid restoration of space assets and leveraging allied, foreign, and/or commercial space and non-space capabilities to help perform the mission." Furthermore, the U.S. Secretary of Defense is directed by the NSP to "Be responsible, with support from the Director of National Intelligence, for the development, acquisition, operation, maintenance, and modernization of SSA capabilities," as well as "Develop capabilities, plans, and options to deter, defend against, and, if necessary, defeat efforts to interfere with or attack U.S. or allied space systems." This directive works to impose costs on those who would try and render unusable U.S. space assets. It is within the right to self-defense as spelled out in Article 51 of the United Nations charter.

NEXT STEPS

The Obama administration's new NSP clearly identifies the core challenges and priorities of space security and sustainability for the United States and provides the policy framework to allow the United States to deal with those challenges. However, much depends on how the branches of the U.S. government carry out the mandates presented in the new NSP. The Space Posture Review, being worked on at present by the Department of Defense and the Office of the Director of National Intelligence, will provide some insight on how the United States intends

to implement the NSP's guidelines when the Space Posture Review is released, potentially later this year.

The Obama administration's Fiscal Year 2012 budget request, scheduled for release in early February 2011, will give some indication of the programmatic actions that can result from the new NSP. Efforts by the State Department will further illustrate whether or not the United States is truly serious about international cooperation or if Washington is only paying lip service to the concept.

The NSP sets the stage for potentially long-lasting effects that will allow the world to continue enjoying benefits from space. As the international space community continues to move towards creating and sustaining a stable outer space environment, it has the opportunity to use the NSP as both a guide post and as a starting point for international discussions for how best to do so. This major opportunity should not be bypassed.