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# Space Security and Sustainability: Why Is It Essential for Small Island Nations?

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Secure World Foundation is a private operating foundation dedicated to the secure and sustainable use of space for the benefit of Earth and all its peoples. It works with governments, industry, international organisations and civil society to develop and promote ideas and action for international collaboration. The foundation’s aim is to achieve secure, sustainable and peaceful uses of outer space.

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# Acronyms & Abbreviations

|               |   |
|---------------|---|
| <b>COPUOS</b> | Peaceful Uses of Outer Space                      |
| <b>MSRO</b>   | Maldives Space Research Organisation              |
| <b>SDGS</b>   | Sustainable Development Goals                     |
| <b>SIDS</b>   | Small Island Developing States                    |
| <b>SINC</b>   | Space for Island Nations Conference               |
| <b>SWF</b>    | Secure World Foundation                           |
| <b>UNIDIR</b> | United Nations Institute for Disarmament Research |



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# Introduction

The rapid increase of space activities on the part of new actors, particularly those from industry, has made possible multiple services upon which humankind relies every day. Space technology contributes to bridging inequalities between nations and peoples. Sustainability of the space environment greatly contributes to peace and sustainability on Earth.

However, as space becomes more economically and strategically important, tensions between space actors could present a significant threat to peace and security. Such tensions have prompted the further development of counterspace capabilities by multiple States—also enabled by limitations in currently applicable international law. Left unchecked, the increase in space assets and the proliferation of counterspace technologies endangers both the safety and security of outer space. As well, it creates an unstable and unsustainable space environment that could lead to conflict. Such a conflict could have catastrophic consequences for humankind, showcasing the close relationship between space security and sustainability as it relates to space and Earth. In the face of such danger, the international community has sought to establish solutions to ensure space remains a secure, peaceful and sustainable environment.

During the second Space for Island Nations Conference (SINC), the United Nations Institute for Disarmament Research (UNIDIR) and Secure World Foundation (SWF) sponsored an open panel where space security experts and other interested stakeholders explored the importance of space security for island nations, discussed the current state of multilateral discussions on this topic, and strived to identify what concerns specific to island nations exist about their continued access to and use of space.<sup>1</sup>

Moreover, in coordination with the Maldives Space Research Organisation (MSRO), UNIDIR and SWF also sponsored a closed, invitation-only workshop for government and other relevant stakeholders. This workshop aimed to encourage the sharing of views on this topic, provide a forum for informal discussion around current challenges to space security and stability, and explore the role that island nations could play in fostering common understanding of space security.

To encourage a frank exchange of ideas, the workshop was a closed event for representatives of island nations, convened under the Chatham House Rule where “participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed”.

This document summarises key discussions and takeaways from the roundtable discussions that took place in the workshop.

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1 A short commentary summarizing the highlights of the open panel can be found here: Sarah Erickson and Almudena Azcárate Ortega (2024). “Space Security and Sustainability: Why Is It Essential for Small Island Nations?”, UNIDIR, Geneva. <https://unidir.org/space-security-and-sustainability-why-is-it-essential-for-small-island-nations/>.

# Part I - The Importance of Outer Space for Small Island Nations

Outer space is critical for humankind. All countries, irrespective of whether they are spacefaring or not, rely on space services on a daily basis. As such, ensuring peace and security in outer space is of the utmost importance. Part I of the workshop explored the value of space infrastructure and services for small island nations and the corresponding value of space security.

## SPACE AND DEVELOPMENT GOALS FOR SMALL ISLAND NATIONS

Participants highlighted the essential developmental role that space technology provides for island nations. It was stressed that space technology can be a critical enabler in achieving the Sustainable Development Goals (SDGs) and also in carrying out the development aspirations of small islands for the next 10 years as outlined in the *Antigua and Barbuda Agenda for SIDS (ABAS)—a Renewed Declaration for Resilient Prosperity*.<sup>2</sup> For instance, space technology plays a role in a number of oceanic resources management and preservation initiatives vital to the continued livelihood and prospective economic growth of island nations. These initiatives include but are not limited to coral preservation efforts such as early warning systems to detect coral bleaching; monitoring coastlines for coastal conservation; monitoring oceanic pH and acidity levels; monitoring illegal, unregulated, and unreported fishing; and detecting oil spills. It was also stressed that global navigation satellite systems are central in supporting oceanic and tourism industries, which make up a significant percentage of island nation economies.

Participants also discussed how Earth observation data assists in environmental disaster monitoring and response, which is increasingly important due to the intensified vulnerabilities felt by small island nations in the face of the growing climate crisis. Some participants pointed out the potential for space technologies to alleviate connectivity and digital division issues faced by archipelagic nations. Increasing connectivity across the islands would contribute to expanding access to medical specialists through services such as telehealth, improve social mobility, and increase access to education. In this regard, it was emphasized that space technology has cross-sectoral applications in island nations. COVID-19 was given as an example of how space-enabled technology is used in the communication of medical information and services as well as administering certain forms of medical assistance. Furthermore, one speaker gave a specific example on the increased use of Earth observation for insurance loss and damage assessments. In general, it was highlighted that space technology could act as a catalyst for economic growth and as an equalizer by further connecting island nations with each other and with the

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2 The Antigua and Barbuda Agenda for SIDS (ABAS) – a Renewed Declaration for Resilient Prosperity, Fourth International Conference on Small Island Developing States, April 11, 2024, <https://sdgs.un.org/sites/default/files/2024-04/SIDS4%20-%20Co-Chairs%20FINAL.pdf>.

rest of the world. However, to benefit from space-enabled technology and data, investment in human capital and training needs to be strengthened, and reliable access to data is essential.

## RESPECTING HERITAGE AND HISTORICAL SPACE APPLICATIONS AND NARRATIVES

Some participants pointed out the indigenous and historical value that space has for island nations. One participant mentioned the use of astronomical navigation that many island nations had relied upon, as well as indigenous methods of weather forecasting. It was proposed that such traditions and experiences could be shared at the international level and be built upon in the future of island nations' space activities. Moreover, another participant highlighted that for effective public communication on issues of outer space, political leaders would need to be aware of how outer space plays a role in local religions and spiritualities. This awareness is crucial to help avoid public misperceptions on governance initiatives and future policies. Another participant presented the view to the roundtable that the historical “space powers” had come to such power through a legacy of war and weapons testing that has negatively impacted island nations, especially in the case of nuclear testing. Therefore, it was emphasised that the multilateral community and historical space powers should not forget this legacy when soliciting small island nations for political support and that it would be imperative for island nations to keep abreast of how geopolitical conflicts could affect and play a role in their space activities.

## THE NEED FOR A LOCALIZED APPROACH TO SPACE SECURITY

The concrete examples and case studies from the first panel set a tone for understanding the importance of the space sector for island nations. With this context, it became apparent what island nations stood to lose in a scenario of escalated outer space insecurity or conflict. This prompted candid discussions on the importance of spreading awareness of the integrated role of space technologies in daily life to the public. One speaker expressed how localized and indigenous-run tools could foster a more trusted and mutually understood message about the importance and utility of space-enabled technologies and data, citing Digital Earth Pacific as one example.<sup>3</sup> It was explained that, with increased general awareness, State governments could begin including considerations of space security and sustainability in political agendas. However, it was stressed that due to limited resources and an increased list of concerns and urgencies faced by island nations, issues of outer space security and sustainability would have to be holistically integrated and made to fit within existing priorities and local political agendas.

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3 See <https://www.spc.int/DigitalEarthPacific>.





# Part II - Threats and Challenges to Space Security and Sustainability: The Perspective of Small Island Nations

One of the complexities of addressing space security issues is the lack of common understanding on concepts of space security and the wide range of threat considerations across the globe. This session discussed and identified some of the critical challenges for space security and sustainability faced from the perspective of small island nations. The objective was to shed light on what small island nations consider priority threats to be addressed by multilateral processes and why they must be tackled.

## UNDERSTANDING CHALLENGES AND ASYMMETRY OF INFORMATION

The roundtable discussed differentiating knowledge and experience levels that exist between island nations themselves but also between island nations and other States. In order to address the asymmetry of experience, education, and information, some speakers pointed to the necessity of collaborative projects amongst island nations. It was emphasized that such collaborative projects, whether through joint commercial operations or joint training exercises, could increase capacity while maximizing resources. One participant spoke to the importance of having advanced information and technical understanding to ensure that future production or possession of space assets, such as ground stations, are made more resilient against both security threats, such as cyberattacks, but also against naturally occurring and environmental risks. Another participant highlighted the importance of better understanding the responsibilities and reliability of chosen service providers. It was suggested that in light of the number of space security threats, disseminating knowledge on such threats could facilitate more informed and secure economic partnerships.

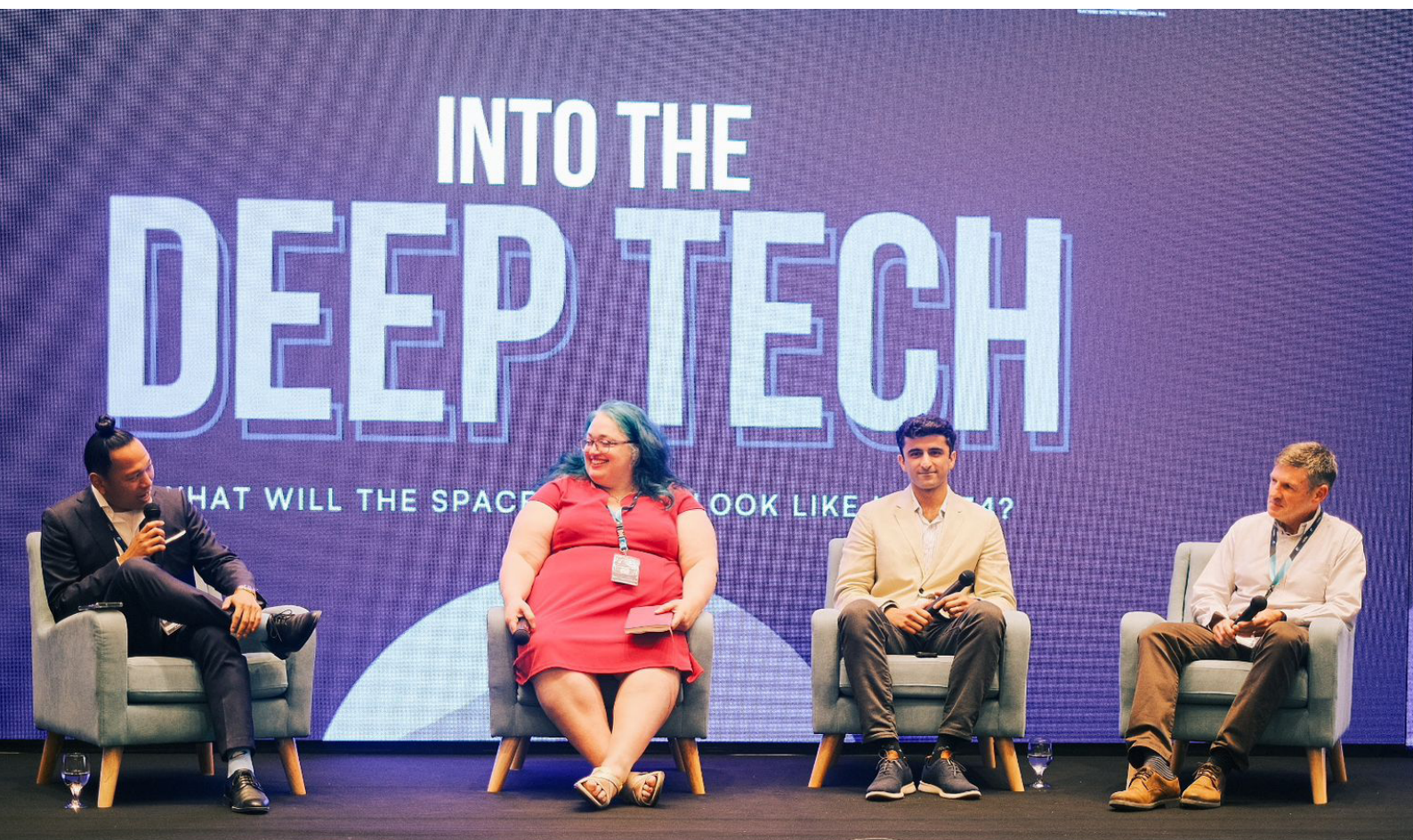
## A COMPREHENSIVE IDEA OF SPACE SECURITY

Security concerns are understood in various ways by different regions and peoples. In the discussion it was notable that participants presented a broad approach to security that was inclusive of issues spanning from how climate change to neighbouring geopolitical conflicts shape a people's security concerns. It was explained that in order to incorporate multilateral concepts of space security into an agenda for Small Island Developing States (SIDS), the concept of security would have to be comprehensive and inclusive of localized priorities and environmental security, as well as the idea of

community security. One participant spoke about the issue of space debris and suggested that through certain intentional actions, one actor with disregard to the space environment and its utilisation by others could potentially deny the use of space to all indefinitely through the creation of space debris. In light of this, the point was made that space security did not preclude environmental security, but rather that space sustainability overall was an important goal to pursue to ensure continued access and benefit of space for all, and that space security was closely tied to the pursuit and achievement of sustainability.

## REACTING TO GEOPOLITICAL DISCUSSIONS

Many participants pointed to the need to respect the sovereignty of island nations in the context of the use of space services. Participants also stated that further discussions should take place in order to discover what unique threats small island nations face with regard to space. It was expressed that SIDS should not expect proposals submitted to geopolitical forums where they do not have sufficient representation to reflect their specific concerns or contexts. It was underscored that in order to avoid such situations, and particularly in the face of space technology's ever-increasing importance for small island nations, it is important that SIDS actively participate in multilateral debates related to space security in order to effectively present their particular perspectives and assert their specific interests. One participant spoke about the need to react to international discourse on space security issues to help prevent island nations from being forced into a situation of picking sides in geopolitical rivalries. Moreover, participants highlighted the potential of SIDS to help transform global discussions surrounding space security to be inclusive of climate and environmental aspects.



# Part III - The Role of Small Island Nation Stakeholders in Achieving Space Security and Sustainability

Outer space is vastly different today than it was when space exploration first began. Space has more diverse stakeholders than ever before. Non-governmental stakeholders, including the commercial industry, civil society and academia, can contribute and work with States to ensure space security and sustainability. They can provide States with valuable insight that could aid in the optimization of policymaking. Part III explored how small island nations and non-governmental entities can work together to mitigate the threats and challenges to space security and sustainability.

## BALANCING RISKS AND OPPORTUNITY IN FUTURE GOVERNANCE EFFORTS

The roundtable discussed how small island nations were at different levels of development in and understanding of the space sector. One participant identified challenges around introducing space security discourse to local governments. It was stressed that topics on space security should be introduced in a manner that resonates with governments and not in a way that would cause unnecessary fear nor hamper enthusiasm for future uptake in investment and technology use and development. Participants largely agreed that there was a need to balance between presenting the benefits and potential that space could bring to the daily lives of their peoples, while also understanding the risks posed to such important assets. In this regard, participants explained that ‘sustainability’ is a key word that could be used, and that following a comprehensive approach with holistic language would be an important part of future governance communications. One participant expressed concern over space being subject to neo-colonialism and argued that small island nations should be empowered to ensure the use and exploration of space to benefit all humankind without discrimination.

## CONSIDERING A BOTTOM-UP APPROACH: THE ROLE OF THE COMMERCIAL INDUSTRY AND CIVIL SOCIETY

Many participants explained that governments are no longer the predominant actors in space. Non-governmental actors, primarily industry stakeholders, are driving technological innovation forward. It was indicated that SIDS consistently advocate for the voices of non-governmental actors to be included in political discourse. SIDS could continue pushing for this inclusivity regarding space security and sustainability. Some participants expressed that among certain SIDS, such as in the Caribbean and the Maldives, it was non-governmental entities, such as civil society and industry, that had been the first to come together—before any form of government action—in order to foster discussions on space-

related matters. The Maldives Space Research Organisation (MSRO) was highlighted as an example of a non-governmental organization that is a leader in space matters in the Maldives, having contributed to jumpstarting certain actions from the State through dialogue. In this sense, it was pointed out that MSRO could in the future seek to be included in multilateral political discourse on space governance, for example, by becoming an observer in processes such as the Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations, or by participating in space security-related United Nations open-ended working groups. Through such actions, small island nations could benefit from bottom-up approaches where local non-governmental entities could initiate domestic governance efforts, foster regional capacity-building and information-sharing, and increase representation and participation at international fora on space governance. Furthermore, the roundtable discussed how, through the active participation of academia and civil society from small island nations, these populations could increase awareness on the benefits and potentials of space technology and data, as well as the need to keep outer space safe, secure, and sustainable to guarantee continued access to such opportunities.



# Conclusion

The roundtable discussion was a rich exchange of perspectives on space security, how it is related to sustainability—both in space and on Earth—and why it holds significant importance to small island nations. It was acknowledged that space services and technologies are gaining an increasingly relevant role in contributing towards the development aspirations of small islands, including in the fulfilment of the SDGs. It was affirmed that space services play a critical role even for States that do not yet possess domestic space technologies, and that the disruption of such services could have severely negative consequences for all small island nations, thus highlighting the importance of engaging in space security and sustainability related discussions at the domestic, regional and multilateral levels.

Although all small island nations, their institutions and citizens use space services in one way or another, participants highlighted that the impact of these technologies can be greater with access to advanced information and technical expertise. This access ensures that the space services chosen by a State are the most reliable for the desired purposes and enables better preparation to mitigate potential risks or threats that could affect their use. A better understanding of the technology and its capabilities and limitations can allow small island nations to better protect their interests, both in the establishment of economic partnerships and when engaging in multilateral discussions on matters of space.

Participants indicated that multilateral space-related initiatives and proposals, particularly those on space security, need to consider and take into account the perspectives of small island nations. Furthermore, the international community should not expect SIDS to accede to mechanisms that do not take their specific priorities into consideration. Participants acknowledged that in order to avoid this, small island nations must be active participants in space security debates.

Participants highlighted that, while space security and sustainability are important, for small island nations these issues cannot be tackled as a stand-alone agenda item in their policies, and must instead be considered in a holistic manner, within the context of existing priorities of these States that focus on the sustainability of the Earth and its environment. The importance of non-governmental entities of small island nations was also underscored, as these actors can foster regional capacity-building, information-sharing, as well as awareness-raising of SIDS' priorities at the international level. This contributes to increasing representation and participation at international fora on space governance.

Participants in the workshop proposed valuable points that highlighted the uniqueness and great diversity of small island nations and their priorities with regard to space security and sustainability concerns. Valuable ideas were proposed to facilitate the inclusion of these perspectives in space security-related discussions at the multilateral level, ensuring that all can benefit from outer space without discrimination and on the basis of equality.



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