

Asia-Pacific Cooperation for Space Sustainability

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Abstract

In the last few years, space sustainability has emerged as a critical policy issue around the world. Protecting the sustainability of outer space is a current and future challenge for all countries in terms of space technology development and utilisation. However, emerging space states are not sufficiently represented in the discussion. This paper proposes three key lines of efforts for Asia-Pacific cooperation: education, consensus formation, and capacity building to build regional dynamism in legitimate rule-making processes.

Keywords: Space Sustainability, Asia-Pacific, regional dynamism, legitimacy

International discussions on space sustainability tend to be primarily driven by the views and interests of major space countries. According to Gleason (2021), “the 2002 Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines, which in turn influenced the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS) Space Debris Mitigation Guidelines.¹ Today, the 13 IADC-member agencies² have, to various extents, incorporated these debris mitigation standards into their domestic regulation and law.”³ The UN COPUOS defines long-term space sustainability as:

“[...] the ability to maintain the conduct of space activities indefinitely into the future in a manner that realizes the objectives of equitable access to the benefits of the exploration and use of outer space for peaceful purposes, in order to meet the needs of the present generations while preserving the outer space environment for future generations.”⁴

-It emphasises “equitable access” for all nations, as well as for the present and future generations.

However, in reality, future space actors are not sufficiently represented in the discussion where all voices deserve to be heard. In this paper, I will propose three steps for developing regional initiatives for space sustainability in Asia-Pacific (APAC).

First and foremost, two levels of education are required to increase common awareness of space threats in APAC. One is for the government to prioritise space sustainability as a critical policy issue. As today’s outer space is rapidly “congested, contested and competitive”⁵, space safety is a current and future problem for the development and utilisation of space technology. Even in emerging space nations, decision-makers and politicians should be aware of the value of space assets and the costs of space safety, because the current regulatory process will affect their future space activities. The other is for the general public to exert influence on policy decisions. In today’s digitalized world, the reliance on space-based systems is significant, and the socio-economic impact is enormous. During World Space Week, for example, space-related organisations or schools can give lectures to the local community about the role of space technology in our daily lives and the importance of preserving the space environment. The public’s understanding and support will make the country’s space strategy more successful and accelerate its implementation.

¹ 1) Committee on the Peaceful Uses of Outer Space, Legal Subcommittee, Compendium of space debris mitigation standards adopted by States and international organizations: Contribution of the United States of America, March 25, 2014.

² * IADC member agencies include ASI (Agenzia Spaziale Italiana), CNES (Centre National d’Etudes Spatiales), CNSA (China National Space Administration), CSA (Canadian Space Agency), DLR (German Aerospace Center), ESA (European Space Agency), ISRO (Indian Space Research Organisation), JAXA (Japan Aerospace Exploration Agency) KARI (Korea Aerospace Research Institute), NASA (National Aeronautics and Space Administration), ROSCOSMOS (State Space Corporation), SSAU (State Space Agency of Ukraine), and the UK Space Agency.

³ 3) Michael P. Gleason, “A SHORT GUIDE FOR UNDERSTANDING AND ASSESSING U.S. SPACE SUSTAINABILITY INITIATIVES”, *Aerospace Center For Space Policy and Strategy*, p3, (April 2021).

⁴ 4) UN COPUOS, Guidelines for the Long-term Sustainability of Space Activities, UN Committee on the Peaceful Uses of Outer Space, 2/20, Vienna, (2018).

⁵ 5) United States Department of Defense & Office of the Director of National Intelligence National Security Space Strategy (Unclassified Summary), p4, Washington D.C, (2011).

The next step is to reach legitimate political consensus among APAC on debris mitigation guidelines. Since the standard criteria are based on the advancement of technology, rules enacted by advanced countries impose a heavy burden on developing countries. In fact, under the fault liability principle, the country that lacks the ability to change its satellites' orbit to prevent a collision or to identify the attacking debris' origin may suffer unilateral damage. Therefore, a more comprehensive discussion on how to balance fair international commercial development and regulations with economic and technology gaps across countries is required. The Space Policy and Law Working Groups (SPLWG) at APRSAF will play an important role in coordinating the meaningful debates and improving the rulemaking structure for space sustainability. The APRSAF is a significant integration that connects diverse space participants ranging from strong space powers such as Japan, China, South Korea, and India to countries with very limited experience and international influence, which demonstrates all potential cases. The SPLWG can provide a minilateral platform for gathering small voices into a big voice by bringing together their various knowledge and sources. The framework can make enough room for all nations to fully engage in future space development. Consequently, an APAC coordinated position, which includes both large and growing space actors, will receive very high publicity at the UN. Minor space governments' perspectives will be taken into account internationally, and more realistic and effective debris mitigation norms will be established.

The final phase entails a programmatic approach to legitimise capacity building in which all members can cooperate and contribute to APAC. During space mission operations, de-debris acts on satellites: collect measurement data, calculate the probability of collision, and conduct risk-avoidance operations, are all essential. Hence, APAC regions are largely under-covered in comparison to the U.S. and EU. The regional sharing program for the space situational awareness (SSA) data will be valuable and efficient in collecting more and better information. SSA is the ability to survey the space environment and conduct safe operations within it by tracking space objects, analysing their environment, and communicating with relevant stakeholders. The benefit of the regional cooperation is that critical analyses of space assets will be significantly more robust and effective as a result of the massive database from numerous layers of space entities including governments and private companies. In other words, young space states can also participate in cutting-edge technical progress. Sharing vital information about space-based systems beyond national interests is key.

In conclusion, building regional dynamism in APAC based on political and technological legitimacy will be a milestone in international rulemaking on space sustainability. The three processes I mentioned: education, consensus formation, and capacity building, deal with problem definition and implementation to advance APAC space activities and avoid falling behind. Further research is yet available on diplomatic coordination and the quality of SSA data in terms of accuracy, timeliness, and transparency.

References

- Committee on the Peaceful Uses of Outer Space, Legal Subcommittee, Compendium of space debris mitigation standards adopted by States and international organizations: Contribution of the United States of America, March 25, 2014,
https://www.unoosa.org/pdf/limited/c2/AC105_C2_2014_CRP15Add01E.pdf (accessed on 16 October 2022)
- Michael P. Gleason, “A SHORT GUIDE FOR UNDERSTANDING AND ASSESSING U.S. SPACE SUSTAINABILITY INITIATIVES”, *Aerospace Center For Space Policy and Strategy*, p3, April 2021,
https://csp.s.aerospace.org/sites/default/files/2021-08/Gleason_SpaceSustainability_20210407.pdf (accessed on 25 October 2022)
- UN COPUOS, Guidelines for the Long-term Sustainability of Space Activities, UN Committee on the Peaceful Uses of Outer Space, 2/20, Vienna, 2018,
https://www.unoosa.org/res/oosadoc/data/documents/2018/aac_1052018crp/aac_1052018crp_20_0_html/AC105_2018_CRP20E.pdf (accessed on 16 October 2022)
- United States Department of Defense & Office of the Director of National Intelligence National Security Space Strategy (Unclassified Summary), p4, Washington D.C, 2011,
https://dod.defense.gov/Portals/1/features/defenseReviews/NSSS/NationalSecuritySpaceStrategyUnclassifiedSummary_Jan2011.pdf (accessed on 21 October 2022)