

## REGIONAL EFFORTS TO ADVANCE SPACE SUSTAINABILITY: SPOTLIGHT ON LATIN AMERICA

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With significant momentum in the expansion of government, industry, and academic space activities in the region, Latin America (Mexico, Central America, South America, and the Caribbean) presents a case study of how regional dynamics can shape attitudes towards space sustainability and its role in activities under development. This paper will build on past research to identify common themes, existing or planned activities, and related issues by drawing on the findings of a workshop implemented by the Secure World Foundation and its partners in April 2015. The “Regional Workshop on the Long-term Sustainability of Space Activities” engaged international space policy experts, and representatives from the Latin American and Caribbean Group (GRULAC) countries members of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). The workshop served as a platform to advance space sustainability discussions in the region and to identify opportunities for collaboration in this area. In addition to reporting on the findings of this workshop, this paper draws from relevant articles, official statements, and available transcripts of events relevant to the subject to suggest areas of future work, particularly as space sustainability efforts reach critical decision points.

### I. INTRODUCTION

The long-term sustainability (LTS) guidelines effort underway in the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) is one of several international initiatives to broaden norms of responsible space behavior. These efforts are motivated by an understanding of the challenges that arise from the expanded use of space and which, if not addressed, threaten the ability of all to continue to use this shared resource. At the root of addressing these challenges, which include the risks posed by space debris, unintended and intended radio frequency interference, and the potential for conflict in space, is the need for not just technical solutions, but also political, legal, and regulatory steps. The role of non-binding mechanisms - such as transparency, and confidence-building measures (TCBMs) - coupled with traditional, legally binding measures, highlights the complexity of this inherently international issue.

Recent research has shed light on an important aspect of the international discussion: the relevance of regional dynamics in space sustainability approaches. With significant momentum in the expansion of government, industry, and academic space activities, the Latin America and Caribbean (LAC) region presents a case study of how regional dynamics can shape attitudes towards space sustainability and its role in activities under development. In “Space Sustainability Approaches of Emerging Space Nations: Mexico, Colombia, and Brazil,” Delgado López identified common themes and priorities of three countries in the region with respect to space sustainability. This

included shared priorities with respect to space sustainability challenges, attitudes toward specific mechanisms under development, and valuing of corollary issues. While noting the value of balancing both bilateral and regional approaches in engaging with LAC countries on these issues, the author also stressed the opportunity for leadership within the region to address sustainability from a common focus, given the “opportunity to strengthen the space development of the region as a whole, as well as to have a consistent regional voice in international discussions.” [1]

In this context and given the approaching decision points for key space sustainability initiatives, the Secure World Foundation (SWF), a privately endowed operating foundation that promotes the sustainable use of space, held a workshop in April 2015 that sought to serve as a platform for space sustainability discussions in the LAC region. By reporting on the outcomes of the workshop and considering other recent developments relevant to the subject, this paper contributes to the body of knowledge on regional approaches to space sustainability. Moreover, by emphasizing the value of building on common concerns and priorities, this analysis points to opportunities for addressing space sustainability from a common regional focus that could be relevant to cooperative efforts in other regions of the world.

### II. REGIONAL WORKSHOP ON THE LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

#### Background

The Long-Term Sustainability (LTS) Working Group was established in 2010 within the COPUOS Scientific and Technical Subcommittee (STSC). This working group was tasked with producing a series of voluntary best practices for space sustainability to “provide a foundation for the development of national and international practices and safety frameworks for conducting outer space activities, while allowing for flexibility in adapting such frameworks to specific national circumstances and organizational structures.” [2]

Originating mainly from the work of four expert groups established within the Working Group, a first draft set of 33 LTS guidelines was completed in November 2013. The guidelines were grouped in five categories: policy, regulatory mechanisms, international cooperation, scientific and technical, and management. In crafting the draft guidelines, the LTS working group solicited input from Member States, intergovernmental organizations, and private institutions, thus recognizing that the success of the effort would depend on the widest possible adoption.\*

Since then, the Working Group has continued to work on the text, incorporating new guidelines and language submitted by Member States, and considering related issues, such as consolidation of related guidelines, translation, and terminology. As of February 2015, the guidelines had been combined into 18 consolidated guidelines; however, the chair received 10 new draft guideline proposals, which he needed to include when producing a revised version of all the consolidated guidelines in time for the June 2015 plenary of COPUOS. [3]

At the time SWF and its partners began to organize the workshop in late 2014, the LTS effort was expected to reach a critical point in 2015. Delegations had until the COPUOS plenary in June 2015 to submit proposals for new elements or guidelines, with a goal for the Working Group to agree on a final text during its meetings in 2016, for eventual presentation to the UN General Assembly (UNGA) later that year.

The timeline of the effort and the strong regional position of LAC countries in COPUOS presented a unique opportunity to engage with leaders in the region to discuss priorities and concerns relevant to the guidelines and examine how best to address them in

\* For a detailed background on the emergence of space sustainability within COPUOS, the LTS Working Group, and an analysis of some of the guidelines, see Delgado López, L., Johnson, C. D., Samson, V., Simpson, M., Weeden, B. 2014. The Importance of the United Nations Guidelines for the Long-Term Sustainability of Space Activities and Other International Initiatives to Promote Space Sustainability. *oasis*, 20, 37-53.

advance of the June 2015 debate. To realize the workshop, SWF partnered with the Central American Association for Aeronautics and Space (ACAE), a volunteer-based organization that supports the development of space activities in Costa Rica, and received the support of the Ministry of Foreign Affairs of Costa Rica.

To determine the scope of the meeting, the organizers approached representatives from the Latin American and Caribbean Group (GRULAC), a regional group within the UN that seeks to reach consensus among all Latin American and Caribbean countries on issues of interest. After consultations with key leaders in the region, at least one participant from each of the 13 GRULAC member countries of UNCOPUOS was invited to participate in the workshop. These included representatives of the national space agencies and ministries of science/ foreign relations. Given El Salvador’s submission of an application for membership in STSC 2015, a representative from this country was also invited to the workshop. At the end, the invitation-only workshop engaged space policy experts and GRULAC delegates from 11 countries in the region.

### Overview of the agenda

Designed to take advantage of the information-exchange opportunity, the agenda of the two-day event combined presentations and not-for-attribution discussion sessions.<sup>†</sup> Beginning with a group session to highlight key space developments within each country, the program continued with presentations by international experts on key space sustainability-relevant themes: development, disaster management, and regional space cooperation.

This discussion was followed by a presentation on the background of international efforts to govern the space domain, a decades-long process that has included the development of international principles, treaties, and agreements, and that has led to the formulation of norms of behavior. A detailed examination of the UNCOPUOS LTS guidelines effort followed – from the emergence of the question of sustainability within the Committee, to the establishment of the Working Group and its expert groups, to the release of a draft set of guidelines and proposed amendments.

A Brazilian proposal to the guidelines endorsed by GRULAC at the February 2015 STSC meeting was discussed in detail, as were other relevant international efforts, specifically the 2013 report of the UN-convened

<sup>†</sup> The agenda for the workshop, presentations, and other materials from the event are available on the SWF website at <http://swfound.org/events/2015/regional-workshop-on-the-long-term-sustainability-of-space-activities/>.

Group of Governmental Experts (GGE) on Transparency and Confidence-Building Measures for Space Activities (TCBMs), and the draft International Code of Conduct (ICoC). The workshop closed with a moderated discussion that included consideration of action items proposed in a letter by the chair of the LTS Working Group, Dr. Peter Martinez of South Africa, and next steps that might be taken at both the national and regional level with respect to ongoing sustainability initiatives.

### Discussion of key workshop themes

Despite varied levels of space development, the presentations and discussion highlighted shared goals and priorities across the region. Space applications that meet societal needs as a major driver for space investment, and the value of bilateral and multilateral cooperation at the international and regional level were all consistently raised by the participants. Also a common theme was capacity development and technology transfer, viewed as a way to promote continuity of projects and expand the reach of partnerships beyond “one-off” agreements. Because of this, several countries described capacity building as a key component in international cooperation programs to share costs and risks, while acquiring skills and practical knowledge.

A key area where differences appear relates to how the GRULAC countries have chosen to organize their space activities, a discussion that raised a number of institutional, legal, and financial challenges that need to be addressed. Because space efforts are highly disaggregated in many of the countries in the region, the process by which each country informs and develops its political positions on space-related issues can vary widely. Some countries will go to their space agencies or space advisory bodies for input first, while others have content expertise focused on either the ministries of science or of foreign relations.

The role of UNCOPUOS as the key multilateral space forum was highlighted. When it comes to space sustainability challenges, concerns over space debris are prominent in the region. In addition to being actively engaged in scientific, technical, policy, and legal discussions carried out internationally, countries such as Mexico and Brazil have developed internal protocols specific to debris mitigation. Brazil, for example, has established a permanent point of contact for exchange with the U.S. Strategic Command’s Joint Space Operations Center (JSPOC) to learn about relevant conjunction assessments issued by the Center.

The concept of sustainability within the framework of development was defined broadly as a measure of the ability to withstand changes, a concept tied to the resilience of socioecological systems. The adoption of

sustainability from this perspective is a stated goal of several countries in the region, such as Costa Rica, which was considered an opportunity with respect to alignment with other sustainability concepts, such as space sustainability.

During the LTS effort discussion, the participation of GRULAC member states was highlighted, including the leadership role of Mexico, which co-chaired expert group A on “Sustainable space utilization supporting sustainable development on Earth.” A Brazilian proposal endorsed by GRULAC and presented at the February STSC was also examined. In the document, GRULAC states that the guidelines effort is seen “as an essential intermediate step towards establishing a legally binding framework that will help ensure that the benefits of outer space activities can be enjoyed by all of mankind for generations to come.” [4] The proposed amendments in the document consist of a definition of space sustainability that includes the concept of equitable access, as well as language specifying that space is devoted for exclusively peaceful purposes.

The group welcomed the recommendations provided by the chair of the LTS Working Group, Dr. Peter Martinez of South Africa, as short-term action steps the delegations could consider. These included:

(1) Nominating a LTS focal point and considering an informal network of GRULAC LTS focal points to enable the rapid dissemination of ideas and views on LTS-related issues. This was motivated by the fact that only a handful of GRULAC countries currently have a designated LTS focal point, the point of contact for all communications relevant to the activities of the Working Group.

(2) Continued engagement in the informal translation and terminology reference group established in June 2014. GRULAC is currently represented in this group and its contributions would be particularly relevant as language-related issues arise in the elaboration of the guidelines.

Participants were also encouraged to consider developing group positions with respect to the guidelines, in addition to developing national positions. This may be valuable given time constraints in the UNCOPUOS meetings and to help carry out deliberations more efficiently.

The workshop’s discussions highlighted the diversity of experiences within the LAC region, while indicating common priorities and areas of interest. Given shared concerns of sustainability from a broader development perspective, and a strong commitment to the peaceful uses of outer space, there is an opportunity for expanded dialogue on space sustainability-related issues from a regional perspective. In this context, space sustainability-related issues may gain a more prominent role as bilateral and multilateral regional efforts continue expanding in the coming decades.

### III. RECENT DEVELOPMENTS

#### UNCOPUOS 58<sup>th</sup> Meeting – June 2015; Vienna, Austria

During the general exchange of views of the 58<sup>th</sup> session of UNCOPUOS in June 2015, Member States and other delegations reported on recent or upcoming activities, and called out specific issues of priority in the work of the Committee. Space sustainability was referenced in several of the statements [5] with two specific themes consistently raised by LAC countries:

- (1) The need to preserve space for exclusively peaceful use; and
- (2) The need to strengthen the regime governing space activities.

Speaking on behalf of GRULAC, Panama noted the importance of the guidelines effort, reiterating a hope that the guidelines will not be used to impose restrictions on other countries, and that the final version duly reflects the concerns raised by Member States. The GRULAC spokesperson went on to recognize UNCOPUOS as the ideal forum for strengthening the legal regime for space, needed in particular given the emergence of commercial space activity. In describing relevant activities in the region, GRULAC also made mention of the SWF-ACAE workshop, and highlighted the importance of both regional and international cooperation in augmenting the ability of countries to benefit from space activities.

In the national statements, several of the LAC countries began their remarks by endorsing the GRULAC statement, echoing many of the themes captured by the regional voice.

Cuba stated that the guidelines should explicitly state that space is for exclusively peaceful use, a recommendation captured in the GRULAC proposal mentioned earlier. Brazil and Cuba, in turn, both endorsed the negotiations for a binding treaty preventing the placement of weapons in outer space. Argentina, moreover, highlighted a joint declaration issued with Russia in March 2014 in which both countries commit to the no first placement of weapons in outer space.

Chile also highlighted the need to reinforce the existing legal regime noting with appreciation the development of both legally binding and non-legally binding measures. The delegation also called attention to the GGE on TCBMs and the ICoC as relevant initiatives, but ones that should not substitute the development of legally binding measures. Chile also highlighted the lack of a definition for the delimitation of space as a source of legal uncertainty, a comment also made by Argentina, which stressed that the

linkages between the work of UNCOPUOS' STSC and Legal Subcommittee (LSC) should be strengthened.

With respect to next steps on the guidelines, work will continue with an informal, intercessional meeting in October 2015, after which the Chair will develop a new document capturing the updated set of draft guidelines for consideration during STSC in 2016. At that meeting, the Working Group will also consider whether to affirm the current work plan and complete work on the guidelines in June 2016, or extend it, committing to completion in 2017 in time for the 50<sup>th</sup> anniversary of the Outer Space Treaty. [6]

#### ICoC Multilateral Negotiations – July 2015; New York, USA

Beyond UNCOPUOS, the LTS guidelines and related space sustainability issues were raised at the European Union-convened ICoC multilateral negotiations held in July 2015. A voluntary agreement that seeks to spell out norms of behavior for activity in space, the ICoC's first draft was released by the European Union in 2008. Following a series of EU-led consultations in different regions of the world, subsequent drafts have been developed. Given criticisms about the inclusiveness of the process and calls from several countries to bring the matter within the UN, the latest version, released in May 2015 [7], was the subject of the meeting held at the UN Headquarters.

In their statements, LAC countries raised issues that echoed discussions of the LTS guidelines and at the SWF-ACAE workshop. Space debris was called out as a key concern by Cuba, for example, which stated: "We believe that the future of space activities depends, in large part, on the reduction of space debris." [8]<sup>‡</sup>

The most significant content-related issue raised by the LAC countries in their statements pertains to the reference of the right of self-defense. Emphasizing the need to use the measure as a way to ensure the peaceful use of space, Brazil, Cuba, Ecuador, and Mexico all raised objections to the inclusion of the term in the Code, believing the language may leave the door open to the possibility of conflict in space. The Brazilian delegate stated: "...we do not believe that the reference to self-defense, as it is, is the way forward if we are to encourage responsible behavior." [9]

The other concerns raised revolved around the process undertaken to develop and negotiate the Code's language. While most welcomed the integration of the effort within the UN system, the LAC countries joined others in raising questions about the lack of a UNGA mandate to convene the negotiations, and questioned the

<sup>‡</sup> All translations from Spanish are the authors' except where otherwise noted.

suggested approach to govern the negotiations. This criticism stemmed from a concern about how the European Union went about promoting the Code, which was perceived by some developing countries as written by the West, for the West, and they were worried that having discussions outside of the UN system meant that non-Western viewpoints and interests would not be represented in the final product. Additionally, some states were leery about a lack of emphasis on cooperation and information exchange in the ICoC. The chair's summary noted that "measures for ensuring the safety, security and sustainability of outer space activities should not hamper the ability of States, particularly emerging spacefaring nations, from accessing, using and exploring outer space." [10]

LAC countries also raised the possibility of overlap with related activities, most notably the LTS guidelines effort. Ecuador was of the view that the Code's discussion should be held within COPUOS' LTS agenda item and in consideration of the GGE's recommendations. [11]

Finally, several countries expressed support for strengthening the legal regime governing space, specifically through legally binding measures. While noting positively some elements of the Code aimed at protecting sustainability, Mexico stated that "soft law" exercises "do not substitute multilateral negotiations of legally binding instruments." [12] Brazil, Cuba, and Ecuador also reiterated the need for legally binding measures, especially when it concerns the preservation of space as a conflict-free zone. In stating that the Code is ineffectual in covering military uses of space, which must therefore be examined elsewhere, Brazil stated that the Code "being non-legally binding, voluntary, is unsuitable for preventing conflicts." [13] In the end, the chair did recommend that, "based on the discussions and considering the importance afforded to the principles of openness, transparency, universality and inclusiveness, the most supported way forward would be the pursuit of negotiations within the framework of the United Nations through a mandate of the General Assembly." [10] As of writing, it remains unclear how discussions on the Code will move forward. However, this does indicate that concerns held by LAC nations were listened to.

#### IV. CONCLUSION

The SWF-ACAE workshop was successful in bringing together a diverse community of regional and international experts to examine space sustainability efforts through a regional lens. The feedback received from the participants was very positive; several countries mentioned the event in their remarks at UNCOPUOS, and the report of the session described

the event as "a valuable platform to advance regional space sustainability discussion within Latin America." [6]

The discussions at the workshop highlighted the diversity of experiences within the LAC region, while indicating common priorities and areas of interest. These commonalities are particularly relevant given the consistency of views expressed by LAC delegations across different forums. The issues raised at UNCOPUOS and at the ICoC meetings held after the SWF-ACAE workshop, indicate a shared preoccupation for space sustainability that prioritizes concerns for ensuring access to space (both in terms of access to space technology and of physical access to orbits of interest), and of promoting the peaceful use of space. The process concerns raised in the different forums continue to be consistent in emphasizing multilateral and consensus-based forums, and in demonstrating a strong preference for legally binding mechanisms for strengthening the regime governing space activities.

The prevalence of regional dynamics in shaping political positions with respect to space sustainability presents an opportunity for progress, especially as the measures considered here reach key decision points. First, they help craft collective positions that can be helpful in multilateral negotiations. Second, they may allow countries to address implementation challenges from a common starting point. This is particularly relevant as countries in emerging space regions like LAC establish space agencies and related institutions, and develop space policies and regulation.

Common approaches to sustainability as a broad concept, particularly when aligned with that of development, give rise to other group dynamics that may be useful to examine from the perspective of space sustainability. It should be recognized that relevant group dynamics are not only defined geographically. In this light, the participation of the BRICS (an alliance of economies that includes Brazil, Russia, India, China and South Africa) in the ICoC negotiations, and LAC country endorsements of UNCOPUOS statements by the G77 + China (a UN coalition of developing nations) bear further examination.

Countries in LAC emphasize the benefits of international cooperation and continually call on UNCOPUOS to promote regional and international cooperation. The insights gained from the SWF-ACAE workshop and the recent developments on the space sustainability front indicate the value of incorporating the exchange of best practices across technical, political, and legal/regulatory domains, enabling the joint development that is at the root of the international cooperation policies of established and emerging space nations alike, and helping promote space sustainability in the long run.

## V. REFERENCES

- [1] L. Delgado López. 2014. Space Sustainability Approaches of Emerging Space Nations: Mexico, Colombia, and Brazil. Paper presented at the 65<sup>th</sup> International Astronautical Congress on 29 September – 3 October 2014 in Toronto. IAC-13-E3.4.6.
- [2] A/AC.105/C.1/L.339. 2013, Proposal for a draft report and a preliminary set of draft guidelines of the Working Group on the Long-term Sustainability of Space Activities. United Nations Committee on the Peaceful Uses of Outer Space. Vienna: United Nations Office for Outer Space Affairs. Retrieved from: [http://www.oosa.unvienna.org/pdf/limited/c1/AC105\\_C1\\_L339E.pdf](http://www.oosa.unvienna.org/pdf/limited/c1/AC105_C1_L339E.pdf)
- [3] Peter Martinez. 2015. Development of UN COPUOS guidelines for space sustainability: A status update. Presentation at the Japan Space Forum's Space Situational Awareness Symposium in February 2015 in Tokyo. Retrieved from [http://www.jsforum.or.jp/debrisympo/2015/pdf/33%20Martinez\\_JSF%202015%20LT\\_S.pdf](http://www.jsforum.or.jp/debrisympo/2015/pdf/33%20Martinez_JSF%202015%20LT_S.pdf)
- [4] A/AC.105/C.1/ 2015/CRP.19/Rev.1. 2015. Comments and proposed amendments to the updated set of draft guidelines for the long-term sustainability of outer space activities (document A/AC.105/C.1/L.340) Retrieved from: [http://www.unoosa.org/pdf/limited/c1/AC105\\_C1\\_2015\\_CRP19Rev01E.pdf](http://www.unoosa.org/pdf/limited/c1/AC105_C1_2015_CRP19Rev01E.pdf)
- [5] Digital audio recordings of the Committee on the Peaceful Uses of Outer Space, 58<sup>th</sup> Session held 10-19 June 2015. Retrieved from: <http://www.unoosa.org/oosa/audio/v2/meetings.jsp?lng=en>.
- [6] A/70/20AEVE. 2015. Report of the Committee on the Peaceful Uses of Outer Space (Advance Edited Version). Vienna: United Nations Office for Outer Space Affairs. Retrieved from: [http://www.unoosa.org/res/ooasadoc/data/documents/2015/a/a7920\\_0\\_html/A\\_70\\_20\\_AEVE.pdf](http://www.unoosa.org/res/ooasadoc/data/documents/2015/a/a7920_0_html/A_70_20_AEVE.pdf)
- [7] Draft International Code of Conduct for Outer Space Activities. 2015. Retrieved from: [http://europa.eu/documents/en/draft\\_Space\\_Code\\_of\\_Conduct.pdf](http://europa.eu/documents/en/draft_Space_Code_of_Conduct.pdf)
- [8] Statement of Cuba delivered on 27 July 2015 during the European Union-convened Multilateral Negotiations on an International Code of conduct for Outer Space Activities. Retrieved from: <http://statements.unmeetings.org/media2/7650881/cuba.pdf>
- [9] Statement of Brazil delivered on 30 July 2015 during the European Union-convened Multilateral Negotiations on an International Code of conduct for Outer Space Activities. Retrieved from: <http://statements.unmeetings.org/media2/7650938/brazils-statement-self-defense-code-of-conduct-ny-30-july-2015-1-.pdf>
- [10] Sergio Marchisio. 2015. Multilateral Negotiations on an International Code of Conduct for Outer space Activities: Chair's Summary. Retrieved from: <https://papersmart.unmeetings.org/media2/7650931/chairs-summary-corrected-1-.pdf>
- [11] Statement of Ecuador delivered on 27 July 2015 during the European Union-convened Multilateral Negotiations on an International Code of conduct for Outer Space Activities. Retrieved from: <http://statements.unmeetings.org/media2/7650913/ecuador.pdf>
- [12] Statement of Mexico delivered on 27 July 2015 during the European Union-convened Multilateral Negotiations on an International Code of conduct for Outer Space Activities. Retrieved from: <http://statements.unmeetings.org/media2/7650915/mexico.pdf>
- [13] Statement of Brazil delivered on 27 July 2015 during the European Union-convened Multilateral Negotiations on an International Code of conduct for Outer Space Activities. Retrieved from: <http://statements.unmeetings.org/media2/7650900/brazil.pdf>