



SPACE GENERATION
ADVISORY COUNCIL

Report on LTS Guidelines National Implementation

Prepared for the 60th Legal Subcommittee, UNCOPUOS
In support of the United Nations Programme on Space Applications

SGAC LTS Research Team

Commenced November 2020

Team Leads:



Chan Yuk Chi (SG)



Mira Kazlouskaya (BY)

Project Group Leads:



Kyran Grattan (UK)



Giuliana Rotola (IT)

Editorial Team:



Leah Farrar (US)



Rafael Andersson Lipcsey
(SW)

Researchers:



Lindsey Wiser (US)

Sunny Narayanan (US)

Daniella Factor (US)



Renata K Kommel (BRA)



Álvaro Piris Cuiza (ES)



Saphirah Kubakurungi (UG)



Karen Cook (CA)



Tejas Bharadwaj (IN)

Nikita Bhakare (IN)

Anmol Dhawan (IN)



Sondes Morchedi (IT)



Michael Gould (UK)



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

Objectives



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

Report

Report on LTS Guideline implementation across continents accounting for various sources of State practice.

Recognize

Identify, recognize, and analyze trends across guidelines.

Recommend

Recommend best practices and future implementation foci.

Methodology



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

Sample

- 20 countries
- 6 continents
- Major and developing spacefaring nations

Sources

- Policy
- Legislation
- Regulation
- Expert interviews
- Documented programs and initiatives

Classification

1. No known implementation
2. Partial or planned implementation
3. Legislated or substantial practical implementation

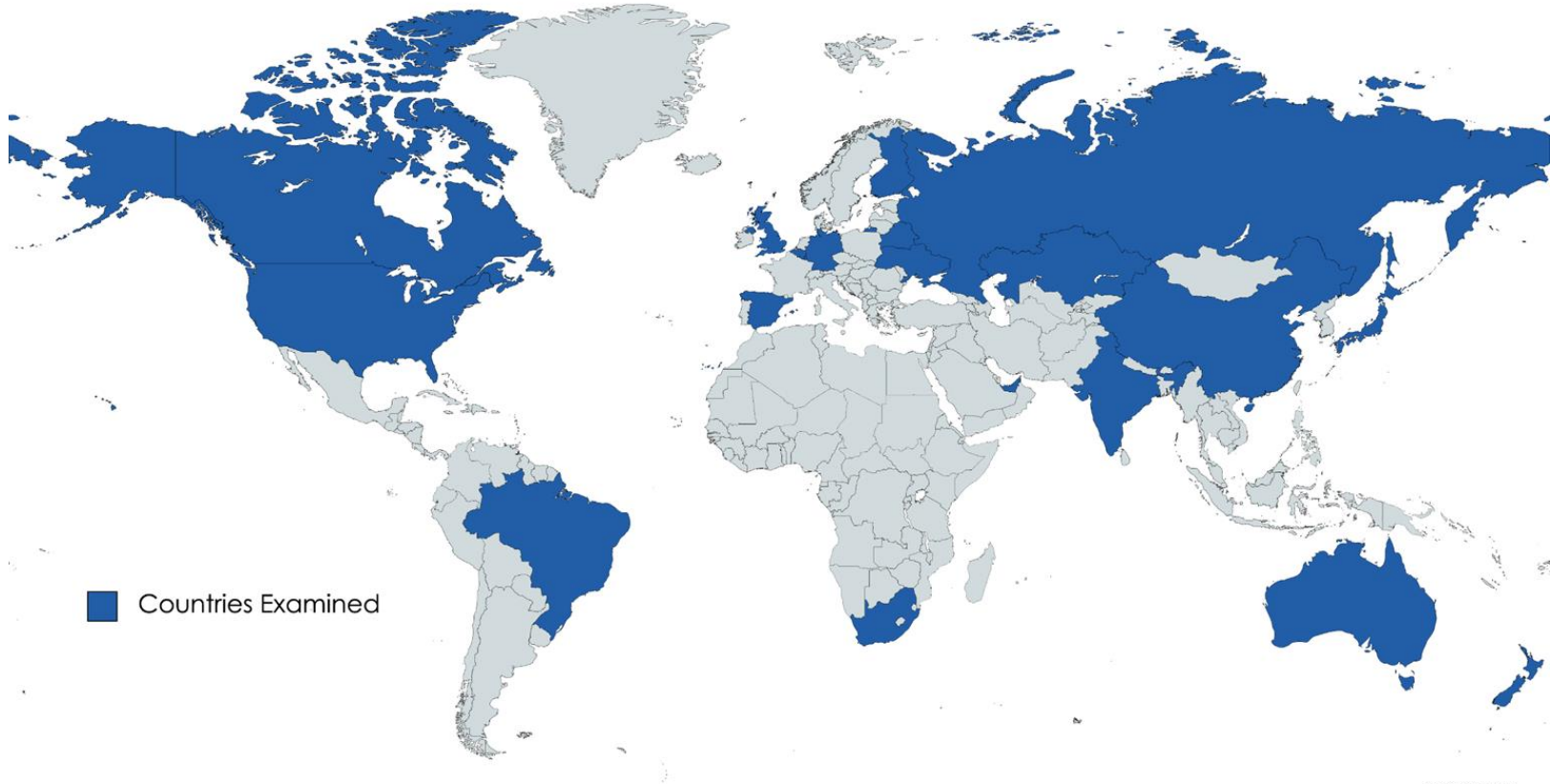
Sample



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL



■ Countries Examined

Context and RQ



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

- LTS Guidelines (n=21) under 4 sections:
 - A. Policy and regulatory frameworks for space activities
 - B. Safety of space operations
 - C. International cooperation, capacity-building and awareness
 - D. Scientific and technical R&D
- Since their adoption in 2019, how well have they been implemented?
 - Adoption of legislation, policies and regulations
 - Initiatives and measures launched to promote sustainability
 - Plans for implementation

Main findings



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

- Implementation and support of LTS Guidelines is not always reported to UNOOSA.
- The LTS Guidelines are recent and still taking effect as State practices develop and more States help build consensus.

Main findings



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

- National space activities underlie LTS implementation and implementing measures should underlie space activities.
- Countries vary widely in facilitating international cooperation, information sharing and capacity building.

Implementation

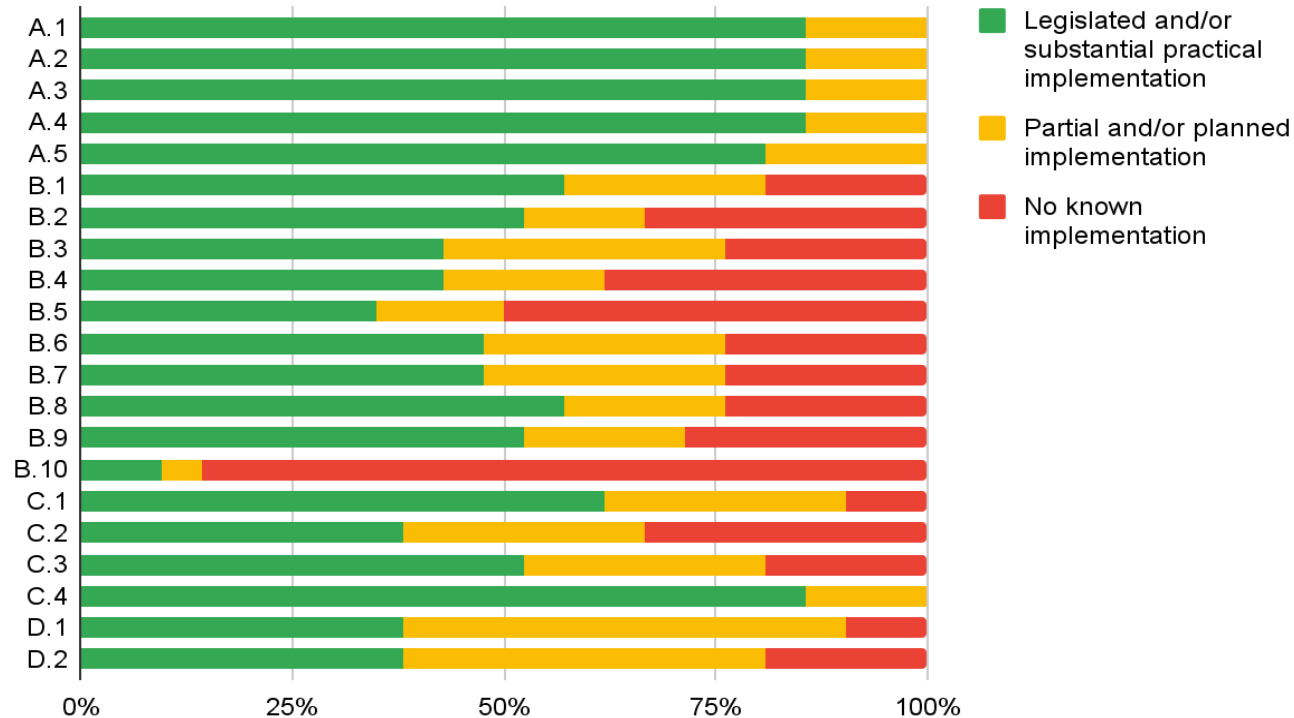


SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

National Implementation



Section A



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

1. Section A: Policy and Regulatory Framework for Space Activities

- Foundational to ensure national compliance with LTS Guidelines.
- Indicates intent to conduct space activities in a systematic and safe manner.
- States appear to be producing comprehensive and detailed space legislation beyond de facto regulation and basic legislation implementing treaty provisions.



C.1 and C.4



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

2. Strong support from surveyed countries on promotion of international cooperation supporting LTS and raising awareness of space activities

- A positive trend demonstrating support for space sustainability.
- Cooperative behavior is mostly independent of national space capabilities.
- Examples: bilateral agreements on SSA, participation in intergovernmental and international organizations such as the IADC, APSCO, and APRSAF.



B.6 and B.7



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

3. A substantial number of countries have launched initiatives to develop space weather monitoring capabilities and data sharing

- 16/20 surveyed countries are working on space weather to some degree, ranging from development of monitoring capabilities to information sharing.
- Recommendation: improve equitable access to space weather data.



B.4 and B.5



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

4. Robust implementation of conjunction assessments, undertaken cooperatively when necessary, but States should develop shared standards.

- States perform pre-launch and on-orbit conjunction assessments, but only share them when necessary.
- What ‘pre-launch conjunction assessment’ involves remains unclear as States are left to individually interpret its meaning.
- Recommendation: create consensus on “pre-launch conjunction assessment” and standardize approaches to conjunction assessments.





5. Half of surveyed countries require enhanced trackability and disposal in space object designs

- Spacefaring countries have nationally implemented tracking standards from e.g. IADC, ISO, and European Cooperation on Space Standardization.
- 10/20 countries have debris mitigation in national legislation or licensing procedures. Others plan to have debris mitigation in upcoming legislation.
- Recommendation: share approaches to relevant design elements and enforce end-of-life procedures.





6. Varying levels of commitment toward capacity building

- Commitment to capacity building is not correlated with space capabilities.
- Many States with nascent space programs cooperate with other countries.
- Examples: cooperative missions, provision of technical training as well as legal and policy support to developing states that request assistance.





7. Sub-optimal implementation of precautions for sources of laser beams passing through outer space

- Few surveyed countries have publicly available information on LTS implementation measures for laser beams.
- Future laser applications (e.g. communications and propulsion) risk interfering with space activities.
- Recommendation: notify, consult and coordinate on future laser applications.



Recommendations

Best Practices:

- §.A** Enacting national space legislation early.
- §.C** International & domestic capacity building.
- B.8** Debris mitigation standards in licensing.
- B.3+8** Object trackability and SSA data sharing.
- B.6** International space weather data sharing.

Areas for Improvement:

- §.A** Adopting national space law.
- B.5** Conjunction assessments.
- B.8** Sharing space object designs.
- B.3** SSA data sharing.
- B.8** Enforcing end-of-life procedures.
- B.10** Laser notification, consultation and coordination.



SPACE LAW
AND POLICY



SPACE GENERATION
ADVISORY COUNCIL

THANK YOU

info@spacegeneration.org
slp@spacegeneration.org



SPACE GENERATION
ADVISORY COUNCIL

SGAC Beyond a Network

#SGAC

#SpaceGen



SGAC Photo Gallery



Space Generation Advisory Council



@SGAC



spacegeneration



Space Generation Advisory Council



SPACE GENERATION
ADVISORY COUNCIL