

The background of the slide is a vibrant space scene. It features a dense field of stars in various colors (blue, white, yellow) against a dark blue and purple cosmic backdrop. On the right side, a portion of a planet, likely Earth, is visible, showing its characteristic blue oceans and white clouds. The overall aesthetic is futuristic and scientific.

# **INCENTIVISING CLEAN SPACE TECHNOLOGIES: REGULATORY APPROACH TO PROMOTE CLIMATE FRIENDLY PRACTICES**

**UN/AUSTRIA SYMPOSIUM 2023**

**SPACE FOR CLIMATE ACTION: SPACE APPLICATIONS  
AND TECHNOLOGIES FOR SUSTAINABILITY ON EARTH**

Presenter's Name and Affiliation

Rachita Agrawal

Research Fellow, University School of Law and  
Legal Studies, GGSIPU, Delhi, India

**RESEARCH AIM:** To address the space sustainability issues by exploring ways to regulate and incentivize clean space technologies.

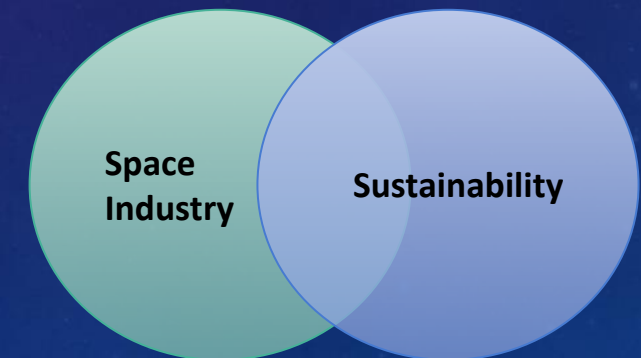
## HYPOTHESIS

- A harmonized regulatory approach ensuring responsible use of space technologies across countries, achieved through international cooperation, will create a level playing field and facilitate development of sustainable space industry.
- Incentivizing clean space technologies will foster adoption of sustainable practices within space industry, resulting in reduced environmental impact, minimized space debris and mitigating long-term risks.



## SIGNIFICANCE

- The space industry's carbon footprint contributing to environmental impact in form of harmful emission from launches, light pollution during nights and excessive resource consumption for missions are growing concerns. The long-term viability of space and its limited resources (like geo-stationery orbits) is emerging as an upcoming challenge for global community.
- The study addresses the critical aspects of regulating and incentivizing space technologies for mitigating the impact of space activities on and beyond the Earth. This research study is expected to encourage and ignite a sense of responsibility among space agencies, companies and stakeholders towards sustainability.



## METHODOLOGY

Reaching out to experts on the subject of outer space globally across academia, industry and government to elicit the opinion on 9 key questions relating to clean space technology and regulatory approach. As a part of research process, aim is to engage with experts to gain valuable insights.

Mode of receiving response: Written or Interview

(Responses are invited, questions can be accessed and answered through the link provided <https://forms.gle/ngGjkFr9HLRo4mUQ7> )

After expert engagement on the key questions, which is a critical endeavour to achieve – further discourse will be to analyse and summarise the responses received.



## A. Understanding Current Landscape

*Aim: To understand the challenges in long-term viability of space and gather information on available technologies to mitigate the impact.*

Question 1: In your opinion, what are the key challenges posed by space industry in terms of its impact on sustainability, equitable utilization and long-term viability of space?

Question 2: What are some of the most promising sustainable space technologies currently in development or use that have potential to mitigate space industry's impact?

## B. Present and Future Regulatory Framework

*Aim: To gather insights and critical analysis from experts with respect to current and future regulatory framework governing the outer space (particularly, private entities).*

Question 3: According to you, how effective the current regulations and policies have been in ensuring safe and responsible use of space technology? Are there any critical aspects that require further regulation within the space industry?

Question 4: With increasing involvement of private companies in space activities, how liability, incentive and responsibility framework should adapt to balance commercial interests with common sustainable goals?

### C. Incentives and Enforcement

*Aim: To identify possible incentives and enforcement mechanisms that can accelerate transition of space industry towards sustainability*

Question 5: From your observations, how receptive is space industry to adopt clean technologies and what kind of incentives would be most effective in encouraging the stakeholders to invest and accelerate this transition?

Question 6: How effective do you think regulatory approaches can be (at national or international level) to facilitate and enforce compliance of standards ensuring sustainability within the space industry globally?

Question 7: What do you think are possible barriers or challenges in adoption and enforcement of sustainable practices within the space industry?

### D. Impact Assessment

*Aim: To ascertain long term approaches guiding assessment of space operations impact on and beyond Earth along with the fast-paced technological developments.*

Question 8: How should the hazardous emissions, space traffic and debris that results from space operations be evaluated and taken into account while creating blueprint for impact assessment?

Question 9: What recommendations would you offer to policymakers as well as regulatory authorities to address challenges due to constant emerging space technology and future endeavours?

### E. Final Thoughts and Follow-Up

Question 10: Is there any additional information or insights that you believe are important to share? Please write.

# THANK YOU

Email Id:

[legal.rachita@gmail.com](mailto:legal.rachita@gmail.com)

[rachita.agrawal20@nludelhi.ac.in](mailto:rachita.agrawal20@nludelhi.ac.in)