

IAF SYMPOSIUM ON EMERGING SPACE ECOSYSTEMS (E11)  
Interactive Presentations - IAF SYMPOSIUM EMERGING SPACE ECOSYSTEMS (IPB)

Author: Mr. Anirudh Chaturvedi  
India, anirudh.chaturvedi@manastuspace.com

SUSTAINABLE DEVELOPMENT IN SPACE: FOSTERING GROWTH IN EMERGING SPACE  
ECONOMIES

**Abstract**

The expansion of the space-faring community, coupled with the increasing integration of space-based services into everyday life, underscores the critical importance of holistically developing space ecosystems. The creation of a holistic space ecosystem hinges on several foundational elements, including the cultivation of a skilled workforce, the establishment of a robust supply chain, the introduction of common standards for technology qualification and testing, the elevation of sector awareness, the assurance of financial availability, and the fostering of international collaboration. At the national level, regulators within emerging space economies face the challenge of harmonizing the objectives of space sector commercialization with overarching concerns such as security and sustainability. Identifying clear goals and formulating corresponding policies are preliminary steps that provide direction and clarity to all stakeholders within the space ecosystem. The implementation of such policies can be further reinforced through the enactment of National Space Legislation, which offers multiple advantages: it enhances certainty regarding future directions, enables states to fulfill their international legal obligations more effectively, and bolsters investor confidence by mitigating fears of policy shifts. Establishing partnerships with academic institutions and leveraging international space agencies for knowledge exchange and capacity building are vital strategies in this regard. Facilitating access to finance for space ventures, especially for startups and SMEs facing high initial costs, is critical for nurturing innovation and entrepreneurship within the space sector. International collaboration emerges as a cornerstone for the sustainable development of space, offering emerging space economies an invaluable pathway to overcome developmental challenges. Sharing RD outputs, best practices, and technological advancements from established space powers can significantly accelerate the growth of new entrants. Furthermore, encouraging mature space economies to outsource technology development to vendors and suppliers in emerging space economies not only enhances the global supply chain but also enriches the knowledge base and technical expertise of these nascent players. In conclusion, addressing the imperative of sustainable development in space presents unprecedented opportunities for designing innovative products and services that contribute to our sustainable future on Earth. Promoting the development of space applications aligned with Sustainable Development Goals (SDGs)—such as earth observation for environmental monitoring, disaster management, and agricultural optimization—marks a critical step forward. Advocating for a fair and equitable global space governance framework ensures that emerging space economies have access to the benefits of space, fostering an inclusive and sustainable expansion of the global space community.