

ANALYZING THE DEVELOPMENT OF EMERGING SPACE NATIONS: *Opportunities or Challenges for Space Sustainability?*

OVERVIEW

While the growth of emerging space nations creates opportunities, it also raises new security concerns. Due to the distinct conditions of the space domain that force interdependences between all of its actors, established and emerging space nations must agree on what constitutes acceptable behavior in space, in order to ensure the continued use of this shared resource. This effort requires an understanding of the rationale and development paths of all space actors, in particular emerging ones.

An analysis of six emerging space nations in three regions (Africa, Asia-Pacific and South America) reveals opportunities and challenges to space sustainability. Most notably, all six countries use remote sensing satellites for national development, and thus understand the negative repercussions if these capabilities were lost. Indeed, the loss of a remote sensing satellite due to a space debris impact could seriously hinder their national development efforts, as these countries often lack the resources to launch replacement spacecraft in the near term.

Another key trend is the reliance of emerging space nations on international partnerships when developing their space capabilities. Space activities are no longer isolated by national borders and often span government and private sectors. This opens new avenues of discussion between emerging and established space nations on space sustainability best practices.

Differences amongst emerging space nations equally inform discussions on space sustainability. These countries feature a variety of technical capabilities, regional cooperation dynamics, and rationales for pursuing space activities—all of which must be taken into account, as they will dictate the most relevant means of engaging emerging space actors in such discussions.

CASE STUDY

The European Union's draft *Code of Conduct for Outer Space Activities* provides an opportunity to examine a proposed mechanism for addressing space sustainability within the context of emerging space nations. The views of the countries examined in this research vary somewhat on the Code. For those that are receptive, this is encouraging as a primary benefit of the Code is its role as a guide for emerging space nations that are now learning to operate in space. By providing consultation mechanisms, rather than enforcement mechanisms, the Code can serve as a constructive means through which more established space nations can help engage these emerging actors on sustainability norms without appearing overbearing.

THE UNITED STATES

Several established space nations, from China to the United Kingdom, actively engage in programs specifically designed to transfer space technologies to emerging space nations. The United States, in contrast, has limited such partnerships due to national security concerns.

This U.S. approach may preclude valuable avenues for relaying space sustainability norms to emerging actors in space. Indeed, technology transfer programs do far more than simply move hardware across borders; they export mature spacecraft design, manufacturing and operational approaches. By playing a comparatively minor role in such activities while other countries move forward, the United States is missing a significant opportunity to advance space sustainability norms in a manner that is consistent with U.S. interests.