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Is Space R&D Truly Fostering A Better World For Our Future? (2)

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PROGRESS AND CHALLENGES IN APPLYING SPACE TECHNOLOGY IN SUPPORT OF THE SUSTAINABLE DEVELOPMENT GOALS

Abstract

The global community, with coordination from the United Nations, is energized to pursue the Sustainable Development Goals, a list of seventeen important aspirations that summarize the key challenges of our era. These Global Goals apply to every nation and highlight focused effort on eliminating extreme poverty, ensuring everyone has access to safe drinking water, enabling food security and providing reliable energy. The rigor of the Sustainable Development Goal framework comes from the 169 well defined targets and supporting indicators to measure progress toward those targets quantitatively. Space technology is already being used around the world to advance progress toward the SDGs, however, barriers remain that make it difficult, expensive or confusing for some users to apply existing space technology. There are seven space technologies that have high relevance to support the vision of the Sustainable Development Goals; these are satellite communication, satellite earth observation, satellite positioning, microgravity research, space technology spinoffs, scientific space research and the inspiration that is gained through space education and capability building. This paper explains how each of these seven space technologies is already being used to support a specific SDG. Next the discussion examines barriers and potential paths to overcome these barriers. Despite the emergence and proliferation of small satellites, the space engineering and operations process is still complex and daunting for new countries or organizations that seek to start new projects. Satellite communication services provide access to internet, radio, television and phone service in most of the world, however, the cost is too expensive for the service to help the rural poor in areas without strong cell phone connectivity. Satellite Earth Observation provides a large collection of high quality earth science data. There is often so much data that is it difficulty for non-specialists to identify relevant data and visualize the information derived from data. Many countries have participated in microgravity research, but further work is needed to apply results from such research toward key SDGs that benefit developing nations. There are many examples of space spinoff technologies, however, spinoffs that support development are often found via serendipity rather than through planning. Further work can design partnerships to consciously transfer findings from space research and technology for development. Trends like these influence the opportunity for countries around the world to harness space technology. This paper recommends new research and policy frameworks to enhance the application of space technology for sustainable development.