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Contribution of Space Activities to Solving Global Societal Issues (2)

Author: Mr. Scott Ritter  
International Space University, France

Mr. Cody Bauer  
International Space University, France

Ms. Julie Bausmayer  
International Space University, France

Ms. Orr Cohen  
International Space University, France

Mr. Abhishek Diggewadi  
International Space University, France

Ms. Katie Harris  
International Space University (ISU), France

Mr. Aurelio Kaluthantrige  
International Space University, France

Ms. Monika Lipinska  
International Space University, France

Ms. Chenglan Liu  
International Space University, France

Mr. Linqun Mao  
International Space University, France

Mr. Pablo Melendres Claros  
International Space University, France

Ms. Charlotte Nassey  
International Space University, France

Ms. Lotte van Noetsele  
International Space University, France

Ms. Farnoosh Sheini Dashtgol  
International Space University, France

Mr. Andrew Townsend  
International Space University, France

Mr. Salvatore Vivencio  
International Space University (ISU), France

Mr. Jeremy Wain Hirschberg  
International Space University, France

Mr. Xing Xu  
International Space University, France

Mr. Fabio Zecca  
International Space University, France

Ms. Ana Cristina Baltazar Garduño  
International Space University (ISU), France

Ms. Danijela Ignjatovic Stupar

INCORPORATING SUSTAINABILITY INTO RATIONALES FOR LUNAR SETTLEMENT:  
ADDRESSING GLOBAL CHALLENGES THROUGH LUNAR SUSTAINABILITY GOALS

**Abstract**

Numerous space agencies, companies, and organizations have announced plans for returning people to the Moon and settling on the lunar surface for a variety of economic, technological, scientific, cultural, security, and political reasons. Despite this widespread interest in lunar settlement, current plans lack evaluations of sustainability, balanced rationale for why humanity should be invested, and the global societal issues these plans could address. It is critical to address these gaps in current lunar roadmaps because future lunar settlement must be seen as beneficial to society on Earth in order to maintain the long-term support that is required for these activities. To address these insufficiencies, this paper reviews both reasons for and against returning to the Moon and responds to criticisms for each to clearly communicate why humanity should invest in returning to the Moon. To maintain investment in lunar missions from humanity as a whole, and address global societal issues, Lunar Sustainability Goals were also developed to ensure that benefits reaped from returning to the Moon are continuous throughout all phases of lunar settlement. These fifteen goals, developed in line with the United Nations Sustainable Development Goals (SDGs), the Committee on the Peaceful Uses of Outer Space (COPUOS) Long Term Sustainability of Outer Space Guidelines, and in consultation with external advisors, are: (1) Open Access, (2) Peaceful Purposes, (3) Diversity and Opportunity, (4) International Cooperation, (5) Education and Outreach, (6) Environmental Protection, (7) Heritage Protection, (8) Health and Safety, (9) Sustainable Transportation, (10) Standardization, (11) Space Debris Prevention, (12) Zero Waste, (13) Sustainable Energy, (14) Sustainable In-Situ Resource Utilization, and (15) Earth Applications. Ultimately, these goals, along with their accompanying targets and drivers, help frame the contribution of future lunar activities in terms of the value generated for people on Earth, and how this value can be achieved sustainably.