

IAF SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Part 3 (2C)

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ALL FOR ONE AND ONE FOR ALL: RECOMMENDATIONS FOR SUSTAINABLE  
INTERNATIONAL LUNAR BASE UTILISATION AND EXPLORATION APPROACHES**Abstract**

The return to the Moon is widely regarded as the next step of space exploration. Fifty years after the first Apollo mission, a renewed interest is fostering large global efforts in pursuing the scientific and economic opportunities offered by cislunar space. The ultimate goal is to establish a sustainable human and robotic presence on the lunar surface as specified in Phase 2 of NASA's Artemis Program. These perspectives are deeply intertwined with the rapid growth of the private space sector and the arising geopolitical complexities, related to utilisation of outer space among space-faring nations. This study summarises the results and recommendations of the NASA-sponsored Space Exploration Working Group within the Space Generation Congress 2019, organised by the Space Generation Advisory Council in Washington, D.C. The Working Group consisted of 26 delegates from 15 different countries and representatives from NASA Headquarters. The group examined the evolution of lunar exploration in terms of international cooperation, socio-economic and technological challenges, and the inclusion of private industry. This report discusses the political, economic, and technological trade-offs between a multi-agency / multinational monolithic lunar base to multiple lunar bases operated by individual nations. Using the International Space Station as a model for international cooperation, the working group concluded that an initial infrastructure of a single station requiring a collaborative effort between nations and commercial stakeholders is the recommended approach. From this foothold, the presence is expanded to multiple bases with a standardisation of planning, building and operating lunar bases. Strategic recommendations were

identified to be addressed to the United Nations and other public/private stakeholders with the vision of a cooperative legal and technical framework as the optimal foundation for a sustainable lunar economy. Recommendations include developing international guidelines for cooperation, establishing international standards for stakeholders, implementing conflict resolution avenues, configuring a single international base, and expanding global partnerships.