

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

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FEASIBILITY OF A VILLAGE IN THE MOON

**Abstract**

This paper describes the architecture, design, construction, and maintenance of a set of permanent habitats and infrastructure for science, manufacturing/production, and other commercial or institutional activities on the Moon. The objective of this paper is to describe a very preliminary assessment of the programmatic, technical, financial, and managerial feasibility of the establishment of a village in the Moon. The paper provides the analysis of possible cooperation scenarios between ESA, other space agencies for element sharing (USA, Russia, China, Japan, etc), and other public and private partnership on this endeavor.

The planned village on the Moon would replace the scientific research infrastructure built around the International Space Station (to end after 2024) orbiting Earth and spark huge innovations in space technology and in the exploration of the Solar System. Following the idea of a “Moon Village” by the ESA Director’s General, it shall provide space and opportunities for all sorts of activities and players, be it institutional, commercial or private.

The aim of the program of the Moon village should be to contribute ensuring a strong and competitive space industry which fosters innovation, growth and the development and delivery of sustainable, high quality, cost-effective services. It should also contribute to the knowledge-based society, by investing strongly in space-based science and playing a significant role in the international exploration endeavor. The endeavor of the village on the Moon would allow to secure unrestricted access to new and critical technologies, systems and capabilities in space applications.

The paper shall also list the number and kind of astronauts that would be required to run and operate the Moon village as well as the required infrastructure to send them there, to keep them there, and to return them safely to Earth. A permanent outpost on the far side of the moon would require astronauts to make use of the resources in their environment. It shall explore and propose potential docking ports for cooperation and engagement for the different potential inhabitants of the village, carrying out or implementing all sorts of research or commercial ventures.