

THE "MOON VILLAGE" CONCEPT AND INITIATIVE. Jan Woerner (1), Bernard Foing (2,3) and Moon Village International Support Group, ¹ESA Headquarters, ²ESA ESTEC, ³ILEWG (Bernard.Foing@esa.int)

Abstract: ESA is currently elaborating the concept of a Moon Village with the goal of a sustainable human presence and activity on the lunar surface [1-3] as an ensemble where multiple users can carry out multiple activities. This enterprise can federate all interested Nations and partners. The Moon represents a prime choice for political, programmatic, technical, scientific, operational, economical and inspirational reasons.

Why the Moon Village? The Moon Village has the ambition to serve a number of objectives (including planetary science, life sciences, astronomy, fundamental research, resources utilization, human spaceflight, economic development, etc.) to the community and should be the catalyst of new alliances between public and private entities including non-space industries. Additionally the Moon Village should provide a strong inspirational, capacity building, workforce development and education tool for the younger generations .

Previous projects relevant to Moon Village. Future space exploration is building on the International Space Station, and on the current and upcoming automatic and planetary robotic missions. COSPAR and its ILEWG International Lunar Exploration Working Group (created 20 years ago) have been supporting opportunities of collaboration between lunar missions and exchange on future projects [4-8]. A flotilla of lunar orbiters has been deployed for science and reconnaissance in the last international lunar decade (SMART-1, Kaguya, Chang'E1&2, Chandrayaan-1, LCROSS, LRO, GRAIL, LADEE). De facto, collaborative opportunities and elements of a Robotic Village on the Moon exist, as China landed in 2013 the Chang'E3 and its Yutu rover, and from 2017 other landers are planned (GLXP, Chang'E 4&5, SLIM, Luna 25-27, LRP, etc..)

Precursor MoonVillage studies and activities. The MoonVillage discussions are also based on the current activities and plans on board the ISS and the previous roadmaps and studies held in international groups [4-15] such as COSPAR, ILEWG, ISECG, IAF, IAA or national and regional groups (eg LEAG). We shall present the status of these reflections, and give an overview of on-going activities being carried out to enable the vision and implementation of a Moon Village.

How to build the Moon Village and with whom? The Moon Village will rely both on automatic, robotic and human-tendered structures to achieve sustainable moon surface operations serving multiple purposes on

an open-architecture basis [1-3]. This Europe-inspired initiative should rally all communities (across disciplines, nations, industries, partners, individuals) and could put it on the top of political agendas as a scientific and technological. but also political and inspirational endeavor for the XXI century.

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