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Space Resources, the Enabler of the Earth-Moon Ecosphere (5)

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DEFINING THE NOTION OF MINING, EXTRACTION AND COLLECTION: A STEP FORWARD A  
SUSTAINABLE USE OF LUNAR RESOURCES

**Abstract**

The use of lunar resources is the key to a lasting and sustainable settlement of humankind on the Moon. Numerous missions are currently underway to go to Earth's only natural satellite and start mining its resources. The goal of these missions is primarily scientific-focused and would allow the exploitation of regolith toward the goal of extracting water, allowing the Moon to be considered as an outpost for more distant missions. However, the technology to extract and make use of these resources on the Moon is currently limited to simply collecting lunar regolith. Questions of ownership, property and resource rights ripple out from this simple starting point: What is the definition of collection? Collection is often considered to be a synonym of mining when it comes to space resources. In that sense, mining is defined as being the extraction of valuable material which has an economic interest for the miner. As for extraction, it refers to activities that consist of withdrawing a resource from its natural environment. But those definitions were meant for resources located on Earth. Can the same be applied to lunar resources? Current missions do not plan on drilling and extracting lunar regolith per se, rather they may simply scoop lunar dust as they land. In that case, can it really be considered as collecting? The definition of these terms is of fundamental importance as they might shape the way we use space resources in the future. This paper aims to propose a definition of collection, extraction and mining while being mindful of the international space law and its interpretation.