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Interactive Presentations - 25th IAA SYMPOSIUM ON HUMAN EXPLORATION OF THE SOLAR SYSTEM (IP)

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CELESTIAL SPACE DEBRIS

Abstract

In 2019, NASA announced its ambitious new project called the Gateway. The idea behind it was the creation of a space station in the Moon's orbit, which would act as a halfway point for all incoming spacecraft to the Moon, offering the opportunity to refuel, re-examine safety concerns and wait for favorable conditions. Around the same time other projects were announced planning human habitats on celestial bodies, most notably ESAs Moon Village, or space resource mining. The fruition of such projects will inevitably bring with it the issue of celestial space debris. Currently, orbital space debris is perhaps the most pressing global problematic, with the potential of one day blocking humanity's access to space. With human dependability on space growing this would be a humanitarian disaster. Yet, despite these concerns, space debris issues have not been resolved. Majority attempts to address it have been the non-legally binding Space Debris Mitigation Guidelines (SDMG), which aim to minimize future growth of space debris. The newest attempts aim at active debris removal by reducing actual numbers of debris already on orbit, however, face numerous legal issues. Considering these are the few efforts being made by space actors for the protection of the most critical space activities, questions have to be raised with regard to how much attention and effort will be given to space debris on celestial bodies? Celestial bodies are not part of humanitys critical infrastructure. The current plans involving them consist of scientific research and commercialization, most notably mining. Mining has historically been shown to pay little regard to the environment, considering protection efforts only after the side effects of mining operations affected human lives in the surrounding areas. This is unlikely to be the case on celestial bodies in the foreseeable future. Existing SDMG refer only to orbital debris making their applicability on celestial bodies questionable. The Outer Space Treaty Article I permits exploration and use of outer space to all with few limitations, while Article IX seems too widely formulated to be effective. This paper will therefore examine the possible legal grounds for safeguarding the environment of celestial bodies, before it is irreparably damaged. For this it will evaluate the applicability of customary international law norms such as the no-harm principle and due diligence, the possibility of employing non-legally binding soft law guidelines or the adoption of a new hard law treaty for the mitigation of celestial space debris.