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Political, Legal, Institutional and Economic Aspects of Space Debris Mitigation and Removal - STM  
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ENVIRONMENTAL IMPACT ASSESSMENT IN A TRANSBOUNDARY CONTEXT: THE CASE FOR  
SPACE DEBRIS

**Abstract**

The space debris challenge is most often presented as a problem occurring in near-Earth space. This paper pursues a different approach where the problem is more accurately depicted when beginning at spaceports and launch sites. Even though rocket and payload designs are improving, debris remain an inherent part of space activities and regulation of their environmental impacts begin at the planning of the location of a spaceport/launch range, then launch and payload operations, and thru to orbital safety, de-orbit and re-entry planning. The main research question asks: What is the role of Environmental Impact Assessment (EIA) in the regulation of spaceports, launch activities and debris and what are some of the transboundary (TEIA) issues? The first section of the paper will provide a snapshot of the debris problem as an inherent part of space activities. The second section will define EIA and explore a selection of the literature. The third section will introduce literature on EIA in a transboundary context (TEIA) and areas beyond national jurisdiction (ABNJ) and the fourth section will introduce the nascent literature on EIA for the space environment. Lastly, the paper will introduce a brief U.S. case study through discussion of one U.S. commercial space company's application for spaceport and launch licenses requiring EIA and TEIA. A review of the existing literature on spaceports and launch regulations reveals a substantial gap. Despite international treaties, guidelines, standards and norms, and national regulations, the governance of spaceports with regard to impacts on the environment are largely overlooked in the literature. The literature does provide essential details regarding international law and regulations and how they are implemented at the national level, but not environmental impacts and research on EIA and TEIA processes is strikingly absent. Upon reviewing numerous U.S. spaceport and launch EIA documents, one major gap in the existing body of knowledge of these regulatory processes stands out – an omission of activities that would fall under EIA in a transboundary context (TEIA) and areas beyond national jurisdiction (ABNJ) in spaceport/space activities literature. This is where I hope to make an original contribution to the field.