

INTISARI

Eksplorasi ruang angkasa saat ini tidak hanya bersifat ilmiah, tetapi juga strategis dan militer, salah satunya melalui penggunaan *Direct Ascent Anti-Satellite Weapon (ASATs)*. Teknologi ini digunakan untuk menghancurkan satelit di orbit Bumi, namun menghasilkan *space debris* yang berpotensi mengancam keberlanjutan lingkungan ruang angkasa serta mengganggu sistem komunikasi, navigasi, dan eksplorasi ilmiah. Permasalahan ini menunjukkan perlunya kajian etis yang melampaui batas Bumi dan mencakup ruang angkasa.

Penelitian ini menggunakan metode kualitatif dengan pendekatan deskriptif-analitis melalui studi literatur. Analisis dilakukan dengan menggunakan kerangka *astroenvironmentalism*, khususnya melalui prinsip *Extraterrestrial Preservation* dan *Non-Degradation of the Space Environment*, untuk menilai implikasi etis dari penggunaan *ASATs*.

Hasil penelitian menunjukkan yang pertama bahwa penggunaan *ASATs* berdampak pada manusia, melalui penghancuran satelit, dalam bidang logistik, kesehatan, dan ekonomi memiliki ancaman seperti gangguan pemetaan, pengawasan, dan pencatatan transaksi. Kedua, melalui prinsip *Extraterrestrial Preservation*, aktivitas penghancuran satelit terbukti mengganggu integritas dan kondisi alami lingkungan ruang angkasa. Melalui prinsip *Non-Degradation of the Space Environment*, penggunaan *ASATs* menghasilkan orbital debris yang berpotensi menimbulkan degradasi lingkungan kosmik secara jangka panjang. *ASATs* tidak dapat dibenarkan secara moral karena melanggar kewajiban untuk menjaga keberlanjutan dan integritas lingkungan ruang angkasa. Ketiga, aktivitas *Anti-Satellite Weapons (ASATs)* menimbulkan implikasi etis berupa produksi puing antariksa yang mengancam satelit, kehidupan manusia, serta keberlanjutan lingkungan ruang angkasa. Dampak tersebut menunjukkan adanya risiko kolektif, ketidakjelasan tanggung jawab, dan potensi kerugian lintas generasi. Oleh karena itu, diperlukan perluasan etika lingkungan melalui *astroenvironmentalism* untuk menganalisis aktivitas *ASATs* dalam kerangka etis yang lebih komprehensif.

Kata kunci: Etika lingkungan, *direct anti-satellite weapon*, *astroenvironmentalism*

ABSTRACT

Space exploration today is not only scientific in nature, but also strategic and military, as evidenced by the use of Direct Ascent Anti-Satellite Weapons (ASATs). This technology is used to destroy satellites in Earth's orbit, but it generates space debris that poses a potential threat to the sustainability of the space environment and disrupts communication, navigation, and scientific exploration systems. This issue highlights the need for ethical studies that extend beyond Earth's boundaries to encompass space.

This study employs a qualitative method with a descriptive-analytical approach through a literature review. The analysis utilizes the framework of astroenvironmentalism, specifically the principles of Extraterrestrial Preservation and Non-Degradation of the Space Environment, to assess the ethical implications of ASAT use.

The research findings show, first, that the use of ASATs impacts humans—through the destruction of satellites—in the fields of logistics, health, and the economy, posing threats such as disruptions to mapping, surveillance, and transaction recording. Second, based on the principle of Extraterrestrial Preservation, satellite destruction activities have been shown to disrupt the integrity and natural state of the space environment. Under the principle of Non-Degradation of the Space Environment, the use of ASATs generates orbital debris that has the potential to cause long-term degradation of the cosmic environment. ASATs cannot be morally justified because they violate the obligation to maintain the sustainability and integrity of the space environment. Third, Anti-Satellite Weapons (ASAT) activities raise ethical implications regarding the production of space debris that threatens satellites, human life, and the sustainability of the space environment. These impacts indicate the presence of collective risks, unclear responsibilities, and potential intergenerational harm. Therefore, an expansion of environmental ethics through astroenvironmentalism is necessary to analyze ASATs activities within a more comprehensive ethical framework.

Key words: Environmental ethics, direct anti-satellite weapon, astroenvironmentalism