ABSTRACT

Indonesia, as the world's largest archipelagic nation with over 17,000 islands, faces persistent challenges in connectivity and digital inclusion. The demand for broadband services continues to rise, necessitating robust satellite infrastructure to support communication, broadcasting, and internet services—particularly in remote and underserved areas where terrestrial networks are not feasible. Satellite technology plays a pivotal role in bridging this connectivity gap, yet market dynamics, regulatory barriers, and infrastructure limitations hinder its optimal development.

Two predominant satellite architectures, Geostationary Orbit (GSO) and Non-Geostationary Orbit (NGSO), offer distinct advantages and challenges. GSO satellites, stationed at approximately 36,000 km altitude, provide wide coverage and stable communication but suffer from high latency, capacity limitations, and costly deployment. In contrast, NGSO satellites (including LEO and MEO constellations) offer higher capacity, lower latency, and scalability, yet demand complex constellation management and frequent replenishment cycles. Despite these advancements, Indonesia's satellite sector struggles with supply-demand imbalances, regulatory constraints, and increasing competition from global players like Starlink.

Through a comparative assessment of GSO and NGSO systems, this study examines regulatory frameworks, supply-demand dynamics, and infrastructure gaps. Using SWOT analysis and capacity optimization models, the findings reveal that Indonesia faces a 30% satellite network capacity deficit in 2025, increasing to 43% by 2045. The country remains heavily reliant on foreign satellite operators and is constrained by regulatory limitations that hinder the integration of NGSO systems. Strategic recommendations include strengthening domestic satellite capacity, implementing regulatory reforms to support NGSO participation, and enhancing spectrum efficiency in line with global best practices.

By providing a comprehensive assessment of Indonesia's satellite sector, this study offers actionable insights for operators and regulators, supporting the development of a sustainable, competitive, and resilient satellite infrastructure that meets Indonesia's long-term connectivity demands.

Keywords : *Satellite Operators in Indonesia*, *Market Dynamic*, *Strategic Analysis*, *GSO vs NGSO*, *Satellite Policy*, *Spectrum Efficiency*.