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Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and Development (1)

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LEVERAGING SPACE TO ACHIEVE SUSTAINABLE DEVELOPMENT: THE UAE APPROACH AS AN EXAMPLE

Abstract

The United Arab Emirates has invested heavily in its space program in recent years, intending to become a space exploration and research leader. The UAE space program is closely linked with the country's commitment to sustainable development. For example, the UAE uses satellite and space technologies to develop early warning systems for extreme weather events and monitor the country's water resources. The UAE also uses space technology to promote renewable energy and develop smart cities. Complementing its pioneering space programs, the UAE proposed a National space fund of about 3 billion Dirham in 2022 to establish a strong and sustainable space program that supports and protects national interests, contributes to diversifying and expanding the economy, and fosters the advancement of science and technology. The initial investment of the national fund will be spent on developing and launching a constellation of advanced imaging satellites for the Emirates that will employ SAR (Synthetic Aperture Radar) technology. The constellation, called "Sirb," after the Arabic term for a flock of birds, will address the essential need for better environmental and monitoring purposes. The planned satellites will be able to construct highly intricate and complex radar "images" of land usage, ice cover, surface changes, and characterization, with a broad range of scientific, civil, and commercial applications. Moreover, the UAE aims to support global efforts to explore and understand the Moon by launching a new Emirates Lunar Mission – 2024, after the Lunar Rashid 2023. The mission aims to support international efforts to explore the Moon and contribute to the UAE's scientific knowledge and technological capabilities. With this mission, the UAE hopes to open doors for discoveries to advance science and specialized high-precision technologies in the space industry.

This paper will ponder more on the substantial contributions of the UAE's most recent space programs and the holistic strategies adopted to fulfill the desired objectives. Moreover, the paper will illuminate the considerations that assess the interconnections between different goals, the environment, and human well-being.