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PAKISTAN'S ICUBE-Q satellite is set to be transported by China's Chang'e 6 spacecraft, scheduled to depart from Hainan, China, on Friday, May 3rd, 2024, at 1250h. The ICUBE-Q CubeSat is part of the payload of Chang'e 6 and will orbit the moon to detect traces of ice on its surface from orbit. Developed by the Institute of Space Technology (IST) in Pakistan, this miniaturized satellite, known as a CubeSat, is equipped with two optical cameras designed to capture detailed images of the lunar surface. If successful, the data collected by this miniature satellite will provide valuable insights into the moon's topography, geological features, and potential resource deposits.

Though a good beginning, Pakistan's space programme is currently minuscule compared to that of its neighbor, India, in several aspects. India has achieved milestones such as landing on the moon with Chandrayaan-3, reaching Mars with Mangalyaan, launching a record number of satellites, and developing reliable launch vehicles, mission to study the sun's corona, accomplishments that Pakistan has not yet matched.

Perhaps it was India's extraordinary ability, teamwork, cohesive leadership, and vision in pursuing its space programme that may have prompted SUPARCO to show signs of life. But Pakistan's institutional capacity is still too low and fragile, and its human resources are often unimaginative and regimented. This lack of capacity hinders meaningful progress without relying on foreign assistance.

The Indian space research and development programs have been inspired and led by visionary leaders such as Dr. Vikram Sarabhai, known as the father of the Indian space program, who established the Indian National Committee for Space Research (INCOSPAR), later evolving into the Indian Space Research Organisation (ISRO). Prof. Satish Dhawan, as ISRO chairman from 1972 to 1984, advanced India's space capabilities with the successful launch of the SLV-3 and Rohini satellites. Prof. U.R. Rao, ISRO chairman from 1984 to 1994, oversaw the development of the INSAT and PSLV programs. Dr. K. Kasturirangan, chairman from 1994 to 2003, led the launch of the IRS and GSAT satellite series. Dr. A.P.J. Abdul Kalam, renowned for his missile programme contributions, also played a significant role in India's space programme, contributing to the SLV-3 and PSLV programs. These leaders, among others, have guided India's space exploration, propelling ISRO into a global space leader.

Pakistan's space research and development

Pakistan over the Moon

► Pakistani satellite to orbit today

program has been influenced by several visionary leaders. Abdus Salam, although not directly involved, advocated for scientific advancement in the country, laying the groundwork for future endeavors. Dr. Riazuddin, a prominent physicist, contributed to Pakistan's nuclear and space programmes, aiding in the establishment of SUPARCO. Dr. Abdus Salam Khan, as SUPARCO chairman from 1996 to 2001, oversaw the launch of Pakistan's first indigenously developed satellite, Badr-A. Dr. Arshad Ali Hakeem, SUPARCO chairman from 2001 to 2006, facilitated the launch of satellites for communication and remote sensing. These leaders have collectively shaped Pakistan's space programme, contributing to its progress and achievements in space exploration.

Since 2010 Pakistan's Space Research programme has been headed by army generals. In 2010 Major General Ahmed Bilal was appointed as SUPARCO head, he was succeeded by Major General Qaiser Anees Khurran in 2016, followed by Major General Amer Nadeem in 2018 and who however succeeded by Muhammad Yusuf Khan in 2023, the first civilian after 14 years.

Though Pakistan had an early start in the 1960s, launching a sounding rocket before India, it could not sustain its momentum thanks to our legendary callous attitude towards matters of national building, our lack of a long-term vision, mission, or clear milestones for tangible achievements, our hardened habit of achieving flashy innovations or accomplishments, only to later desecrate, humiliate, and insult those behind such achievements. This behavior stems from our internal and external institutional incompetencies, which distort our earlier gains and lead us back into a state of inertia and status quo. We then slip back into a deep sleep, only to be awakened by the wake-up calls from other countries, especially India.

Three years later than Pakistan, in 1963, India launched its first rocket which became a laughing stock, being transported by a bullock cart. Since there was no looking back, soon due to their continuous, persistent and uninterrupted commitment for space exploration, India became a major global player in space exploration and research. While preparing to take astronauts into orbit in 2025, besides landing on the



moon with Chandrayaan-3, reaching Mars by Mangalyaan mission, launching a record-breaking 104 satellites in a single mission, and developing its own reliable launch vehicles like the PSLV, and sending a spacecraft called Aditya-1 to orbit sun and study sun's corona, chromosphere, photosphere, and solar wind aim to gather data on solar activity, which can impact Earth's climate and communication systems.

Whereas, Pakistan's space programme, overseen by the Space & Upper Atmosphere Research Commission (SUPARCO), has achieved nothing compared to India's space programme. It hasn't yet developed its own launch vehicles, and uses other nations' help for securing launch of its satellites and space probes.

Pakistan's space programme can achieve great success only if we start honoring our scientific pioneers, establishing a clear vision and mission, and ensuring adequate resource allocation. Building state-of-the-art research facilities, cultivating a skilled workforce, and appointing competent, qualified, relevant and inspiring leaders are essential steps.

Political will and support is crucial for prioritizing the programme and securing necessary funding. International collaborations can also enhance Pakistan's capabilities. By adopting a strategic approach and investing in space research, Pakistan can become a key player in the global space arena, bringing pride and prosperity to the nation.

The writer retired as Press Secretary to the President, and is former Press Minister at Embassy of Pakistan to France and former MD, Shalimar Recording & Broadcasting Company Limited

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