

CRITICAL QUESTIONS

India's Space Program

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Q1: How is India's space program being received by the international community?

A1: The transformation of India's space program is thought to be a sign of an Indian effort to either retain some measure of parity with China on the world stage or to make its own claim to great power status. This is reminiscent of the way that the growing scope and ambition of China's space program is often seen as an attempt by China to visibly and symbolically establish itself as a peer of the United States and Russia.

More recently, there has been increasing discussion of an Asian space race among China, India, and Japan to explore the lunar surface, especially with humans. The transformation of India's space program to include lunar exploration has legitimized the idea of a race to the Moon, even while the notional competitors may try to downplay such suggestions.

Q2: What impact is India's space program having on the world stage?

A2: Clearly, as India enjoys ongoing successes in broad areas of its space program, the increasingly international character of space exploration is becoming more and more visible. Following a successful establishment of a national human spaceflight program, the list of countries with such a capability will include the United States and three of the four BRIC (Brazil, Russia, India, and China) countries. Overall, this trend suggests that civil space capability is becoming an internationally recognized hallmark of the great powers.

Yet, as India moves to further internationalize space exploration, the United States continues to isolate itself with the International Traffic in Arms Regulations (ITAR) and its relative reluctance to explore substantive international cooperation. Moving forward, strong cooperation among any of the Asian space powers, let alone close, ongoing cooperation with the United States or Russia, will have a significant impact on space exploration throughout the next decade and beyond.

Q3: How does India's space program differ/compare with those of Russia, China, and the United States?

A3: India has over 40 years of experience in space and has achieved a relatively robust and mature capability in space applications (telecommunications and remote sensing), ground operations, and launch systems. Historically, India has focused almost exclusively on applications. While the Indian interest in applications continues (with projects such as their own global positioning system), the Indian interest in exploration and human spaceflight is relatively new. In technological terms, the Indian space program is roughly comparable to China's program, except in human spaceflight and exploration. And while India spends a bit more than Russia does on its space program, the percentage of gross domestic product (GDP) that India devotes to space is second only to the United States.

With the development of new Indian launch vehicles, we can expect to see India enter as a new provider of low-cost launch services, rivaling current Russian and Chinese strengths in that market. The relative comfort associated with technology exchange in India, as compared to Russia or China, may give low-cost Indian launchers better access to U.S. customers.

Q4: In what ways are India and the United States cooperating on space initiatives?

A4: Indian cooperation on space has been robust globally. India's first lunar mission, Chandrayaan-1, to be launched this April, will carry one American and five European scientific payloads. Further, India will be cooperating very closely with Russia on the lander and rover portions of its next lunar mission, Chandrayaan-2. India appears to have had more success in recent years in its cooperation with countries other than the United States.

President Bush's 2006 visit to India sparked many discussions and agreements on previously taboo subjects, including both civilian nuclear and space programs. The increasingly close cooperation between India and the United States in space, such as the cooperation on lunar exploration and global positioning systems, is seen as a demonstration and validation of the effort to strengthen the U.S.-India bilateral relationship.

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