

## India's MIRV Development – A Latent Counter-space Capability

By

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In March 2024, India [conducted](#) a test of its multiple independently targetable re-entry vehicle (MIRV) capability by placing miniaturized warheads onto its Agni-V intercontinental ballistic missile (ICBM), which has a range of over [7,000 kilometers](#). MIRVs were initially developed to enhance nuclear deterrence capabilities by allowing a single ballistic missile to carry multiple warheads, but they may also be used for counter-space missions, which involve neutralizing or disrupting an adversary's space assets.

India's [anti-satellite \(ASAT\) test](#), held on March 27, 2019, highlights its growing space capabilities and intent to weaponize space. India's test, known as "Mission Shakti," demonstrated its ability to intercept and destroy a satellite in low Earth orbit, positioning India as one of only four countries with such capabilities. While Indian officials maintain that the test was aimed at strengthening national security and not directed toward any particular country, such a capability would pose a significant threat to Pakistan's space assets, which would undermine Pakistan's situational awareness, communication, and command-and-control capabilities during a conflict.

The implications of India's recent MIRV test to its intent in the space domain have received little scrutiny, with one Indian analyst suggesting that the country's MIRV efforts [complement](#) its space ambitions. However, analysts did not address the potential implications on regional stability. India's development and testing of advanced missile technologies suggest that New Delhi could use these capabilities for counter-space missions, including the targeting of satellites, and their expansion of counter-space weapons may disrupt the strategic equilibrium in South Asia.

### Bringing MIRVs to Space

While the primary use of MIRV ballistic missiles is not in counter-space missions, there are scenarios and technologies related to MIRVs that could potentially be adapted for anti-satellite (ASAT) roles. Instead of carrying nuclear warheads, the MIRV could be equipped with kinetic kill vehicles (KKV) or other payloads designed to disable or destroy satellites through collision or other means. A missile equipped with MIRV technology could launch multiple payloads into space, each with its own propulsion and guidance systems, allowing them to maneuver into specific orbits close to target satellites. Moreover, the independent targeting capability of MIRVs means each payload could be directed to a different satellite, potentially allowing for simultaneous attacks on multiple targets in different orbits.

In addition, co-orbital systems can loiter in space and potentially engage targets when needed, providing a persistent threat compared to direct-ascent ASAT systems. MIRVs could be adapted for co-orbital ASAT missions by modifying their payloads and utilizing their independent targeting capabilities. [Russia](#) and [China](#) have demonstrated co-orbital ASAT systems, while the [United States](#) maintains advanced space technologies that could potentially be used in similar roles. The adaptation of MIRVs for such purposes would be complex and carry significant strategic and legal implications.

## Implications for Regional Stability

Outer space is considered a global common, a concept established by the Outer Space Treaty of 1967, which ensures that space is free for exploration and use by all countries, cannot be claimed by any nation, must be used for peaceful purposes, and should be preserved for future generations. It is crucial that this principle should be consistently applied to preserve space for the benefit of all states for communication, navigation, weather monitoring, and scientific research. However, [the growing overlap between military and space technologies is blurring the lines between these fields](#) and raises apprehensions about the militarization and potential weaponization of the domain.

The advancements made by India in military technology and satellite capabilities, which integrate military and space capabilities, have raised significant concerns about the weaponization of space in Pakistani policy circles. [Pakistan also tested a MIRV capability on its Ababeel missile](#). However, it never demonstrated its intent to develop counter-space weapons through policy or capability development. Pakistan's space policy and activities are focused on peaceful uses of outer space, such as satellite communications, remote sensing, and scientific research. Islamabad has participated in international initiatives aimed at promoting the responsible and peaceful use of outer space, including discussions on space security and arms control within forums such as the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).

Considering India's development and modernization of its military beyond traditional security needs, such as its ASAT capability and advanced missile ranges, there is a possibility that New Delhi may use MIRVs for counter-space missions in the future. In a scenario of escalating tensions with Pakistan, India could conduct counter-space missions by either placing co-orbital ASAT systems during a brewing crisis or launch KKV's during a conflict by using MIRV capability. This would enable India to destroy Pakistani satellites, severely impairing Pakistan's situational awareness, disrupting secure military communications, and degrading command-and-control functions.

As New Delhi strengthens its counter-space capabilities, its potential development of counter-space capabilities can upset the balance maintained by Pakistan's effective deterrence posture in South Asia. The complex interplay between nuclear and conventional forces maintains this balance. However, there is a growing asymmetry between India and Pakistan in space capabilities.

New Delhi's substantial advancements and investments in space technology and infrastructure [outmatch Pakistan's space capabilities](#), creating a significant power disparity where India has a much greater capacity to deploy and utilize space-based assets for various purposes, including [military and intelligence gathering](#). India's disproportionate expansion of space capabilities not only poses a threat to Pakistan but also China. Their reliance on satellites for command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) functions is growing to address genuine security needs. Pakistan recognizes the strategic importance of information superiority in modern warfare.

With evolving security challenges, including border surveillance and counter-terrorism operations, Islamabad is enhancing its C4ISR capabilities through significant [technological](#) upgrades such as satellite programs and advanced communication systems, along with the integration of centralized command centers and secure communication networks. The expansion

includes increased use of drones for surveillance and reconnaissance, development of electronic warfare capabilities, and robust cybersecurity measures.

Human resources are being developed through specialized training and international collaboration, particularly with China and Turkey, to facilitate technology transfer and interoperability. These efforts aim to improve situational awareness, decisionmaking, and operational effectiveness, strengthening Pakistan's overall national security.

During a crisis, Pakistan may face the risk of its satellite assets being targeted which could have significant impact on its military and strategic capabilities. Pakistan could face severe constraints in its C4ISR capability. Moreover, the integration of satellite communication into Pakistan's drone operations and C4ISR framework highlights the dependence on these assets for maintaining robust communication. Hence, the loss of satellite communication could disrupt command-and-control functions, impairing coordination and timely decisionmaking across the armed forces.

In view of these reasons, it is possible to conclude that India's MIRV test represents a dangerous shift in the domain of space weaponization. The integration of MIRV technology with India's missile systems not only enhances its nuclear deterrence but also signals its potential use for counter-space capability. Therefore, while India's achievements in missile technology and space capabilities are notable, they carry significant risks for regional stability.

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