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Debalina Ghoshal

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As Pakistan continues to increase its fissile material stockpile, potentially soon surpassing France's and Britain's,[1] and as China is also modernizing its nuclear force, India's nuclear deterrence posture needs to be discussed. India is moving toward a 'credible minimum deterrent posture,' with nuclear-capable ballistic missiles and aircraft now a reality. India's no-first-use doctrine coupled with a recessed deterrence posture has enabled New Delhi to strengthen strategic stability in the South Asian periphery by ensuring a high nuclear threshold.

Recessed deterrence means that nuclear warheads would not be mated with their delivery systems—meaning the nukes would remain separate from the missiles or aircraft that would deliver them—and nuclear weapons would either be in a semi-assembled state or completely unassembled during peacetime. The late Air Commodore Jasjit Singh, India's foremost strategic expert, defined the concept further "as a credible nuclear weapons capability which the country is able to draw upon for political and diplomatic purposes, and is able to deploy a nuclear arsenal within a defined time-frame and effectively use it physically for military purposes."[2]

Recessed deterrence is often confused with non-weaponized deterrence. However, there is a discrete disparity between the two. Recessed deterrence focuses on developing nuclear warheads but not mating them with their delivery systems, while non-weaponized deterrence focuses on accumulating fissile

Debalina Ghoshal is a Research Associate at the Delhi Policy Group. You can reach her at debalinac.87@gmail.com.

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materials and other technology required to build warheads, yet not actually completing one.[3]

This paper argues that India's no-first-use policy can only be strengthened when nuclear weapons are in a de-mated and de-alerted state, leaving no doubt in an adversary's mind of a possible first-use by the state adopting a no-first use policy.

India's Rationale for Recessed Deterrence

India conducted its nuclear tests in 1974 and in 1998, demonstrating its capability to produce nuclear weapons. After the 1998 test, then-Prime Minister Atal Behari Vajpayee stated that India had become a "nuclear weapon state," remarking that the tests "have given strength, they have given India self-confidence."[4]

After achieving a nuclear weapons capability, India adopted a defensive 'no-first use' policy rather than an offensive doctrine of 'first-use' or 'pre-emption'. In the words of Shrikant Paranjpe, a strategic analyst, "the India nuclear doctrine seeks to 'balance' the need for a deterrence-based nuclear capability with a demand for global disarmament."[5]

Soon after testing its nuclear weapons capability in 1998, Vajpayee wrote to then-President of the United States Bill Clinton that New Delhi was willing to work with the United States "to promote the cause of nuclear disarmament."[6] The letter also expressed India's desire to participate in future negotiations regarding the Fissile Material Cut-off Treaty (FMCT), which would prohibit the further production of fissile material needed for nuclear weapons. This demonstrated that, for New Delhi, nuclear weapons represented a deterrent, not a means of battlefield weaponry.

India's no-first-use doctrine is rooted in a deeply ingrained cultural belief.

Reinforcing this, strategic thinkers and military leaders like Krishnaswamy Subramanyam and General Krishnaswami Sunderji have argued for a small nuclear arsenal capable of providing a political upper hand, rather than preparing for actual warfighting with nuclear weapons. In fact, in their views, the large Soviet and U.S. nuclear arsenals were wasteful and not required.[7] This is similarly shown in nuclear expert Gurmeet Kanwal's analysis, where he writes that India's adoption of the no-first-use doctrine is "rooted in a deeply ingrained cultural belief that the use of force to resolve inter-state disputes is a repugnant concept."[8]

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This ingrained belief—that weapons of mass destruction are not meant for warfighting—existed even in ancient India. In the Sanskrit epic, The Mahabharata, the protagonist Arjuna prohibited the Pasupatastra, a powerful weapon whose use would destroy the whole world. The record says, "Arjuna observing the laws of war, refrained from using the Pasupathastra, a hyper-destructive weapon, because when the fight was restricted to ordinary conventional weapons, the use of extraordinary or unconventional types was not even moral let alone in conformity with the religion or the recognized law of warfare."[9]

Moreover, according to strategist Ashley Tellis, India's strange approach to developing components of the arsenal "while desisting from creating the arsenal itself"—and India's self-denial to create the arsenal before 1998—comes from "India's calculated assessment that 'preserving the option' … would provide deterrence advantages without imposing any of the costs and risks associated with actually deploying nuclear weaponry in the context of an overt assertion of India's nuclear status."[10]

Ultimately, nuclear weapons are political weapons and should solely be meant for deterrence purposes. Thus, we must reject any scope of their military utility. Under a recessed deterrence posture, coupled with a no-first-use doctrine, the military value of nuclear weapons further diminishes. Hypothetically, India would only use nukes if an adversary attacked it first with nukes (or with chemical or biological weapons), shifting to employ the strategy of 'massive retaliation.'

Under massive retaliation, nuclear weapons are typically in a ready deterrent posture—that is, nuclear warheads are mated to delivery systems and ready for immediate launch at any given time. A ready deterrent posture of this sort, where nuclear weapons are deployed in an alerted and mated state, makes minimal sense and results in an added burden on the defense budget. If a state is to combine no-first-use with massive retaliation, it makes most sense to employ a defensive strategy (using massive retaliation only as a response to a nuclear attack) that involves weapons in a recessed deterrence posture (de-mated weapons).

The late K. Subramanyam in the 1990s also never favored pre-deploying nuclear weapons or mating them. According to him, "India should not deploy nuclear weapons in forward areas; India should not have the weapons assembled and kept on alert. But we should be capable of deploying them when it becomes necessary."[11] Again, Jasjit Singh's idea of nuclear weapons capability was one that kept nukes "politically available at any given time, but militarily 'recessed'."[12]

India's present delivery systems for nuclear warheads include aircraft and ballistic missiles, which are not in a ready deterrent posture. According to reports,

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Pakistan and China also keep their nuclear warheads and their delivery systems in a de-mated state. Mated nuclear weapons would represent a ready-deterrent posture that could exacerbate the sense of insecurity that could prevail between India–China and India–Pakistan.

Mated nuclear weapons could exacerbate the sense of insecurity in India, Pakistan, or China.

This would be true even if mated nuclear weapons are 'de-alerted.' Keeping nuclear forces on high alert was a common practice between the United States and the Soviet Union during the Cold War, when fully armed nuclear weapons could be launched in a matter of minutes. De-alerting refers to certain physical changes to the nuclear weapon or system which would lengthen the time required to launch a nuclear weapon in combat, in order to ensure that no one would use nuclear forces accidentally or without rational thought. But keeping a ready nuclear force could make the task of de-alerting nuclear weapons difficult. In fact, one could rightly argue that the United States and Russia, which keep some of their nuclear forces in a ready deterrent posture, have found it difficult to adopt a 'de-alerted' nuclear weapon status since the Cold War days.

According to nuclear experts Hans Kristensen and Mathew Mckinzie, "opponents of de-alerting argue [that] the necessity of keeping nuclear weapons at a high level of combat readiness [is] in order to protect them against surprise attack and to provide the national leadership with more time and options during a crisis, including striking the adversary's nuclear forces first to limit the reciprocal damage it could inflict."[13] Others reply that a de-alerted posture could lead to a more dangerous re-alerting race in the future.[14] Nuclear weapons in a recessed deterrence posture, however, negate the need for a nation to pursue 'de-alerting,' since warheads which are not mated with delivery systems are, by definition, de-alerted and thus do not pose a threat of irrational launch.

The theory behind India's nuclear missile program is 'induction without deployment.'[15] As Waheguru Pal Singh Sidhu, another nuclear expert, writes, the Indian military is clear that induction is meant for peacetime, while deployment is a wartime activity.[16] A recessed deterrent posture, hence, puts a lesser burden on its command and control and enables New Delhi to clarify for the world the difference between its induction program and a deployment program (should New Delhi wish to deploy the weapons).

Nuclear deterrence usually comes just from the mere possession of such weapons. Therefore, the need to keep these nuclear weapons in a ready deterrent posture does not make sense, but instead adds to insecurity and instability. In fact,

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Lt. General B.M. Kapur has argued that "if range, target, yield, and mobility of nuclear weapons are made known to the enemy, that is the beginning of deterrence. Openness is itself deterrence."[17] For instance, even though the *Agni-V* missile is neither deployed nor mated with nuclear warheads, the fact that New Delhi declares that the missile is capable of reaching targets in China—and that they are survivable against an enemy's first-strike—could itself strengthen deterrence. Therefore, there is no need for India to keep nuclear weapons in ready deterrent posture to strengthen deterrence.

Recessed deterrence thus enables India to adopt a strategy that is an amalgamation of both openness and ambiguity. India declared a state of possessing nuclear weapons, which is an openness that enabled New Delhi to strengthen its deterrent capability. However, the unassembled and semi-assembled states of its nuclear weapons and missile systems open the window of ambiguity regarding India's nuclear weapons command and control issues (especially in the case of sea-based deterrence) as well as its survivability and ability to launch a counterstrike, thereby further strengthening deterrence.

Moreover, India has always projected itself as a firm supporter of nuclear disarmament. India has been the only state to call for a Nuclear Weapons Convention that would ban and eliminate nuclear weapons. While adopting a no-first-use policy is considered to be another vital step toward nuclear disarmament, no-first-use is best ensured when states decide to not to keep their arsenal in a ready deterrent posture.

How Can Recessed Deterrence Help?

A posture of recessed deterrence offers a variety of benefits:

Allows for rational thinking: When warheads are not mated with their delivery systems, it gives a state more time to act rationally during times of crisis. This has even more relevance when a state has a first-use policy. However, India, with a no-first-use policy, also gains from a recessed deterrence posture. In addition to the reasons given above, the belief that India's warheads are not mated with their delivery systems could give Pakistan reason not to clandestinely mate their own nuclear warheads with their delivery systems. As former Defense Minister George Fernandes points out, if Pakistan strikes initially, the effects could be cataclysmic: "we [India] may [lose] a part of our population." And after India's retaliatory strikes on Pakistan, "Pakistan may [be] completely wiped out."[18] This irrationality and catastrophe to an extent has been prevented not just because of New Delhi's no-first-use policy, but also because of its posture of keeping the

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nuclear weapons de-mated and de-alerted. This provides a certain trust to Pakistan that New Delhi's nuclear weapons are not meant for warfighting.

Similarly, China has always been keen on avoiding nuclear "adventurism," and a de-mated and de-alerted nuclear weapons posture coupled with no-first-use provides China the room to do so. With both New Delhi and Beijing adopting a no-first-use policy (though the policy is conditional), their de-mated and de-alerted nuclear weapons posture could leave less scope for an irrational launch by either state, thereby keeping the nuclear threshold high.

Prevent an all out nuclear war: Choosing not to mate delivery systems with nuclear warheads could prevent an all out nuclear war. This posture is conducive for both Pakistan and India since both states could feasibly engage in limited conflict under a nuclear umbrella. Tensions between India and Pakistan regarding border issues and cross-border infiltration have always been at a heightened state, and episodes like the Kargil Conflict in 1999 could escalate to nuclear brinkmanship or even confrontation. In this case, the fact that the nuclear arsenals of both countries were not in a ready deterrent posture provided sufficient time for de-escalation. As Air Commodore Jasjit Singh wrote, a recessed deterrent posture provides "a fire-break in escalation of tensions beyond a certain level since the adversary will have to calculate the consequences of its actions in terms of Indian responses."[19]

Without nuclear arsenals in a ready deterrent posture, there was sufficient time for de-escalation at Kargil.

Could reduce reliance on nuclear weaponry: Since nuclear warheads are not mated with delivery systems for Pakistan and for India, there will always be a sliver of doubt about their nuclear weapon preparedness during crises. Hence, each country will also rely heavily on conventional capability. Both India and Pakistan are making an effort to improve their conventional capabilities. In fact, in 2011, former Pakistani president Pervez Musharraf stated that since both India and Pakistan have "conventional strength to meet the challenges of war," they do not have to "go unconventional right away."[20] In fact, both New Delhi and Islamabad should aim to ban short-range nuclear capable missile systems and convert them into conventional roles, thus reducing reliance on nuclear weapons.

Enhances survivability: Not only must a nuclear arsenal be survivable against a first strike by the potential adversary, but the adversary must perceive it to be so.[21] With India's posture of recessed deterrence, an adversary may need to choose whether to destroy nuclear warheads or their delivery systems—not only are

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delivery systems de-mated, the missile components and nuclear warheads may be situated far away from each other. This choice could prevent adversaries from fully destroying each others' nuclear forces—destroying nuclear warheads could prevent nuclear catastrophe that could have been inflicted in the adversary's territory. On the other hand, an adversary could still launch a cataclysmic strike with the delivery systems by arming them with precision guided munitions, electromagnetic pulse weapons, or even cluster guided munitions. For example, in 2011 Musharraf raised doubts on the U.S. ability to destroy Pakistan's nuclear weapons since they were de-mated. De-mated and de-alerted nuclear weapons could ensure strong modes of survivability of the nuclear arsenals.

Prevents accidental launch of nuclear weapons: De-mating the nuclear warheads from their nuclear delivery systems could reduce the chances of an accidental launch of nuclear weapons. It could also prevent nuclear weapons from accidentally falling into the hands of non-state actors. It also reduces the burden on command-and-control systems, like Permissive Action Links (PALs) or bomber switch control systems, during peacetime.

Gives a sense of security to non-nuclear weapon state: Recessed deterrence gives a sense of security to non-nuclear weapon states in the South Asian periphery. A neighbor's ability to launch a nuclear-armed ballistic missile at a moment's notice might spur small states to seek their own form of security or deterrence, perhaps even seeking to attain nuclear-weapons status themselves. Nuclear weapons states maintaining a recessed deterrence posture could mitigate this risk, since the nuclear threat is less immediate.

Ensure strategic stability: A no-first-use policy means that the nuclear threshold is very high—it would take an extreme act (an actual nuclear strike by an adversary) to prompt use of nuclear weapons. On the other hand, a first-use policy implies that the nuclear threshold is low, thereby jeopardizing strategic stability.

Limitations of Recessed Deterrence

While recessed deterrence has many advantages, it also has limitations. For instance, de-mated arsenals make treaties or talks on arms control and reduction more difficult, since it becomes more complex to verify the number of nuclear weapons possessed by each state. The Strategic Offensive Reductions Treaty (SORT) is proof of this. One of the major reasons why Beijing has been able to implement the strategy of ambiguity in its nuclear doctrine is because its warheads are not mated with its delivery systems, thereby making it difficult for the United States to obtain an exact figure of its nuclear weapons arsenal.

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In addition to this, is the complexity arising from sea-based nuclear deterrence. The issue of command and control extends in a somewhat different way to a sea-based deterrent. Submarine-launched ballistic missiles (SLBMs) mated with nuclear warheads could strengthen deterrence, since SSBNs enhance the survivability of nuclear forces. The downside is that this places an extreme pressure on command and control of these weapons. In the case of SSBNs, the obvious choice is to de-mate the command and control systems. As Sidhu points out, the problem of keeping the SLBMs and the warheads de-mated from the [Indian Nuclear Submarine] *Arihant* is that it is nearly impossible to mate the ballistic missiles with nuclear warheads while subs are on patrol.

Hypothetical Alternatives

Other possible scenarios can be considered hypothetically to understand how recessed deterrence has worked for South Asia. We will look at three possible contingencies: Scenario 1 deals with a situation in which India has a no-first-use policy and deployed nuclear weapons; scenario 2 will deal with that same situation but India would have a first-strike policy and deployed nuclear weapons; and scenario 3 will deal with the situation when India has a first-strike policy and de-mated nuclear weapons.

Scenario I: No-First-Use and Mated Nuclear Weapons

Jaswant Singh, a former Indian minister who served in a variety of cabinets, writes, "[i]n 1962, China attacked India on its Himalayan border. The nuclear age entered India's neighborhood when China became a nuclear power in October 1964. From then on, no responsible Indian leader could rule out the option of following suit."[23] In fact, as nuclear analyst Dhruva Jaishankar writes, "Pakistan's acquisition of nuclear weapons with Chinese assistance proved an impetus for India's nuclear-weapon pursuit" and "not the other way round."[24] Given India's defensive posture, no-first-use of nuclear weapons suited India's image and strengthened its cause that nuclear weapons were a necessity for deterrence but would not be used for warfighting.

However, if India had a ready deterrent posture, would the South Asian periphery have been as equally stable as it is now? No. Mated nuclear weapons, whether deployed or not, in the South Asian periphery would have adversely affected strategic stability in the region. This is because the dual capability (that is being able to deliver both nuclear and conventional warheads) of both India's and Pakistan's ballistic missiles as well as aircraft would have led Pakistan to believe that India could launch a first strike any moment, thereby leading to crisis instability. This could be more likely considering that Islamabad does not really trust India's no-

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first-use doctrine. Deployment of nuclear weapons would have made both Pakistan and China even more suspicious.

De-mated weapons have dissuaded Pakistan from irrationally launching a nuclear attack against India. It also has prevented India from doing the same. How China would have reacted in this scenario is a tricky question since China's nuclear weapons are a deterrent against the United States, Russia, and Japan.

Scenario 2: First-Strike Policy and Mated Nuclear Weapons

Had India relied on the first-use of nuclear weapons and mated the nuclear warheads with the delivery system, then Pakistan in turn could likely have launched a first-strike against India due to the fear of India launching a first-strike against Pakistan. This is also known as the "use 'em or lose 'em" dilemma.

China on the other hand also could have again disagreed to continue any diplomatic talks with India. In fact, India's no-first-use policy and de-mated and de-alerted nuclear weapons have made it easier for the Chinese to play their nuclear card well, sticking to its no-first-use policy and keeping their nuclear weapons de-mated while working on credible survivability, despite the United States not adopting a no-first-use policy. Of course, the nuclear threshold is also high between China and India, since Beijing has a bilateral 'no-first-use' agreement with Russia, leaving minimal scope or need for China to alter its nuclear doctrine.

> India's de-mated, de-alerted, no-first-use policy has made it easier for China to stick to its no-first-use policy.

Scenario 3: First-Use Policy and Recessed Deterrence Posture

While Pakistan has a first-use policy and de-mated nuclear weapons, stability is maintained since India has a no-first-use policy. However, if India had a first-use policy and de-mated nuclear weapons, it could lead to a scenario in which Pakistan might launch an irrational nuclear strike on India. With symmetric nuclear policy, Pakistan might find it difficult to keep its nuclear warheads de-mated from their delivery systems, as Islamabad would have been wary of a first strike by India. As is the case with Scenario 2, China could have faced the same dilemma.

> If India had a first-use policy, Pakistan might launch an irrational nuclear strike on India.

To conclude, India has been successfully able to adhere to its no-first-use posture due to the de-mated form of its nuclear weapons in South Asia. Both the no-first-use policy and a recessed

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deterrence strategy are complementary to each other to ensure strategic stability. The concept of deterrence by denial—convincing an adversary that any potential attack will be defeated—has been central to India's nuclear strategy, and this strategy has strengthened with India's decision to keep its nuclear weapons de-mated.

The mere possession of such weapons—and ensuring that they are survivable against enemy first-strike—itself strengthens deterrence. In fact, there is no denying that a recessed deterrence posture can only be maintained by a state which has confidence in its conventional capabilities, and feels that nuclear weapons would only be weapons of last resort. The recessed deterrence posture has enabled New Delhi to act as a responsible nuclear weapon state, confirming its belief that nuclear weapons are meant for deterrence and not for military use.

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Strengthening a Recessed Deterrent Posture

Recessed deterrence, however, calls for nuclear warheads and their delivery systems to be *almost* in a state of readiness, with effective command and control in order to assemble them quickly when required. Gurmeet Kanwal, for example, states that "India's no-first-use doctrine demands a robust, infallible, and potentially insuperable nuclear deterrent capability to ensure that India never has to suffer a nuclear strike."[25] This means the removal, transportation, and operational readiness of warheads and their delivery systems must involve a robust process to launch a quick counterstrike. Solid-propelled ballistic missiles are the best choice for such a strategy since liquid-fuelled missiles would make the implementation of the strategy hazardous. Liquid-fuel ballistic missiles require a longer refueling process, and their transportation could be hazardous. Solid-fuelled missiles can be fuelled just before launch and are, therefore, ideal in mobility. India, Pakistan, and China rely on ballistic missile capabilities for deterrence and, hence, solid-propelled ballistic missiles make it easier for them to keep their nuclear arsenals in de-mated form.[26]

India's recessed deterrence posture coupled with its no-first-use policy in its nuclear strategy ensures strategic stability in the South Asian periphery. In fact, in the future, India should promote the strategy of recessed deterrence across the world for a global no-first-use agreement. To strengthen the recessed deterrence posture coupled with a no-first use policy, India's ballistic missile defense capability, cruise missile defense capability, and air defense capability have to be robust enough to intercept incoming missiles and aircraft in order to minimize the chances an adversary target India's retaliatory

India should promote recessed deterrence globally to emphasize its stance on nuclear disarmament.

capabilities. The strategy of defense by denial would provide some room for New Delhi to prepare itself for a counterstrike should the adversary launch nuclear weapons. According to Jasjit Singh, "recessed deterrence needs an operationally tested missile" and there is a need for "two or three dozen tests" of these missiles.[27] In this regard, India has developed the *Agni-I, Agni-II, -III, -IV, and -V* category ballistic missiles. These are solid-propelled, land-based, nuclear-capable ballistic missiles that can strengthen nuclear stability. Recessed deterrence thereby enables a state to formulate a strategy where there is an amalgamation of offense and defense.

Nuclear weapons are not meant for warfighting, and nuclear war is a scenario in which there is no winner or loser—everyone loses. Hence, the concept of a ready deterrent nuclear posture does not really make sense when the real purpose of nuclear weapons is to strengthen deterrence. The mere possession of nuclear weapons capability does the job of deterring the adversary successfully. A recessed posture not only strengthens deterrence, but does so in a way that reinforces de-escalation and peace.

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Notes

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