



# **Cruise Missiles and Military Doctrines in South Asia**

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## **Introduction**

Short range cruise missiles carrying miniaturized warheads, both conventional and nuclear, enhance tactical and counterforce capabilities of a state's military. It is therefore, important to understand how cruise missile development in the subcontinent affects the contours of stability-instability paradox through juxtaposing their employment according to the operational doctrines of the two nuclear armed rivals in South-Asia.\* Cruise missiles were introduced in India with the test firing of BrahMos on August 12, 2001 and Babur by Pakistan on August 11, 2005. The logic behind developing these weapons by both countries, however, differs. The paper looks into the role of cruise missiles of Pakistan and India in the framework of their respective military doctrines to understand how their development has impacted the regional security dynamics. The paper further argues that India's limited war fighting doctrine under the nuclear umbrella (Cold Start) was aimed at creating space for low level violence.

## **Understanding Cruise Missiles**

Broadly there are two basic versions of cruise missiles, anti-ship cruise missiles (ASCMs) and land attack cruise missile (LACMs). LACMs are of a more recent origin than ASCMs.<sup>1</sup> Each type can be launched from multiple platforms like aircrafts, ships, submarines, or ground based launchers. Technological innovations over the years in building smaller and sleeker airframes, more accurate navigational and guidance systems, and a high powered engine etc have increased the survivability

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\* Doctrine is explained as the basic principles that shape the way forces are employed to achieve national objectives. Doctrines give insight into the kinds of wars state may anticipate and how those states may choose to deploy military force. The paper looks into the cruise missiles of Pakistan and India in the framework of their respective military doctrines with the purpose to understand how they will be deployed to make inferences on the regional stability-instability paradox. See Dr Paul Latawski, "The Inherent Tensions in Military Doctrine," *Royal Military Academy Sandhurst Occasional Paper* no. 5 (2011): 3-11, [http://www.army.mod.uk/documents/general/RMAS\\_Occasional\\_Paper\\_5.pdf](http://www.army.mod.uk/documents/general/RMAS_Occasional_Paper_5.pdf).

of cruise missiles in combat missions, thus making it an 'intelligent' weapon for use in counterforce and tactical operations.<sup>2</sup> The navigation systems of these missiles, ensure travelling at low altitudes and evasion of enemy's surveillance. These systems increase the penetration probability of the missiles, enabling them to maneuver around the target, meandering their way through the folds in the terrain to evade radar detection and attack the target upon reaching it.<sup>3</sup> Furthermore, with advancement in developing smaller infrastructure of the weapon and radar cross-section (RCS) factor, the precision of the missiles has increased.<sup>4</sup> Cruise missiles are invulnerable to any defense, which not only ensures their capability in both first strike as well as retaliatory strikes but also underscores their cost effective aspect.

### **Stability-Instability Paradox**

Stability-instability paradox has been interpreted in the South Asian context by many scholars in various ways. The paradox postulates that nuclear weapon states, due to the fear that their adversary might cross the Rubicon, keep the crises at low level to prevent them from escalating to a full scale conventional or a nuclear war, but at the same time one or both states might consider this as opportunity for taking risks below the threshold.<sup>5</sup> Developed in the 1950s at the beginning of the Cold War, the concept is commonly attributed to Glenn Snyder. Snyder has described the paradox briefly as,

[T]he greater the stability of 'strategic' balance of terror, the lower the stability of the overall balance at its lower levels of violence. The reasoning is that if neither side has a 'full first-strike capability,' and both know it, they will be less inhibited about initiating conventional war, and about the limited use of nuclear weapons, than if the strategic balance were unstable. Thus firm stability in the limited use of nuclear balance tends to destabilize the conventional balance and also to activate the lesser nuclear 'links' between the latter and the former.<sup>6</sup>

Robert Jervis, while agreeing with Snyder observes, "to the extent that the military balance is stable at the level of all-out nuclear war, it will become less stable at lower level of violence."<sup>7</sup>

The two definitions imply a few notable points:

- If two nuclear weapon states have offsetting capabilities and a secure and sizeable second strike capability against each other, they will fear attacking the other. Essentially, this maintains strategic stability between the two rivals.
- One or both rivals might take advantage of the adversary's fear of a war breaking into a full scale war.
- This potentially assured destruction encourages one or both adversaries to opt for a limited conventional war or a proxy war in order to tilt the result of a crisis in its favor. Hence the paradox that strategic stability leads to violence at the lower spectrum of stability. It is therefore said in common parlance that nuclear weapons guarantee avoidance of war but cannot ensure peace.

Stability-instability concept has been mooted by analysts with respect to its applicability in South Asia.<sup>8</sup> Divergent interpretations of the paradox in the regional context are reflective of the opposing views on strategic stability, and what constitutes violence at the lower level, that may undermine a state's deterrence as stipulated in the definition of the paradox.<sup>9</sup>

For Pakistan, the problem is its smaller conventional military force, vis-à-vis India. Balance of conventional military forces being in India's favor, from Pakistan's security perspective avoidance of war would be a prudent strategy. Pakistan would therefore be hard pressed to maintain deterrence both at the conventional and strategic levels. The deterrence would remain stable if India, being a bigger power, does not undermine it.

On the other hand, India, being a bigger power and aspiring to emerge as a regional power, has another perspective on what constitutes violence at lower level. Strategic stability would be considered 'positive' by India - only when it is able to maintain its military dominance in the region, and if this dominance is challenged by other states, like Pakistan - it could be perceived as 'negative' from the Indian perspective.<sup>10</sup> An example of this perspective is Paul Kapur's thesis which argues that stability-instability paradox is not applicable to South Asia and posits that Pakistan is a revisionist state that wants to change the territorial landscape of the region by occupying Kashmir. He modifies the main argument of the paradox by stating that there is negative strategic stability in the subcontinent. For him, the conventional imbalance between India and Pakistan has made Pakistan more

aggressive by factoring in the likelihood of the use of nuclear weapons in the face of Indian conventional threat to its territorial integrity.

### **Military Doctrines in South Asia**

The “postmortem analyses” of Operation Parakaram (2001-02) exposed the limitations of India’s Sundarji doctrine “to present a timely threat to Pakistan” after India blamed Pakistani backed militants for attack on its Parliament on December 13, 2001. Perceiving the inability of the Indian army to match Pakistan army’s short mobilization time along the international border, Indian strategists devised a new strategy against Pakistan.<sup>11</sup> Emphasizing on the speed of both deployment and operations, India developed Cold Start Doctrine (CSD) according to which it planned to reorganize its three strike corps into self-contained and highly mobile eight Integrated Battle Groups (IBGs). In a wartime situation, IBGs would launch short and intense attacks 50-80 km across the international border within 72-96 hours.<sup>12</sup> The strategy aims to exploit the strategic space between low intensity conflict and nuclear threshold, leveraging India’s superiority in conventional forces, and was termed as “limited war under the nuclear overhang”.<sup>13</sup> However, realization of the limitations and rising doubts about the efficacy of the Cold Start Doctrine led India to revise this strategy to make it a more inclusive offensive strategy, known as *Proactive Military Operation Strategy*. As the name implies, the proactive strategy is more proactive or offensive, contrary to counter offensive strategy adopted in the CSD, which was predominantly defensive.<sup>14</sup>

The potential threat of a limited conventional war by India after developing a proactive strategy led Pakistan to develop a Full Spectrum Deterrence (FSD). FSD refers to Pakistan’s response to India’s complete spectrum of threat. Theoretically, what Pakistan needed was ‘limited nuclear options to fill the gap between doing too much, such as starting a general nuclear war, to doing too little like acquiescing to enemy’s attack.’<sup>15</sup> FSD fulfills this very purpose for Pakistan. It aims to plug the gap created by Indian conventional advantage in the deterrence equation in South Asia.

In September 2013, when Pakistan’s National Command Authority announced FSD, it proclaimed that Pakistan would not remain oblivious to evolving security dynamics of South Asia and would maintain a full spectrum deterrence capability to deter all forms of Aggression.<sup>16</sup> In view of Pakistani writers FSD is a qualitative and not a quantitative response that aims to increase Pakistan’s options to counter the

Indian offensive threats created by its proactive strategy without engaging in overkill operations.<sup>17</sup> While FSD lowers Pakistan's nuclear threshold level, it increases the credibility of its deterrence as it supports its war prevention strategy, and not war-fighting strategy. Practically, FSD enhances Pakistan's capability to challenge India's proactive strategy and balance against its conventional advantage. Thus arguably, FSD strengthens deterrence stability between the two countries.

The Limited Nuclear Options\*\* (LNOs) provided by FSD range from tactical level to strategic level and will allow Pakistan to fight a war at any rung, from tactical, to conventional, and even to a strategic level but also shows Pakistan's determination to rise to the challenge of countering India's attempt to weaken its deterrence.<sup>18</sup> By creating these options of limited punishment, the Pakistani aim seems to be instilling the fear of escalation in the adversary to a level that it may find continuation of confrontation detrimental to its larger national objectives.<sup>19</sup> Hence, limited deterrence or FSD in case of Pakistan aims to dissuade the adversary from the military provocation or an aggression that the adversary may launch.<sup>20</sup>

### **Cruise Missiles and CSD**

India announced its breakthrough in cruise missiles in 2001. In South Asia, another significant development took place around the same time when India shifted the orientation of its military doctrine from a defensive to proactive strategy. Though a number of Pakistani and some Indian strategists considered CSD to be flawed and exaggerated,<sup>21</sup> Pakistan's defence policy makers could not have ignored this important development and the threat it posed to their country.<sup>22</sup> The threat perceived from Indian proactive strategy by Pakistan were further aggravated by India's cruise missile tests. For Pakistan, India had conceived CSD or proactive strategy for war-fighting purposes built on the assumption that it can overwhelm Pakistan through its greater conventional force strength. Pakistan's strategic decision makers' perceptions regarding the threat posed by India's CSD or proactive strategy were not without foundation. Indian scholars too saw

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\*\*LNOs advocate a retaliatory capability strong enough to counteract a counterforce strike, and that can deter attacks for blackmail. While massive retaliation is based on the strategy of doing all or none, LNOS is a middle way between the two, which is more credible. Robert Powell discusses how limited nuclear capability increases the credibility of deterrence as "Credibility, then, was to be found in having a set of limited options, each of which, if exercised, would raise the risk of the crisis going out of control. Because exercising an option was not certain to trigger a general nuclear war, but only created the risk of it, the expected cost of exercising an option would be less than the expected cost of deliberately imposing the sanction of launching an unlimited attack." *Nuclear Deterrence Theory and the Search for Credibility* (Cambridge: Cambridge University Press, 1990) 15.

development of cruise missiles by India as a step towards operationalizing CSD. Dr. Monika Chaunsoria, Sr. Fellow at The Center for Land Warfare Studies, considered CSD as India's answer to threat posed by Pakistan's proxies and First Strike Doctrine. She said, "In this context CSD has been put as an offensive doctrine. Though officially denied, its presence is widely acknowledged in strategic circles."<sup>23</sup> On the other hand, the minimum credible deterrence doctrine of Pakistan envisages the employment of cruise missiles to plug the gap that exists in the country's deterrence which can be exploited by India to conduct limited war inside Pakistani territory. The number of cruise missiles tests carried out by both countries give credence to this perception. To date India has test-fired BrahMos 39 times and Nirbhay twice, and on the other hand, Pakistan has tested its cruise missiles Babur, 10 times, and Ra'ad 5 times only.

BrahMos is India's anti-ship and land attack cruise missile, inducted in the Indian navy in 2005 and in the army in 2007.<sup>24</sup> The missile is supersonic with top speed of Mach 2.8 and a range of 290 km. It can carry a conventional payload of 300 kg. The land based missile uses mobile cannisterized systems for launching which enhances its agility and speed of launching, also known as Mobile Autonomous Launchers (MAL).<sup>25</sup> India also plans to increase the target engagement of this missile by attaining a near vertical dive capability to take the enemy by surprise.<sup>26</sup> In 2013, BrahMos Aerospace also developed the submarine version of the missile,<sup>27</sup> however, its air launched version to be deployed on Russian SU-30MKI, is under development.<sup>28</sup>

The particular features of BrahMos are especially suited for India's CSD and it enhances India's offensive posture. According to the DRDO, BrahMos is well equipped for different kinds of warfare. According to the BrahMos Aerospace Corporation, "BrahMos speed is its major advantage which leaves the enemy helpless once it is launched."<sup>29</sup> The BrahMos missile can evade defense systems as powerful as Aegis system. Equipped with terrain contour matching system (TERCOM) and Digital Scene Matching and Area Co-relation system, the missile has an advanced built-in navigation system.

Similarly, India's Nirbhay, meaning the fearless, is a Tomahawk class, long range LACM. The missile initially faced technical constraints; however recently, DRDO has made corrections in its designs and successfully test fired it.<sup>30</sup> The missile is also known as a tree top missile based on its ability to travel at low levels. This feature

enhances the stealth capability of the missile with its 700-1000 km range. The missile can strike deep into enemy's territory as compared to other short ranges cruise missile. Equipped with terrain profile matching sensors the missile is said to possess high pinpoint accuracy. According to DRDO, the missile will be able to carry 24 nuclear warheads to fight different kinds of warfare like a MIRV.<sup>31</sup> However, this seems to be a tall claim by DRDO since India has not been able to accomplish MIRV technology for ballistic missiles.

BrahMos and Nirbhay, augment and support operationalization of India's proactive military doctrine. These short to mid-range missiles allow their use in both counterforce and tactical missions. BrahMos and Nirbhay effectively increase India's first strike capability as expounded in its proactive strategy. In short, India's cruise missiles will form the backbone of CSD. DRDO chief, Avinash Chander described Nirbhay as cruise missiles that will fill the gap in the war-fighting capabilities of India's armed forces.<sup>32</sup> In the event of a break out of a limited war by these low flying cruise missiles can be launched India cascading to overwhelm enemy's defenses and attacking its critical infrastructure like command and control systems. Consequently, this can imperil deterrence stability in the region.<sup>33</sup>

### **Strengthening Pakistan's Deterrence and Cruise Missiles**

Pakistan hopes to increase its credible minimum deterrence through its cruise missiles and short and mid-range delivery systems like Hatf-I, Hatf II, Hatf-III, Hatf-IX. This is more apparent with the recent testing of short-range missiles systems by Pakistan. Likewise, Pakistan's cruise missiles will enhance its full spectrum deterrence capability against the growing spectrum of threat from India for a limited strike and strengthen its assured second strike capability. Pakistan's cruise missiles inventory has surface-to-surface Babur, and Ra'ad which is air-launched.

Babur or Hatf VII was introduced in 2005 by Pakistan. The missile is based on the design of US Tomahawk. The missile will carry nuclear payload and has a range of 500-700 km. It has high stealth capability enhanced by advanced TERCOM system. With Babur's long range of up to 700 km, it can aim at targets deep in the Indian territory, including its capital.<sup>34</sup>

According to Pakistani strategists, the chief purpose of Babur is to evade India's Ballistic Missile Defense Shield (BMDS). With the development of India's SLBMs,

the impending completion of its BMD and the increase in the level of its forces, the major concern of Pakistan is to what extent India will adhere to its no-first-use nuclear doctrine in a future conflict situation. Since the development of cruise missiles is much cheaper than ballistic missiles, Pakistani cruise missiles will not only be able to evade India's BMD as all cruise missiles are undetected by radars, but also together with ballistic missiles can perform strategic missions.

In 2008, Pakistan introduced its second cruise missile, Ra'ad, also known as Hatf VIII. The missile has a range of 300 km, and can carry all types of warheads.<sup>35</sup> The missile is described as low lying, terrain hugging with high maneuverability and pin point accuracy. According to ISPR, the missile has given Pakistan the capability to keep the enemy at bay both on land and at sea. Ra'ad is a highly advanced weapon system that can be launched against targets at land, sea or air and has high accuracy in all three modes. It has the capability to identify targets beyond visual range (BVR) in air.<sup>36</sup> With the deployment of its cruise missiles at sea, Pakistan has achieved the alternative to SLBMs in the wake of the induction of India's nuclear submarine SSBN Arihant.

### **Conclusion**

In the early 1950s, massive retaliation doctrine had run into the problems of credibility because it advocated indiscriminate use of nuclear weapons on the enemy. Brodie explained it as "the enemy may find it hard to believe that we mean it"<sup>37</sup> since the cost to be borne by both adversaries, if employed will be greater than if not used. This was the problem encountered by the US in the 50s and 60s which were resolved by Flexible Response advocated by McNamara Doctrine and Schlesinger Doctrine that meant to increase limited nuclear options of the US. This situation is comparable to the current situation between India and Pakistan.

During the 1960s, the naval balance between the US and the Soviet Union was heavily in favor of the latter. The offensive operational capability of the Soviet Union was far more than the US. During the 1970s, the US felt that the Soviet Union had 'a powerful quantitative momentum' that the US was in no position to match for several years and also found that its bargaining position in relation to the Soviet Union is weak as it did not have a corresponding program to bring the Soviet cruise missiles in SALT I negotiations in 1972. Amidst all this, the US realized that adding cruise missiles to its arsenal would show the determination of the US in

maintaining the credibility of its deterrence by increasing the range of nuclear options that the US could employ in military operations and also as a bargaining chip in SALT II negotiations.

The India-Pakistan strategic situation is analogous to US-Soviet Union military potential during the Cold War in which Pakistan's position is similar to that of the US. In order to strengthen its deterrence in the wake of India's manifold increase in its military expenditure, accomplishment of its nuclear triad and strengthening of its offensive capability with the development of BMD, Pakistan feels that it needs to reinforce the credibility of its nuclear deterrence. It has done that by developing its full spectrum deterrence strategy.

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### Endnotes

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<sup>3</sup> Leo O. Upton and Lewis A. Thurman, "Radars for the Detection and Tracking of Cruise Missiles," *Lincoln Laboratory Journal* 12, no. 2 (2000): 355-366; *Ballistic and Cruise Missile Threat* (National Air and Space Intelligence Center, 2009).

<sup>4</sup> A weapon's RCS depends quite heavily on its aspects in relation to the radar. If the weapon is head over or sideways to the radar, its detection is highly plausible than when it is head on to the radar. See David tanks, "Assessing the Cruise Missile Puzzle: How great a defense challenge?" *The Institute of Foreign Policy Analysis*

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