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**Special Report for Alex Poole-Warren**

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## ASIA

### India

**An analysis of eight escalation pathways for an India-Pakistan war and their commercial implications.**

*This Special Report assesses the likelihood of eight India-Pakistan war scenarios following the Mumbai terrorist attacks in November 2008. It is part of a series and will be followed by up-dates and additional scenario modelling in the next two months. For a copy of the PDF version with maps and graphics, or copies of our previous special reports on war and terrorism risks in India and Pakistan, please contact Georgie Elston at [georgie.elston@exclusive-analysis.com](mailto:georgie.elston@exclusive-analysis.com).*

#### **1. Key Judgment**

**There is intense domestic pressure on the Indian government to act following the Mumbai attacks in November 2008.**

**This reaction probably does include some use of military forces with an airstrike in Pakistan-administered Kashmir being the most likely. Neither side want war (nations seldom do) but complex escalation pathways exist, including the limited use of tactical nuclear weapons.**

**Air strikes on Pakistan could happen with no warning. Ground operations, even limited ones, are unlikely before February 2009. The Indian Army is presently conducting routine exercises on the Pakistan border and an extension of these would be a key**

**indication of India's offensive intent.**

**However, once wars start the escalation pathway to nuclear exchange, whilst still low probability, could occur with almost no warning, i.e. within days of ground operations starting.**

**A high impact, although at this point still a very low probability event, is an exo-atmospheric nuclear explosion staged by Pakistan over Mumbai and perhaps Bangalore, which would wipe out all the electronic back office operations in these cities. We have not yet modelled this scenario as we expect its probability to be less than 0.01%.**

### **Scenario Probability Scores (1yr)**

- 1. Diplomatic confrontation, with impact on cross border trade. 100%
- 2. Increased activity by India in Afghanistan, including clandestine operations and overt assistance. 70%
- 3. Abnormal increase in Indian exercise activity/redeployments by in-place forces in Jammu and Kashmir; no incursion into Pakistan. 70%
- 4. Major Indian redeployment of offensive armoured formations to border areas, no incursion into Pakistan-administered Kashmir. 55%
- 5. Limited war - limited air/special forces strikes against militant camps in Pakistan-administered Kashmir. 60%
- 6. Full-scale war - all-out invasion of Pakistan by India, aimed at neutralising Pakistan's military capability. 20%
- 7. Limited tactical nuclear weapon deployment. <1%
- 8. General nuclear release. 0.01%

## **2. Executive Summary**

**There appears to be some limited progress in counterterrorism cooperation between India and Pakistan following the November 2008 terrorist attacks in Mumbai. Nonetheless, the triggers for limited Indian military action against Pakistan are already**

**apparent.** A full-scale war, still less one involving even the limited use of nuclear weapons, is unlikely before February 2009. However, a limited Indian strike against selected militant targets in Pakistan-controlled Kashmir is more likely, particularly if there is a further terrorist attack in India by Pakistan-based militants. Likely indicators of increased probability of Indian military action would be increasingly specific proof of Pakistani government complicity in terrorist attacks. India is taking precautionary but defensive preparations for Pakistan reaction, including limited mobilisation of reserves and major troop deployments to border areas.

**Of eight scenarios scored for probability on a one-year outlook, we assess that the most likely developments would be: diplomatic confrontation (100%); an increase in Indian military exercise activity in, or redeployments to, Jammu and Kashmir that falls short of incursions into Pakistan or Pakistan-controlled Kashmir (70%); increased activity by India in Afghanistan, including clandestine operations and overt assistance to the Afghan government in its border disputes with Pakistan (70%).** The scenarios are not mutually exclusive. The commercial impact of the first two scenarios would likely be limited to disruptions to cross-border traffic from Srinagar in India-administered Kashmir to Muzaffarabad in Pakistan-administered Kashmir. The Afghan scenario would increase risks to Indian assets in Afghanistan, including NGOs, workers, companies and diplomatic missions.

**Although there is a reasonable probability of limited or full-scale war between India and Pakistan in the one-year outlook (60% and 20% respectively), both of these scenarios would need a minimum of a month's preparation time; visible indicators include Indian mobilisation.** Another terrorist attack on a major Indian city would likely push India much closer to taking military action against Pakistan. These scenarios would lead to significant damage to life, property and infrastructure. The participation of additional Indian formations in manoeuvres that routinely take place over the

winter months along the western border with Pakistan and the extension of exercise activity into February and March 2009 would be indicators of India's moving to an offensive war posture against Pakistan.

**Nuclear strikes would lead to the greatest destruction but these scenarios are significantly less likely. We assess the likelihood of India and Pakistan using tactical nuclear weapons to be less than 1% and the likelihood of a general nuclear exchange between the two states as significantly less than that in the one-year outlook.** Limited tactical nuclear weapon deployment would be likely only following a full Indian ground invasion of Pakistan and a general nuclear release only following a Pakistani first use of a tactical nuclear weapon, although this would more likely result in a limited nuclear response by India. This means there would be significant indicators suggesting nuclear retaliation was becoming increasingly likely. However, the response time could be very short. We would expect a tactical nuclear deployment to involve the use of one nuclear warhead (20kt) . This would result in a 5km blast radius, 3.2km fatality radius and 4km radiation radius, with Indian troop concentrations in Sindh and Punjab (providing that Indian troops are able to cross some obstacles, such as the double canals that line sections of the India-Pakistan border) the most probable targets. A general nuclear exchange would have a catastrophic impact on population centres and infrastructure in both countries and a recovery period measured in tens of years.

### **3. Key supporting analysis forecasts**

#### **Indian and Pakistani strategic aims**

**The Indian government seeks to demonstrate to Pakistan that it is prepared to take punitive military action to persuade the Pakistani security establishment to desist from further support for Islamist militant groups and also to reassure the domestic public that it is capable of taking tougher action on terrorism.**

Following the latest Mumbai attacks, the Indian government's principal strategic aim is to demonstrate to Pakistan that it is prepared to react militarily against perceived support for anti-India Islamist militants by the Pakistani security establishment, specifically the Inter-Services Intelligence (ISI). In doing so, it is also attempting to reassure the Indian public that it is willing to take tougher action against terrorist groups, especially as the Congress-led coalition is increasingly viewed as weak on fighting Islamist terrorism. Pakistan's defence is that its support for these groups is limited to the Kashmir conflict and that its security services have much less control over whether these groups expand their activities to attack India more broadly. Nonetheless, Indian intelligence no doubt already holds at least some evidence of involvement by members of Pakistan's security services in the Mumbai attacks (and previous terrorism incidents in India), even though this evidence is regularly dismissed by Pakistan. In any case, this is a claim that is highly damaging for India-Pakistan relations and in the context of the Mumbai attacks, if India believes that there is sufficient evidence of an ISI role in these attacks, the likelihood of a larger-scale military action, such as the targeting of ISI offices and/or even a ground incursion into Pakistan, is likely to rise significantly.

**Despite some Pakistani cooperation in the Mumbai investigations, the Pakistan Army will most likely make it clear to India that it is prepared to escalate the conflict should India take cross-border military action.**

The Pakistani government has never, from an Indian perspective, offered its fullest possible cooperation in counterterrorism investigations (which India at least expects) and previous joint initiatives have produced minimal results. The scale of the latest Mumbai attacks has made this incident even more difficult to respond to for Pakistan, with growing international pressure (primarily from the US) on its security forces to take tougher punitive actions against the militants responsible for the attack. The recent raids of militant camps in Pakistan-administered Kashmir (and subsequent arrests of a key Lashkar-e-Toiba leader) indicate that Pakistan is

attempting to demonstrate its will to cooperate in counterterrorism efforts, although its genuineness will still be questioned by India. Indeed, Pakistan has refused to hand over the arrested militants, agreeing only to try these individuals in Pakistani courts, on the basis that there is no extradition treaty between the two countries. Extrajudicial procedures would likely be compared to, and rejected as extraordinary rendition by, Pakistan. Pakistan is most certainly aware of the Indian military threat, but no doubt has an interest (considerably greater than India) in elevating the dispute beyond the realms of counterterrorism into an internationalised political dispute that India does not want. While we assess that it is very unlikely for Pakistan to initiate military action, a war with India (and initiated by India) would nonetheless likely be supported by most (if not all) of the Pakistan Army that is configured in both preference and structure for interstate conflict with India. Indeed, a key indicator of Pakistan's willingness to escalate will be the increasingly strong anti-India rhetoric of Pakistan's Army generals, which is generally kept reasonably private and very rarely publicised.

### **External actors**

**The US has a strong interest in averting a conflict, not least because of its likely impact on Pakistani cooperation against militants in the Tribal Areas, and is putting pressure on Pakistan to take action that will head off Indian military action. In the event of war, the US is unlikely to intervene militarily but would apply diplomatic pressure on India to cease offensive operations.**

Given increasing evidence that the actors in the Mumbai attacks were supported by terrorist groups in Pakistan, US Secretary of State Condoleezza Rice has pushed Pakistan to undertake a strong crackdown on militants within its own borders, saying Pakistan has a 'responsibility to act'. The US is using forceful rhetoric to convince Pakistan that if it does not act to uncover those responsible for the Mumbai attacks there will be severe consequences on US-Pakistan relations. Secretary Rice went so far as

to equate India's frustrations with the US reaction following 9/11. US intelligence officials have also leaked unsubstantiated evidence that the ISI allowed the Lashkar-e-Toiba to operate inside Pakistan without interference, or perhaps even receiving protection. Further, President-elect Obama said the US must first solve Pakistan in order to solve Afghanistan (which will be a major push in his administration). He also said that countries have the right to defend themselves, stopping short of saying that if Pakistan does not cooperate, India has the right to invade. Relations between the US and Pakistan are already strained due to the cross-border raids of US troops from Afghanistan into Pakistan. Nonetheless, the US still needs Pakistan's assistance in the tribal areas with respect to controlling violence in Afghanistan. The US will therefore most likely stop short of supporting an Indian invasion in order to keep the status quo. In the event of war, the US will most likely act as a mediator between the two countries, though due to both countries' strategic importance, the US will almost certainly not enter the conflict militarily. The US is likely to make selective evidence of Pakistan-based militant activity against India based on its own intelligence available to both parties as a means of increasing pressure on Pakistan to cooperate.

**China is very unlikely to intervene militarily in an India-Pakistan war, though it would probably provide Pakistan with some military hardware (such as armoured vehicles) and support it diplomatically.**

There is unlikely to be a military response from China in the event of war between India and Pakistan. During Operation Parakram, which took place following the 2001 attack on the Indian Parliament in Delhi (allegedly by Lashkar-e-Toiba), there was no large-scale movement of Chinese troops to India's eastern borders or along the Aksai Chin border with Ladakh in Jammu and Kashmir. China would most likely support Pakistan diplomatically during an India-Pakistan war, and probably provide it with some equipment, though actual military intervention is not expected.

## **Warning time and indicators**

**We assess that another Islamist terrorist attack on a major Indian city, which is likely over the next three to six months, is the principal trigger event that would push India closer to taking military action against Pakistan. Thereafter, the warning time available for Indian military options would vary from a week (limited airstrikes against militant camps) to at least three months (all-out invasion).**

In the midst of diplomatic confrontation between India and Pakistan, we assess that both external and domestic Islamist groups are likely to attempt further attacks inside India, with the major cities such as Delhi, Bangalore and Chennai most at risk of bombings targeting crowded public places, largely aimed at causing large-scale human casualties in order to further undermine the Indian government. Another major terrorist attack on a major Indian city (on the scale of the latest Mumbai attacks, which we assess is likely in the next year) would be likely to push India even closer to taking a military response against Pakistan.

**The participation of additional Indian formations in manoeuvres that routinely take place over the winter months along the western border with Pakistan, and the extension of exercise activity into February and March 2009, would be indicators of India's moving to an offensive war posture against Pakistan.**

The Indian military is currently on 'op alert', a routine activity under which the Army strike and holding formations conduct annual exercises and play out their coordinate operation plans along the Pakistan border every winter. This is the normal Indian deployment and does not represent increased Indian military aggression specifically against Pakistan. The key initial indicator for escalation here is therefore any re-deployment from the Eastern and Central commands (from Assam and the Chinese border) to boost the strength of troops put on 'op alert', which would then increase the war preparedness of the formations involved. At the same time, the

extension of the op alert beyond the original December-January schedule into February and March 2009 could also be perceived as more aggressive posturing by India and maintain readiness for a possible war

#### **4. War readiness and capabilities**

**The Indian Armed Forces hold a significant numerical and qualitative advantage over Pakistan, particularly in relation to capability to mount combined arms operations, supported by offensive air support, but would need to mobilise reserves to mount any operations that amounted to more than a limited raid into Pakistan-controlled Kashmir. The Indian Navy and Air Force specifically have substantial technological edge over their Pakistani counterparts.**

The Indian Army consists of thirteen corps, of which ten are holding (or defensive) formations. The remaining three are the so-called 'strike corps', the only formations capable of carrying out manoeuvre operations without additional mobilisation. These are the I Corps (Mathura, Uttar Pradesh), II Corps (Ambala, Haryana) and XXI Corps (Bhopal, Madhya Pradesh). The II Corps possesses about 50% of India's armour. The Indian Army has 4,000 + main battle tanks and up to 11,300 artillery guns. The Pakistan Army consists of 10 Corps, of which eight are holding formations and two are strike corps - I Corps (Mangla, Pakistan-administered Kashmir) and II Corps (Multan, Punjab). The Pakistani Army has 2,400 + main battle tanks and 4,300 artillery guns. The Indian Army has an active strength of 1.1m, compared with the Pakistani Army's strength of 550,000, and India can draw on significantly greater reservist manpower. On paper, the Indian Army has an order of superiority in strength and equipment that would enable it to mount an attack on Pakistan using only ready forces; however, in the past (most recently in 2001-02) the Indians have taken the precaution of prior mobilisation to counter a possible escalated Pakistani response, thereby sacrificing strategic surprise. The Indian Army relies on Russian and US arms for its foreign-procured arms, while Pakistan relies on Chinese.

Pakistan's Navy and Air Force are at even greater significant numerical and qualitative technological disadvantage in comparison with their Indian counterparts. Pakistan suffered under the arms embargo of 1991-2001 when it was forced to purchase old and unsophisticated Chinese equipment. This embargo period has done much damage to the re-equipping of Pakistan's armed forces, a re-arming that is now slowly underway. Despite more recent US military aid providing some packages of F-16s, the Pakistan Air Force (PAF) remains poorly matched against a very well equipped Indian Air Force (IAF) that has maintained a technically superior force, with Russian air superiority and multi-role combat aircraft, such as Mig-27s and SU-30s, along with an available combat aircraft ratio of around 530 (PAF) to 1430 (IAF).

### **Air Force capability**

The IAF is relatively well balanced, with a good mix of fighter aircraft and close air support for ground operations. IAF bases in the western part of India permit relatively short runs to most Pakistani targets, particularly through Indian-controlled Kashmir towards the northern and northwest territories of Pakistan, where most militant camps are located. Although the IAF should be able to achieve air superiority at a tactical level, it would likely be at some cost given Pakistan's good ground based air defences. The longstanding IAF link to Israeli defence industries has provided them with a number of good quality unmanned aerial vehicles (UAV) for long range reconnaissance, though not an attack capability. Similarly, Israeli-provided jamming and other electronic warfare equipment give the IAF a significant technological advantage over the PAF. The US would not be able to provide the IAF with enhanced weaponry, given the mainly Russian and French inventory of its combat fleet. However, intelligence assistance, in particular time-sensitive targeting data, would be extremely useful. The IAF is also well equipped with stand-off laser guide bombs.

### **Naval capability**

As with the relative imbalance between air forces, the Indian Navy (IN) and Pakistan Navy (PN) are

similarly mismatched. The IN is now the fifth largest in the world, with a wide range of capable and strategically important vessels, ranging from aircraft carriers to a nuclear submarine fleet. In the Indian-Pakistan war of 1971 they had little difficulty imposing a blockade on Karachi, following heavy losses by the PN. The PN has not invested in new naval vessels and suffers from an increasingly out-dated and poorly-equipped fleet that is no match for a far superior IN. Pakistan could, however, make some headway against the IN if some of their conventional submarines were to deploy from their bases in Karachi and Gwadar undetected before any hostilities commenced - the IN will be wary of their capability in the littoral areas off Pakistan.

**The decisive war-winning factor in an India-Pakistan war would be India's capability to launch a surprise attack that would limit the response time for Pakistan and therefore achieve likely Indian objectives of a limited war, namely to destroy militant camps in Pakistan without escalating the conflict.**

For India to launch cross-border airstrikes on militant camps, or a full-scale invasion of Pakistan, would require an element of at least tactical, and desirably strategic, surprise to reduce the response time available for Pakistan to deploy its defences and prevent a pre-emptive attack. Pakistan is no doubt already on higher readiness than normal in Pakistan-administered Kashmir. Any strike operation against militant facilities in Pakistan-administered Kashmir amounting to more than a single raid by strike aircraft or special forces would likely require prior deployment of fixed and rotary wing aircraft and training activity, that would carry the risk of detection by Pakistan (and possibly by the US). Operation Parakram, which took place after the December 2001 attack on the Indian Parliament in Delhi, demonstrates some of these problems. The then Indian Army chief of staff was criticised for ordering a full-scale mobilisation that took months to prepare and gave Pakistan time to prepare its defences. The option of an immediate response involving airstrikes on militant camps was not taken, partly because of the perceived need for Indian forces to prepare for an unpredictable, and therefore 'worst case', scale of

possible Pakistani retaliation. Indeed, Indian Army planners believed that Pakistan had an interest in taking the conflict towards a nuclear flashpoint as quickly as possible (which no doubt is what the Pakistanis intended them to believe, and may well have been justified) and were therefore deliberate in their war preparations. In short, it appeared that in 2002, India lacked the political will, military doctrine and capability to conduct a short and sharp limited war, whether in terms of strikes against militant camps or a ground offensive to secure limited objectives. There has, however, been some improvement in the Indian military since then, particularly an increased capability of the Special Forces to operate behind enemy lines in hostile territory for protracted periods, as well as the deployment of new weapon systems that would give each Corps, including the current infantry-heavy holding formations, a limited offensive capability that did not exist in 2002.

## **5. Scenarios, Bigger Events and Commercial Implications**

The escalation pathways in this section assume that India would be most likely to make the first move and Pakistan would then respond accordingly in the event of military escalation. Each escalation pathway consists of the following components:

Trigger event - India action - Pakistan response - commercial impact

Each escalation pathway has been assigned a probability score (0-100%) relative to the other escalation pathways discussed in this report. Each escalation pathway is dependent on the others. It is virtually impossible for some escalation pathways to take place on their own, without being preceded by others that are more likely. Thus, a sudden escalation to full nuclear war from the present situation of no military conflict is extremely improbable.

Even after the use of tactical nuclear weapons there are very large and correspondingly unlikely escalation steps to general nuclear release. International pressure would be extreme and real on both sides. The switch from military counter

force to counter value targets (i.e. cities) would be risky and suicidal for both nations and would only likely occur by miscalculation or error, which external actors such as the US would be striving to avoid. Given that Pakistan would at this stage be under extreme pressure and its military likely all but collapsed, the command-control of its nuclear weapons would be very uncertain.

The commercial impact assesses the likely casualties, property and collateral damage resulting from each of the scenarios, for instance the likely military, government, infrastructure, transport, industrial and urban targets.

### **Scenario 1: Diplomatic confrontation, with impact on cross border trade.**

**Probability score: 100%** (This is the most likely and indeed already apparent course of events providing there is not another terrorist attack in India or new evidence of Pakistan official complicity in the Mumbai attacks, and movement by Pakistan to satisfy minimal Indian domestic expectations.)

**Scenario description:** In this scenario, more concrete evidence emerges that all of the Mumbai attackers were indeed Pakistani nationals as India has claimed, resulting in strengthened Indian demands for the heads of Pakistan's main Islamist militant groups, including Lashkar-e-Toiba and Jaish-e-Mohammad, to be handed over and put on trial in India. India receives moral and diplomatic support from the US, possibly including the provision of intelligence, which intensifies its demands for Pakistan to hand over the alleged militant leaders behind the Mumbai attacks. Pakistan is irritated by what it perceives as the US decision to support India in this dispute and repeatedly refuses to hand over the alleged terrorists wanted by India, on the basis that there is no extradition treaty between India and Pakistan. In the absence of an extradition treaty, Pakistan also rejects extraordinary rendition (i.e. extrajudicial transfer of the alleged terrorists to India). In this scenario, Pakistan offers talks with India to negotiate an extradition treaty, but most likely as a delay tactic; the talks (and ultimately the dispute itself) lose momentum over the next year, resulting in no Indian military action,

especially in the run-up to and after the May 2009 elections that the Congress-led coalition wants to concentrate on winning.

**Commercial consequences:** The commercial impact of this scenario is limited, principally because diplomatic confrontation between India and Pakistan has been embedded into the political landscape on the subcontinent for decades. Local markets are becoming less sensitive to diplomatic disputes between the two countries, and the only likely economic losses incurred would be the temporary suspension of cross-border buses (from Srinagar in India-administered Kashmir to Muzaffarabad in Pakistan-administered Kashmir) and some local trade routes due to border closures.

**Scenario 2: Increased activity by India in Afghanistan, including clandestine operations and overt assistance.**

**Probability score: 70%** (A possible course of action that would be relatively low-risk for India, but which might well fail to develop in time to meet Indian domestic expectations.)

**Scenario description:** Frustrated by Pakistan's refusal to hand over the wanted militant leaders behind the Mumbai attacks, India gradually intensifies military and intelligence operations in neighbouring Afghanistan. India already trains the Afghan National Police and border forces in parts of Herat but proposes additional programmes for the Afghan troops in the east and southeast along Pakistan's border. These new programmes are highly visible and publicised as India's attempt to encircle Pakistan. At the same time, India plans to set up new consulates in Mazar-e-Sharif and Herat, the urban centres in the north and west, aimed at improving relations with Afghanistan. In addition, India also activates clandestine operations near the Afghan-Pakistan border, including providing logistical support to anti-Taliban groups in the tribal areas of Pakistan, resulting in a sharp spike in violence in North and South Waziristan agencies. Pakistan is very suspicious of Indian interests in Afghanistan and accuses India of stoking tribal militancy along the Pakistan-Afghanistan border. Pakistan responds to Indian interference by staging

attacks on Indian interests inside Afghanistan, such as the suicide car bomb against the Indian Embassy in Kabul in July 2008, in which Pakistan's Inter-Services Intelligence agency was allegedly involved.

**Commercial consequences:** Increased India-Pakistan competition in Afghanistan places Indian interests, such as NGOs, expatriates, construction workers and companies, at greater risk of attack, including kidnappings, roadside ambushes of Indian convoys and suicide bombings. Indian diplomatic missions (the embassy in Kabul and the consulate in Kandahar) are also likely targets. Pakistan also effectively closes the NATO supply route from Karachi through the tribal areas into Afghanistan.

**Scenario 3: Abnormal increase in Indian exercise activity/redeployments by in-place forces in Jammu and Kashmir; no incursion into Pakistan.**

**Probability score: 70%** (A likely course of action that would send overt and readily-identifiable signals to Pakistan (and the US); likely to give up to a month's warning time of a further Indian move to a war posture.)

**Scenario description:** Due to Pakistan's continued refusal to hand over the militants wanted by India and an increased spate of attacks on Indian interests in Afghanistan, the Indian military exercises the forces deployed in Jammu and Kashmir, including two Indian Army corps, several sectors of the Indian Border Security Force and the Rashtriya Rifles, over the course of January 2009 as scheduled. There is no deployment in Rajasthan and Punjab and the exercises are reported by the Indian government to have been a part of India's scheduled in-situ winter operations. The exercises last for two months, during which the Indian government intensifies its demands for the wanted militants to be extradited from Pakistan, but to no effect. There is no Pakistani deployment in response to the Indian exercises, partly due to some US pressure, and the Indian Army eventually reverts to its normal deployment posture.

**Commercial consequences:** The commercial

impact of this scenario is very limited. The only economic losses incurred will probably be cross-border buses (from Srinagar to Muzaffarabad) and some local trade routes being temporarily suspended due to border closures.

**Scenario 4: Major Indian redeployment of armoured formations to border areas, no incursion into Pakistan-administered Kashmir.**

**Probability score: 55%** (A possible course of action that could become more likely in the event of increasing domestic pressure on the Indian government to raise the stakes of non-cooperation by Pakistan; major ground forces redeployment would be readily detected by Pakistan (and by US), providing a minimum of a month's warning of a change in Indian military posture)

**Scenario description:** Following another major terrorist attack in an Indian city in January 2009 that is likely to have been carried out by Pakistani groups, the Indian Army extends the 'op alert' into February 2009. In addition, troops are redeployed from the east and the Chinese border (Eastern and Central Command), including the I Corps from Uttar Pradesh (a strike corps that is not typically deployed west of the Indira Gandhi canal, which runs through Punjab, Haryana and Rajasthan), to the western border with Pakistan. This is an unusual deployment, and clearly indicates to Pakistan, and to the international community, India's intensified offensive posturing against Pakistan. The XIV Corps in Ladakh (the northwest border region of Jammu and Kashmir) is also reinforced with troops from the IV Corps in Assam. Pakistan responds by deploying the I Corps to the Line of Control, reinforced by the II, IV and X Corps from Punjab, as well as the V Corps from Karachi to the Sindh border. The Indian Navy is deployed about 50 nautical miles off Karachi Port to conduct stop and search vessels in and out of the port under the auspices of monitoring terrorist travel movements, which results in major disruption to port operations and the inflow of essential goods. Both sides hold a stand off position for several months as they did in 2002

before eventually withdrawing.

**Commercial consequences:** The principal commercial impact of this scenario concerns the delays to cargo caused by the disruption to Karachi Port, which handles about 60% of Pakistan's cargo, around 110,000 tonnes per day. Key supplies such as food products and oil would likely be disrupted for days and further exacerbating domestic shortages of these goods, resulting in higher prices and a probable increase in civil unrest in Pakistan's major cities.

**Scenario 5: Limited war - limited air/special forces strikes against militant camps in Pakistan-administered Kashmir.**

**Probability score: 60%** (A possible course of action, particularly if conducted on a scale that would be within the capabilities of Indian forces currently deployed in Kashmir to mount with minimal, if any, reinforcement or readily detectable military preparations.)

**Scenario description:** In the midst of ongoing diplomatic confrontation between India and Pakistan and investigations into the Mumbai attacks, Islamist militants stage another major terrorist attack (similar to Mumbai) on Delhi, targeting major tourist and entertainment venues in the Connaught Place area, resulting in significant structural damage and human casualties. India is convinced these attacks were again carried out by Pakistan-based groups and the government decides to take military action against Pakistan. The Indian Air Force launches a surprise attack on militant camps in Muzaffarabad and other areas in Pakistan-administered Kashmir, using a combination of precision-guided munitions: including the Brahmos cruise missiles, fast jets such as Mig-27s and Su-30s, Commandos, who have become part of the Special Forces trained to carry as well as landing para commandos using Hind and Hip helicopters and troops from the four Parachute Commandos. Pakistan responds by deploying troops to the Line of Control, along which large-scale cross-border artillery fire break out. India makes the limited nature of its operations clear to Pakistan, either directly or through a third party (such as the US). The Pakistani Air Force

also launches a small number of F-16s to stage strikes on selected infrastructure and urban targets in Indian-administered Kashmir, including dams and Srinagar airport, but these attacks quickly end, due attrition inflicted by India's superior air defence system. Both India and Pakistan refrain from conducting strikes on targets outside their respective Kashmir territories to prevent a further escalation, especially since the Indian Air Force has by now achieved its main strategic aim of destroying the targeted militant camps and begins to scale down its operations. Cross-border artillery fire continues for a few days across the Line of Control before a ceasefire is declared by both sides.

**Commercial consequences:** Indian airstrikes would be unlikely to target non-hostile assets in Pakistan-administered Kashmir, but nonetheless pose a substantial threat of collateral damage to surrounding infrastructure, such as the Mangla Dam and the 132KV Jagran-Muzaffarabad power transmission line. There would also likely be some civilian casualties and damage to property resulting from airstrikes on Muzaffarabad, where most provincial government offices are located. Retaliatory airstrikes by Pakistan would likely target hydropower dams closer to the Pakistan border in Jammu and Kashmir, including Sewa-II. Strikes on Srinagar would likely cause significant damage to the airport, railway and road networks, thereby posing substantial risks to cargo.

**Scenario 6: Full-scale war - all-out invasion of Pakistan by India, aimed at neutralising Pakistan's military capability.**

**Probability score: 20%** (Improbable, high-risk course of action that the Indian government would find difficult to justify as proportionate to the terrorist threat and for which political and military indicators, including mobilisation and major redeployments, would likely provide at least one month's warning)

**Scenario description:** In response to Pakistani airstrikes on Indian-administered Kashmir, India steps up its own airstrikes on Pakistan, expanding its target selection southward from

Pakistan-administered Kashmir to Muridke, about 50km north of Lahore, where the Markaz-ad-Dawa-wal-Irshad, the political wing of the Lashkar-e-Toiba, is headquartered. This is a Corps-led operation, with a combined armoured division spearheading the attack across the border northwest of Amritsar, supported by fast jets and a brigade-sized air landing operation at Muridke itself. Armoured forces then advance to secure a bridge-head around Muridke, where the Pakistani Army IV Corps from Lahore engages the Indian troops. India then stages a surprise attack in an attempt to neutralise Pakistan's military capability by crossing over River Indus at Sukkur, which straddles the major road junction connecting the Hyderabad-Lahore highway and the northwest road through the Bolan Pass to Quetta. India's main objective here is to capture Jacobabad, about 80km to the northwest, which, if successful, would split the lower Indus Valley, thereby also cutting Karachi from the upper Indus Valley, including Multan up to Islamabad. The XII Corp's immediate objective though is to capture the Indus bridges at Rohri and Sukkur, using one of its infantry divisions, and a combination of Hip and Hind helicopters, protected by fast jets. A subsidiary advance, led by the XXI Corps from Bhopal, is aimed at protecting the left flank of the XII Corps and to cut off Hyderabad. The XII Corps' right flank is protected by a combination of air and a diversionary ground advance by the X Corps towards the town of Bahalapur. India reinforces the ground invasion through a blockade of Karachi port by the Indian Navy, which paralyse Pakistan's economy. India successfully defeats the Pakistani First Armoured Division at Multan and the V Corps from Karachi, and manages to capture Sindh. The Pakistan Army holds position at Quetta and Rawalpindi and responds to the Indian invasion by launching missile strikes on key urban, military and infrastructure targets in India, mainly using its medium and long-range ballistic missiles (armed with conventional warheads) including the Shaheen-I and II, Ghauri-I and II to strike beyond Delhi and Mumbai.

**Commercial consequences:** In the event of full-scale war, an Indian invasion would almost definitely result in a comprehensive shut-down of

the Pakistani economy. In terms of infrastructural damage, the following assets would face the greatest risk of targeted attacks, collateral damage or blockades:

- Railways: national passenger and cargo networks connecting Lahore, Multan, Sukkur and Karachi
- Roads: N-5 (Karachi-Hyderabad-Lahore-Islamabad) and N-55 (Karachi-Dera Ismail Khan-Peshawar) national highways; M-9 (Karachi-Hyderabad) motorway
- Airports: Lahore and Karachi international airports
- Energy: petroleum refinery and storage facilities in Karachi, Khalifa, Enar and Attock, which in total account for 75% of Pakistan's oil supply
- Power: power generation and transmission facilities in the Lahore, Multan, Faisalabad, Hyderabad and Karachi sectors; nuclear reactors in Kahuta, Golra, Karachi and Chasma
- Industrial: factories and industrial plants providing equipment to the Pakistan Army, including cars, steel, ordnance, heavy electrical works and defence technology
- Marine: Karachi Port

The main Indian targets for Pakistani missile strikes would likely include the following:

- Railways: national passenger and cargo networks connecting Delhi, Srinagar, Jaipur and Mumbai
- Roads: National Highways 1 (Delhi-Chandigarh), 1A (Jammu-Srinagar-Uri), 15 (Kandla-Amritsar), 8 and 3 (Delhi-Udaipur-Mumbai and Delhi-Kanpur-Mumbai respectively)
- Airports: Delhi, Mumbai, Ahmedabad, Jaipur international airports
- Energy: major petroleum refineries in Jamnagar, Koyali, Panipat and Mathura; nuclear facilities such as the Bhabha Atomic Research Centre (Mumbai), Tarapur (Maharashtra), Kota (Rajasthan) and Kakrapur (Gujarat); Bombay High Offshore Rig (one of India's few producing wells accounting for 5% of India's oil supply)
- Power: major hydropower stations,

- including Bhakra Nangal, Baglihar, Salal, Narora, Kota Barrage and Chamera
- Marine: Kandla and Mumbai Port
- Urban: Delhi and Mumbai, including the Bombay Stock Exchange and National Stock Exchange (as a last resort, before nuclear release)

Even in this phase of intense pre-nuclear conventional fighting, Pakistan will be careful not to send signals of nuclear use, which likely precludes conventional air missile strikes which (until the missile lands) might be confused as nuclear strikes.

### **Scenario 7: Limited tactical nuclear weapon deployment.**

**Probability score: <1%** (Highly improbable, but the probability would increase in the event of full-scale war, or the perception by Pakistan that India is irreversibly committed to all-out war. Likely warning time might be only a few days after India has crossed the border, plus a period (at least a week) of international diplomatic activity, led by the US.)

**Scenario description:** Following a full Indian ground invasion of Punjab and Sindh, Pakistan launches a tactical nuclear release against Indian troop concentrations in Sindh and Punjab (providing that Indian troops are able to cross some obstacles, such as the double canals that line sections of the India-Pakistan border), carried out by one mobile nuclear-capable ballistic missile.

**Commercial consequences:** Assuming a 20-kiloton payload and Jodhpur as the principal strike target, our probable maximum loss modelling of the nuclear release would result in a 5km blast radius, 3.2km fatality radius and 4km initial radiation radius, based on fixed variables of an optimal altitude for blast and 45mph wind. However, first use targets would be exclusively about the Indian military.

### **Scenario 8: General nuclear release.**

**Probability score: 0.01%** (A very remote possibility given Indian conventional military

superiority and the improbability of an all-out Indian attack that we would expect to precede nuclear escalation.)

**Scenario description:** Following the Pakistan first use of a tactical nuclear weapon against Indian ground forces, India replies with a large scale second strike against mainly military and defence industrial related targets in Pakistan. India uses a mix of tactical ballistic missiles and fighter bomber aircraft to deliver 15 nuclear weapons against 12 targets. Prithvi and Agni missiles are employed to deliver 10 weapons to more heavily defended sites and Mirage 2000 aircraft the remaining five. The Indian aim is the destruction, where possible, of the Pakistan military strategic capability, its defence military industry and in particular nuclear research and production facilities. This Indian first strike is not aimed at population areas, although a probable Pakistan retaliation strike is highly likely to escalate to major cities in India followed by an India strike against Pakistan. Some military target areas, such as the Pakistani Navy base in Karachi, will suffer considerable collateral damage even when scaled tactical nuclear weapons are employed. Other sites such as the nuclear research plant at Kushab are geographically remote and would involve a lesser degree of surrounding damage. Given the concentration of military and nuclear related sites in the vicinity of Islamabad there is likely to be substantial damage to non-military structures and population. Pakistan, with their remaining nuclear capability, will see any large Indian nuclear attack as an immediate danger to national survival and strike back at the heart of the Indian population in an attempt to sue for peace. The big five cities of Bangalore, Mumbai, Delhi, Chennai and Kolkata are major targets with one or two weapons allocated to each for maximum effect. Deaths could reach in excess of two million in India and slightly less in Pakistan due to population density differences; injuries are on a similar scale.

***This scenario is highly unlikely even if Pakistan deploys a tactical nuclear weapon in a first strike. It is more likely that an Indian nuclear response to the use of a tactical nuclear weapon by Pakistan would***

***be limited to the targeting of a remote military installation or militant training camp (limiting collateral damage) to avoid provoking an escalated Pakistani retaliation while nonetheless responding. We have not modelled this alternative scenario as its probability is very low and the impact would not be significantly greater than for Scenario 7.***

**Commercial consequences:** In any large scale nuclear exchange that involves major centres of population, but even more so in extremely densely populated areas of India and Pakistan, the outcome can only be described as catastrophic. If the nuclear exchange were to be allowed to play out to the final attack against major cities on both sides, not only would there be the extreme and longstanding economic consequences for the two nations but on the economy of all those nations that rely on India and Pakistan for a whole range of trade products. Recovery would be measured in tens of years in the areas of attack and on the degree of residual radiation.

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