



SHEDDEN PAPERS

India's Military Modernisation – What Does It Mean For Australia?

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Abstract

This paper analyses the capabilities that India's military modernisation program intends to acquire by 2025, and assesses the impact of these options on Australia's security interests in the Indian Ocean. It contends that a number of scenarios are possible for the use of India's military, dependent on the degree to which India's ambitious modernisation plans are realised.

It assesses that a modern Indian military, capable of projecting force into the Indian Ocean in line with India's national objectives, has the potential to contribute to the achievement of Australian national objectives, particularly related to the security of trade routes. Moreover, should India's modernisation efforts result in heightened Sino-Indian tensions in the maritime environment, the paper concludes that Australia is well credentialed—because of its growing bilateral relationship with both nations—to put itself forward as a concerned and trusted interlocutor.

India's Military Modernisation – What Does It Mean For Australia?

The fact is that we cannot realise our growth ambitions unless we ensure peace and stability in South Asia.

Indian Prime Minister Manmohan Singh, September 2010¹

Introduction

The 'Asian Century' is a term in broad usage by Australian politicians and academics to characterise the presumed economic dominance of the ascendant and established major powers of the Asian region during the 21st century.² The standout performer to date has been China which, in keeping with being a major power on the world stage, is expressing itself through all elements of its national power.³ It is currently ranked as the world's second-largest economy, with forecasts it will displace the US within the coming decade. It has chosen, in part, to commit the proceeds of its economic success to a significant and comprehensive modernisation and role expansion of its military. This decision has commentators questioning its underlying strategic rationale.⁴

Concurrently, in South Asia, India has also enjoyed a period of sustained growth fuelled by economic success. During the period 2003-12, India's GDP growth rate averaged 7.8 per cent per year,⁵ compared with 9.4 per cent for China during the same period.⁶ While the Indian economic rate of growth has slowed to 5.0 per cent

¹ Quoted in Ashok Behuria, Smruti Pattanaik and Arvind Gupta, 'Does India Have a Neighbourhood Policy?', *Strategic Analysis*, Vol. 36, No. 2, 2012, p. 230.

² Editor's note: this paper pre-dates the election of the Abbott Government in September 2013, whereupon the previous government's 'Australia in the Asian Century' website was archived.

³ Under the 'DIME' analytic framework of national power as applied at the Australian Defence College's CDSS, these elements are diplomacy, identity, military and economy.

⁴ Various commentators have assessed its military expansion as either a natural by-product of a burgeoning economy or worrisome militarisation with no obvious stimulus. See, for example, George Gilboy and Eric Heginbotham, *Chinese and Indian Strategic Behavior: growing power and alarm*, Cambridge, Cambridge University Press (Kindle edition), 2012, loc. 3194.

⁵ 'India GDP Annual Growth Rate', available at <<http://www.tradingeconomics.com/india/gdp-growth-annual/>>, accessed 12 June 2013.

⁶ 'China GDP Annual Growth Rate', available at <<http://www.tradingeconomics.com/china/gdp-growth-annual/>>, accessed 12 June 2013.

for the 2012-13 financial year,⁷ the government has chosen to sustain its commitment to a path of military modernisation. As a democratic state with apparently transparent strategic ambitions, this modernisation has not received the same critical scrutiny as is levelled at China, as it does not invoke the same alarm as to its underlying agenda.⁸

There are strong similarities between the rise of China and that of India. Both have regional leadership aspirations and are developing relationships with the US. Both are populous nations experiencing strong economic growth and both are choosing to invest heavily in military modernisation and expansion, at rates reflecting their economic rates of growth. They have ongoing disputes over unresolved land borders and are both heavily reliant on the shipment of goods and energy resources via the sea-lanes that cross the Indian Ocean.

As Australia's national policy statements begin to acknowledge an Indo-Pacific region, Indian motivations and intentions with respect to its economically-fuelled military modernisation and expansion will become an increasingly important consideration for Australian policy makers.⁹ This phenomenon may have indirect and direct impact on Australia. Indirectly, as India's military rise is assessed by China and other regional states, they in turn may respond by shaping their foreign policy and military modernisation in a manner that reflects their assessment of how to counter India. Directly, Australia may be influenced in the way in which it interacts with India and mutual partners in crafting policies to promote a stable Indo-Pacific strategic neighbourhood.

This paper will analyse the capabilities that India's military modernisation program intends to acquire by 2025, and assess the impact on Australia's Indian Ocean security interests of India's military modernisation. From this analysis, it will contend that a number of scenarios are possible for the use of India's military, dependent on the degree to which India's ambitious modernisation plans are realised. It will argue that while Australia will continue to have a vested interest in Indian Ocean regional stability, it will retain significant freedom of action as to how it responds to any emergent regional tensions and India's expanded regional role.

⁷ 'India GDP Annual Growth Rate', available at, <<http://www.tradingeconomics.com/india/gdp-growth-annual/>> accessed 12 June 2013.

⁸ Gilboy and Heginbotham, *Chinese and Indian Strategic Behavior*.

⁹ Department of Defence, *Defence White Paper 2013*, Canberra, Australian Government, 2013, p. 7.

First, the paper will situate India and define the 'Indian Ocean region' before briefly summarising the evolution of India's political strategy since it began its path towards independence in 1947.¹⁰ Second, it will summarise the historical development of India's military forces, mapped onto the country's stages of political development. Third, the contemporary strategic and cultural drivers impacting on the further development of India's military forces will be briefly outlined. It will then summarise the key capabilities that will likely transform the Indian Defence Force by 2025. These will be analysed to determine the potential level of capability they will represent. The paper will then analyse the strategic options the modernised Indian military offers to its government, and assess the impact of these options on Australia's security interests in the Indian Ocean region.

The Indian Ocean region and Indian political strategy since independence

India and the Indian Ocean region

The Indian state occupies a peninsular landmass which bisects and juts into the Indian Ocean, forming approximately 7700 kilometres of its northern shoreline.¹¹ To its southeast lies the island nation of Sri Lanka. India shares land borders with six countries. To the west, it is bordered by Pakistan.¹² To the northwest and northeast, it borders China, with Nepal and Bhutan lying between the two Sino-Indian frontiers. To the east, India encloses Bangladesh and is bounded by Myanmar. Indian offshore territories include the Lakshadweep Islands in the Arabian Sea, and the Andaman and Nicobar Islands, northwest of the Indonesian island of Sumatra.

¹⁰ India became an independent dominion in 1947. It became fully independent when it instituted its own constitution on 26 January 1950.

¹¹ Central Intelligence Agency, 'The World Factbook', available at <<https://www.cia.gov/library/publications/the-world-factbook>>, accessed 17 May 2013.

¹² Some maps indicate a short frontier with Afghanistan. These feature primarily in Indian literature and presume the Pakistan-administered province of Jammu and Kashmir is included in the Indian state.



Figure 1: India and bordering states¹³

This paper defines the Indian Ocean region (IOR) as bounded to the west by the Straits of Hormuz and a boundary extending southward along the eastern Arabian Peninsula and thence south along the east African coast; the Straits of Malacca and a boundary including the Indonesian archipelago, thence southward along the western Australian coast mark the eastern extremity. Setting these boundaries thereby includes the principal sea lines of communication (SLOCs) traversing the Indian Ocean. In 2012, these SLOCs transported two-thirds of the world's sea-borne trade in oil, including the majority of China's requirements.¹⁴ For this reason, the

¹³ Map of India, available at <<http://www.geographicguide.com/asia/maps/india.htm>>, accessed 28 June 2013.

¹⁴ Sergei DeSilva-Ranasinghe, 'Fact Sheet: the Indian Ocean region and Australia's national interests', available at <www.futuredirections.org/files/sap/may/FDI_Strategic_Analysis_Paper_-_29_May_2012_Fact_Sheet_-_The_Indian_Ocean_Region_and_Australias_National_Interests_1.pdf>, accessed 22 March 2013.

SLOCs have become a contemporary shaper of Indian strategic thinking and a potential focus of contention between powers reliant on unfettered access to them. The northern regional boundary is taken to be the Indian Ocean’s northern coastline extending between the eastern and western straits’ boundaries. The southern boundary is not clearly geographically marked; rather, it is taken to be the southerly extent of the SLOCs traversing the ocean.¹⁵

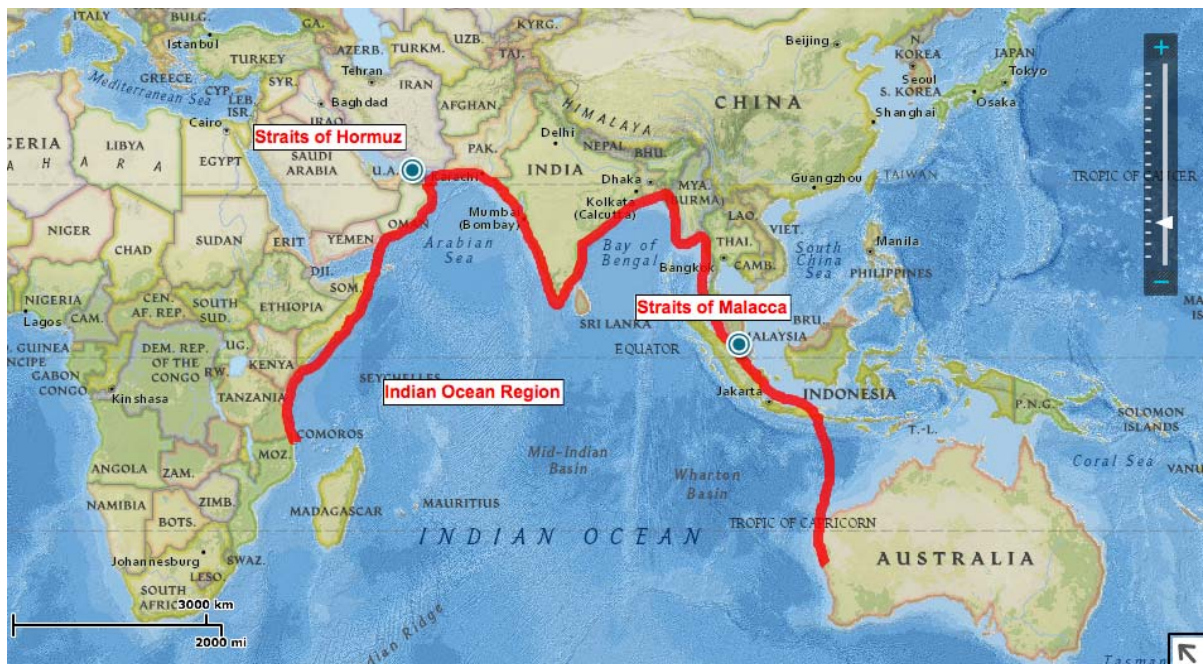


Figure 2: Indian Ocean Region¹⁶

Evolution of Indian political strategy

Independence. India emerged from British rule as an independent nation in 1950 and retained a democratic political framework supported by a robust bureaucracy. After its protracted period of colonial subjugation, it undertook to retain freedom of action to pursue its national interests by declaring itself ‘non-aligned’. This stance was taken in part to avoid being co-opted into either of the power blocs then emerging as the world order coalesced into the bipolar Cold War dominated by two superpowers.

¹⁵ There is no universally agreed definition of the Indian Ocean region. Some Indian commentators, especially those advocating naval regional primacy, set the southern extremity as far south as the Antarctic coast.

¹⁶ Sourced from National Geographic website, available at <http://education.nationalgeographic.com/education/mapping/interactive-map/?ar_a=1>, accessed 14 May 2013.

Non-alignment. The Non-Aligned Movement (NAM), of which India was a founding member in 1961, gave formal expression to its desire to retain strategic autonomy to chart a course not beholden to either of the Cold War power blocs. While the movement still exists, the end of the Cold War and collapse of the Soviet Union in 1991 made its initial rationale redundant. Given its appeal to developing nations, the NAM exists today as an advocate of multi-polarity. It provides a forum for the discussion and progression of the development objectives of member nations. India remains a member state.

As the Cold War wore on, India discovered that non-alignment did not preclude developments in the world order inimical to its national interests. With China and Pakistan seen as enduring and proximate threats, with wars fought against the former in 1962 and against the latter in 1948, 1965 and 1971, the positive overtures made by the US towards these states during the Cold War gave India cause for alarm. Its response was a leaning toward the USSR to meet its needs for military materiel. However, it stopped short of formalising membership of the Soviet bloc. In 1971, India and the USSR signed a Treaty of Peace, Friendship and Co-operation. This did not commit either signatory to military assistance to the other. At Article IV of the treaty, the USSR explicitly recognised India's policy of non-alignment.¹⁷

Strategic autonomy. As India has evolved from a developing nation to one with its own aspirations of major regional and global standing, it has effectively outgrown the need for the NAM as it was originally conceived. Rather, the language it uses to express its foreign policy has adopted the term 'strategic autonomy'. While still eschewing membership of power blocs, this policy advocates a strategic freedom to seek out and forge non-binding relationships with nations as and when required to progress its national interests. However, a close relationship endured with the Soviet Union, thence Russia, in large part to ensure continued reliable access to military hardware.

With the end of the Cold War and ensuing upheaval as the Soviet Union disintegrated, India perceived the loss of a reliable strategic partner for the supply of military hardware and political support in international forums. The impact was compounded by the concurrent 1991 Indian domestic economic crisis which forced it

¹⁷ Praveen K. Chaudry and Marta Vanduzer-Snow (eds.), *The United States and India: a history through archives*, Vol. 1, New Delhi, Sage Publications, 2011, p. 7.

to fundamentally review its economic strategy. Adopting a more liberal and market-oriented approach, and seeking greater foreign direct investment from the West and from East Asia, served to broaden India's engagement with non-traditional partners.¹⁸

Although the environment had been created for rapprochement with the US, it did not initially seize the opportunity to engage, due to ongoing disagreements, including—notably—the Indian nuclear tests of 1998. India's public and empathetic response to the terror attacks of 11 September 2001 provided the catalyst for engagement, which proceeded in earnest during George W. Bush's presidency. The incentive offered to India was US sanctioning of its nuclear status without compelling it to join binding conventions designed to contain nuclear proliferation. In this manner, the US warmed to a nation with shared concerns regarding China's rise, while India increased its sense of importance on the world stage and continued its civil and military nuclear programs with relative impunity.¹⁹

Engagement. While exhibiting a preference for bilateral non-binding international engagement, the presence of regional multinational forums addressing issues of concern to India has encouraged reconsideration of the way in which they are viewed. In particular, regional groupings including the economic and security-focused ASEAN and development-focused SAARC (South Asian Association for Regional Cooperation) provide India with forums for engagement in matters of national interest. Given India's preponderant demographic, economic and military size among other nations in these forums, it also introduces the prospect of India assuming a position of prominence and influence. Through engagement, it seeks to realise its ambition as the recognised pre-eminent power of the Indian Ocean region. This implies pre-eminence across the spectrum of the elements of national power, including the military.

¹⁸ C. Raja Mohan, *Samudra Manthan: Sino-Indian rivalry in the Indo-Pacific*, Washington DC, Carnegie Endowment for International Peace (Kindle edition), 2012, loc. 3962.

¹⁹ K. Alan Kronstadt, *US-India Bilateral Agreements in 2005*, Washington DC, Congressional Research Service, 8 September 2005, pp. 1-2.

Historical development of India's armed forces

At the time of independence, India's 'Nehruvian' values of international cooperation and non-alignment resulted in a downplaying of the significance of the military as an element of national power.²⁰ Eschewing joining either of the Cold War blocs, India's forces were committed to the maintenance of peace along the Pakistan border after 'Partition'.²¹ It was the shock of defeat by the Chinese in 1962 that provided the first impetus to focus on developing an effective military. The impetus was sustained by the 1965 and 1971 wars with Pakistan, which resulted in a preponderant allocation of the defence budget to the army. With the prospect of conventional warfare along a land frontier, this was unsurprising.²²

India's army continues to attract the largest percentage of the budget, as shown at Figure 3. However, the share of the other services has risen significantly in recent years. Given the high cost of the sophisticated equipment required to deliver air and naval capability, this shift in apportionment is unsurprising. The roles of these services have long been recognised, albeit funding has previously constrained their ability to achieve their full potential. Indian naval assets have successfully blockaded Pakistan's ports during conflicts between the nations. The failure to launch air force sorties in support of the army during India's humiliating defeat by the Chinese in 1962 highlighted, through its absence, the efficacy of air power.²³

²⁰ David Brewster, 'Indian Strategic Thinking About East Asia', *Journal of Strategic Studies*, Vol. 34, No. 6, 2011, p. 827.

²¹ 'Partition' refers to creation of the states of India, East and West Pakistan at the end of British colonial rule of the Indian sub-continent.

²² Brewster, 'Indian Strategic Thinking About East Asia',

²³ Stephen Cohen and Sunil Dasgupta, *Arming Without Aiming: India's military modernization*, Washington DC, Brookings Institution Press (Kindle edition), 2010, loc. 1620.

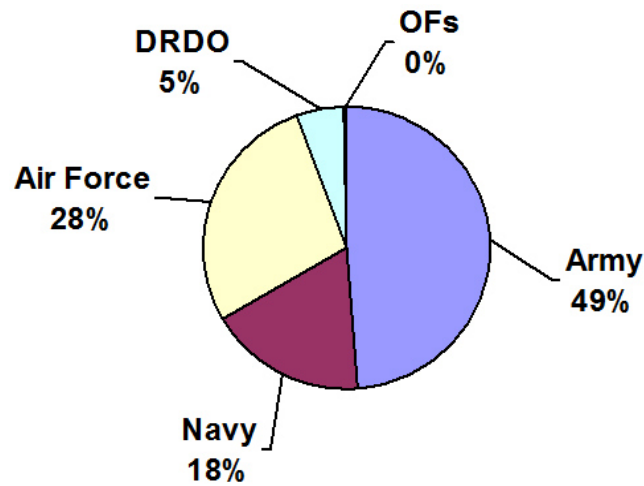


Figure 3: Apportionment of India's defence budget between major force elements in 2013-14²⁴

The conflict with China also highlighted an inherent and ongoing weakness in the command and control of India's armed forces, particularly the lack of structures to coordinate the forces of the individual services to achieve best effect. Despite rhetoric, and the establishment of structures labelled 'joint' and 'integrated', India has failed to realise the force multiplier effects of 'jointery' as it is understood by Western militaries. Commentators have observed this arrangement perhaps suits the Indian civilian defence bureaucracy, which enjoys a position of power over the military. It would perhaps find this more difficult to maintain were the services to be united under a joint structure that put a compelling case for integrated force modernisation, and command and control.

While India's status as a non-aligned state eschewed choosing sides in the Cold War, its need for an arms supplier presented a simple choice. Access to US systems had proved unreliable after the US refused assistance to India during its conflicts with China and Pakistan, in 1962 and 1965, respectively. This drove India towards a reliance on the USSR. While not being drawn into the Soviet Union's bloc, even after signing the Treaty of Peace, Friendship and Co-operation in 1971, the USSR remained the largest supplier of military materiel to India until its breakup at the end of the Cold War. Since then, and precipitated in part by its unreliability as a

²⁴ Laxman Behera, 'India's Defence Budget 2013-14: a bumpy road ahead', available at <http://www.idsa.in/idsacomments/IndiasDefenceBudget2013-14_lkbehera_040313>, accessed 5 May 2013.

supplier in the immediate aftermath, and the demonstrated inferiority of Russian equipment to Western systems on the battlefield, India has broadened its military materiel supplier base. However, Russia remains its primary supplier, accounting for 73 per cent of imports in 2012.²⁵ France and Israel have both won substantial contracts, in part due to their willingness to satisfy technology transfer, offset and licensing requirements, thereby strengthening India's indigenous military industrial base. More recently, the US has participated in and won significant contracts. While the technology transfer and production opportunities are much reduced from the US, these procurements will provide India access to leading-edge Western solutions and demonstrate its willingness to work alongside the US.

While India's military development continues to be strongly influenced by the threats it sees from Pakistan, and to a growing degree from China, its broadening technology base and the actions of perceived potential aggressors are shaping the path of modernisation. China is developing 'blue water' naval capabilities and venturing into the Indian Ocean, which India sees as its natural sphere of influence. The response of the Indian Navy has been to seek to expand its own high seas capabilities. The nuclearisation of the Pakistan frontier has given rise to the army's 'Cold Start' doctrine, as discussed later. This continues to influence the capabilities required to ensure stability along this frontier. The ongoing tensions along two land frontiers have given rise to the 'Two Front War' concept, also discussed later. A force structure embodying the attributes of mobility and flexibility is being driven by this concept.

In addition to traditional military threats, the development and modernisation of the Indian military has and is also being influenced by a number of broad cultural and strategic drivers. These occupy a higher priority in national political planning than consideration of the military. While the military has yet to be fully appreciated for its role as an instrument of national power, it is understood as an element of national prestige.²⁶ With appropriate management, and mindful of the broader drivers, modernisation can be steered towards achieving both military effectiveness and national prestige outcomes.

²⁵ Jane's, *Defence Budget, India*, London, Jane's, 2013, p. 3.

²⁶ In the Lowy Institute's 2013 India Poll, 95 per cent of respondents considered a strong military a 'very important' instrument of foreign policy. See Rory Medcalf, *India Poll 2013*, Sydney, Lowy Institute for International Policy, 2013, p. 7.

Contemporary strategic and cultural drivers

As the second most populous nation on earth, and the largest democracy, India is tested by the full spectrum of political challenges, of which security issues are but one. Given its geography and the diverse ethnic composition of the population, there are also multiple challenges for Indian officials within the security arena. While commentators and politicians dispute the hierarchy of priorities, the security threats can broadly be seen as most serious domestically, then decreasing in urgency with distance from sovereign territory. In this regard, India is like most nations. However, its domestic security challenges are more significant than for most democratic states. Similarly, the proximity of nations with perceived inimical intent escalates the urgency of consideration of interstate security issues.

Domestic insurgency and terrorism

India faces an ongoing Maoist insurgency, known as the Naxalite movement, born of discontent in a perceived disproportional distribution of wealth. Concentrated in impoverished but resource rich states, the movement has spread to affect a swathe of states, with the greatest activity in a band along the eastern peninsular flank of the country. The military does not have an active role in combating this and other domestic insurgencies.²⁷ India has developed paramilitary forces, similar in size to its standing army, to counter the insurgents. While the army has been co-opted to assist in developing their capabilities, in part the paramilitary forces were created to permit the army to concentrate on its core role of defence of the nation against external aggressors. However, as anti-terrorist capability is a core skill of the military's special forces, the military does have the capacity to contribute to any domestic anti-terror response.

External threats

The relative priority accorded to external threats perceived by India varies, subject to among other considerations, prevailing political foreign policy perspectives, the utility of 'talking up' the threat in support of political agendas, and the emergence of incidents which draw focus to a potential flashpoint. As stated earlier, and as will be

²⁷ Insurgents are also occasionally active in the Kashmir Valley, in the country's northwest, and also in some northeastern states, where the driving ideology is separatism.

seen in the later discussion detailing India's modernisation programs, India perceives two states as its most likely potential threats.

Pakistan has been seen as the threat laying to the west since the nation's creation at the time of partition in 1947. Rooted in complex issues beyond the scope of this paper, mutual antipathy—deriving largely from religious differences—has evolved to the contemporary situation. Large military forces occupy positions along a substantially-agreed frontier, with the exception of the disputed control of the Kashmir region in India's northwest. Lacking strategic depth, Pakistan has articulated a military strategy which countenances the use of tactical nuclear weapons should it feel an existential threat.²⁸ India, with overmatch in conventional forces, advocates a strategy of the use of rapid, surgically-targeted force but only in retaliation to Pakistani perpetrated or sponsored hostile acts. It reasons this strategy will keep any conflict below the nuclear threshold.

With the Pakistan standoff reasonably well understood and accepted by both protagonists, China is emerging as a more vexing security issue for India. With unresolved land frontier claims along India's northwest and northeast frontiers, and with growing Chinese military capability deployed in the region, including naval capability able to deploy into the Indian Ocean, India feels increasingly uneasy concerning the capabilities and intentions of its northern neighbour. While China protests the perceived containment strategy of the US against it, India increasingly feels encircled by Chinese capability and influence. China is supplanting Pakistan as the primary external security concern.²⁹

Rising India /resurgent China

The Indian wariness of China is complicated by India's self-image. Both nations see themselves as the natural predominant power in their spheres of influence. Tension is almost certain to arise where the boundaries of those spheres are not clearly delineated and agreed. Apart from the aforementioned land frontier disputes,

²⁸ Lack of 'strategic depth' refers to Pakistan's shape. It has an oblong shape, with a long eastern frontier with India, but a much smaller east-west extent. This heightens Pakistan's sense of strategic vulnerability, as it sets the maximum distance at which Pakistani forces can shelter from Indian offensive capabilities.

²⁹ Sunil Khilnani, Rajiv Kumar, Pratap Bhanu Mehta, Prakash Menon, Nandan Nilekani, Srinath Raghavan, Shyam Saran, and Siddharth Varadarajan, *Nonalignment 2.0: a foreign and strategic policy for India in the 21st century*, New Delhi, Centre for Policy Research, 2012, p. 13.

China's economic success relies on the supply of energy resources that must currently cross the Indian Ocean, a key part of India's perceived sphere of regional pre-eminence. India's blue water naval ambitions are likely to cause the Chinese unease regarding security of supply via Indian Ocean SLOCs.

Indian Defence Force (IDF) capability development

Capability development constraints

Fiscal environment

Set against ambitious plans for force modernisation to counter multiple perceived threats is the fiscal reality that India's economic growth has faltered. The country's predicted economic growth for the 2013-14 financial year, beginning 1 April, is approximately 5 per cent, the lowest in a decade after peaking at 9.3 per cent in 2010-11.³⁰ The defence budget for 2013-14 has been set at US\$37.45 billion.³¹ While this represents a 5.2 per cent increase from the preceding year, it has nevertheless fallen from 1.9 to 1.79 per cent of GDP. By comparison, the 2012-13 budget had risen 17 per cent on the previous year, which in turn had seen a 12 per cent increase compared to 2010-11.

Of the 2013-14 budget, approximately US\$16 billion is earmarked for capital procurement. However, with inflation of around 6 per cent, the dollar increase is largely negated.³² With approximately one half of the budget increase allocated in 2012-13 having been absorbed by rising personnel costs,³³ it can be expected a similar impact will be felt on the current budget bottom line, further eroding funds available outside the capital equipment and personnel cost allocations.

³⁰ Behera, 'India's Defence Budget 2013-14'.

³¹ The declared Indian defence budget normally excludes some costs, including pensions and Ministry of Defence running costs. Funding for the nuclear and missile programmes are also excluded as these are funded through the Departments of Atomic Energy, and Space, respectively.

³² Agence France-Presse, 'India Reins in Defense Spending', available at <<http://dawn.com/2013/02/28/india-hikes-defence-spending-by-5-per-cent/>>, accessed 4 May 2013.

³³ Peter Layton, 'New Directions for Indian Defence', *Defence Today*, Vol. 9, No. 5, June 2012, p. 34.

Defence bureaucracy shortcomings

The IDF's modernisation plans are not aided by a bureaucracy that has a history of falling chronically behind schedule in source selection, contract negotiation and capability delivery. With the scandal surrounding the award of a contract for artillery systems to Bofors in the 1980s still cited as an example of political corruption in Indian defence procurement, the response of subsequent governments has been to exhibit a preference for a protracted selection and acquisition process in the belief that time equates to transparency and purity of process. These shortcomings combine to result in a tendency to hand back unspent capital procurement funds at the end of financial years, which further disinclines government financial commitments to an organisation with a history of failing to spend on directed capability acquisitions.

Indigenous development

In line with the national policy of strategic autonomy, and with a view to developing export potential, there is a drive towards indigenous capability development. However, the performance of the organisation charged with this in the defence arena, the Defence Research and Development Organisation (DRDO), is at best average. While it has achieved some success with the strategically important indigenously-designed ballistic and cruise missiles, its past performance with other combat systems has been poor.³⁴ Therefore, while funding continues to be directed toward indigenous programs such as the light combat aircraft (known as 'Tejas') and the Arjun tank, these projects have typically been subject to protracted cost and schedule overruns, and have not been delivered with the expected levels of capability. Taken together, these impacts have further reduced funds available to field combat capability and eroded fielded capability, as ageing systems must be retained in service while awaiting the maturation of developmental projects.

Indian Air Force (IAF)

The IAF is undergoing significant force modernisation, underpinned by the strategy of supporting a 'two front war'. Recognising the possibility of concurrent attacks by Pakistan in the west and China in the northeast, this strategy requires capabilities

³⁴ Cohen and Dasgupta, *Arming Without Aiming*, loc. 704.

which deliver the qualitative and/or numerical superiority to hold one threat at bay while dealing with the other, then redeploying to repel the second threat. The distance between the two potential conflict zones dictates a sizeable force with an ability to concentrate mass in response to emergent threats. It is also a strategy which gels with the Indian Army's strategic drivers. Concurrently, the IAF sees a role in contributing to the security of India's offshore interests, primarily operating from airfields located on the Andaman and Nicobar Islands chain.

Combat elements

Comprising approximately 500 front-line aircraft of Russian, French and British origin, the combat force is currently heavily depleted. It currently operates 29 squadrons, against an authorised strength of 39.5 squadrons.³⁵ Without remediation, this strength could reduce to 23 squadrons by 2022.³⁶ With the exception of the Su-30 MKI fleet, most operational aircraft require replacement or upgrade. Major modernisation initiatives focus on the replacement of Mig-21 aircraft acquired in the early 1970s with the indigenously-developed Tejas, and the upgrade of more contemporary types adjudged to have cost-effective life extension solutions. Upgrade programmes are being implemented across the fleets of Mirage 2000, Mig-29 and Jaguar aircraft in order to enhance combat capabilities and improve aircraft availability for operations. Concurrently, two acquisition programs are underway.

The first will acquire an additional 42 Su-30MKI multi-role combat aircraft, increasing to 272 the number of this type in IAF service by 2020.³⁷ Similar in performance and capability to derivatives fielded by China, these aircraft provide a qualitative match against China and a clear capability overmatch against Pakistani fighter aircraft.

Contract negotiations are underway for the acquisition of 126 French Rafale aircraft, selected in January 2012 as the preferred solution in the medium multi-role combat aircraft (MMRCA) competition. A program of this magnitude could take up to a decade to deliver all aircraft.³⁸ A multi-role aircraft which has featured in a number

³⁵ Cohen and Dasgupta, *Arming Without Aiming*, loc. 1855.

³⁶ Surya Gangadharan, 'Pros and Cons of a Two-Front War', Baraka Blog, IBN Live, 22 April 2013.

³⁷ Radhakrishna Rao, 'The Rapid Modernisation of the Indian Armed Forces', *Military Technology*, Vol. 36, No. 3, 2012, p. 31.

³⁸ Subject to timely conclusion of contract negotiations, Indian planning foresees the full Rafale fleet supplied by 2023. See Peter Layton, 'New Directions for Indian Defence'.

of recent procurement assessments by developed countries,³⁹ the Rafale is a contemporary fourth-generation aircraft.⁴⁰

As an additional element of the modernisation program, and acknowledging the fifth-generation aircraft development efforts of China, in late 2010 India committed to a co-development program with Russia. If realised, India plans to acquire between 200 and 250 of the resultant advanced stealth fifth-generation fighter aircraft (FGFA).⁴¹ The first prototype is planned for delivery in 2015, with series production not likely to commence before 2018. The collaborative nature of this program, drawing on proven Russian expertise in aircraft design, makes this timeline more feasible than were the aircraft to be an exclusively Indian initiative, although it remains highly ambitious.

The DRDO is currently developing India's next generation indigenous light combat aircraft, the Tejas. The program commenced in 1983 and has not yet produced an operationally fielded example. Driven by a desire to re-establish an indigenous design capability, this program has highlighted the difficulties India has experienced in progressing sophisticated weapon system projects. As at March 2012, only seven limited series production (pre-production test and development) aircraft had been produced, along with several prototypes. The initial naval prototype flew for the first time in 2012.⁴² While the current contract is for 40 aircraft to meet an initial IAF requirement, future development plans include installing a more powerful engine to develop an operational variant for Air Force, and development of a carrier-compatible variant for the Navy. If achieved, the aircraft is intended to mature into a light ground-attack aircraft, permitting retirement of Mig-21s currently undergoing life extension upgrades to maintain a credible capability, and complementing the more sophisticated combat aircraft already mentioned.⁴³

³⁹ The Rafale was beaten by the F-15 in recent acquisition selections by Singapore and South Korea. In both instances, politics and an overarching desire for compatibility with US systems are thought to have been selection considerations.

⁴⁰ The only operationally fielded aircraft designated as 'generation five' are the US' F-22 stealth fighters. These aircraft are not available for export. Therefore, the Rafale is among the most capable combat aircraft currently available.

⁴¹ Reports of the size of this acquisition range from 144 to 250 aircraft. Given the developmental nature of the aircraft, and India's current fiscal issues, it may be some time before a firm figure emerges.

⁴² 'Tejas Timeline', available at <<http://www.tejas.gov.in/history/timeline.html>>, accessed 5 May 2013.

⁴³ 'Tejas Timeline'.

Combat enablers

The combat forces are currently supported by six air-to-air refuelling (AAR) and three A-50 EI airborne early warning and control (AEWC) aircraft, the latter incorporating Israeli 'Phalcon' sensor technology. Three additional, smaller AEWC platforms, based on the Brazilian Embraer 145 airframe, are to be acquired.⁴⁴ Contract negotiations are underway for the procurement of an additional six AAR. These will be European-sourced A330 airframes, unlike the currently fielded Russian-sourced Ilyushin 78 aircraft, which entered service in 2003.⁴⁵ Given the relative newness of the latter, it can be anticipated the two types will remain in service together. Nascent plans envisage a complementary indigenous AEWC aircraft, although India's poor record in indigenous development of military systems makes this an ambitious and unreliable planning consideration for the 2025 force.

While the combat enablers represent modern solutions to these key support roles, the modest fleet sizes will continue to constrain the force multiplication capabilities they represent. The IAF also includes a sizeable air transport fleet, including both fixed wing and helicopter types. The assets and acquisitions will not be detailed here, as these capabilities serve primarily in direct support of the Army. It is noteworthy, however, that modernisation efforts have included acquisition of C-130J and C-17 airlifters from the US. These acquisitions provide the IAF a modest but modern strategic airlift capability. They represent the most recent and widely acquired aircraft for the roles they undertake, and reflect the growing willingness of the US to make these technologies available to India.

Ground infrastructure

Limitations in combat force enablers are being partially remediated by a program of upgrades to operating airfields. Concentrated in the west and northeast of the country, these improved facilities are intended to support deployments of combat aircraft, enabling more responsive support to the Army, thereby shortening reaction times. These airfields will also be able to support the full range of IAF airlift assets, improving resupply and reinforcement of ground forces. Upgrades to airfields on

⁴⁴ International Institute for Strategic Studies (IISS), *The Military Balance*, London, IISS, 14 March 2013, p. 261 (Chapter 6).

⁴⁵ Huma Siddiqui, 'Airbus Military Wins \$2 bn Indian Air Force Deal For Mid-Air Refueling Aircraft', *The Indian Express*, 8 January 2013.

the Andaman and Nicobar Islands chain will allow forward deployment of combat and support assets, significantly increasing their power projection radius of action.

Air Force capability

Based on planned acquisitions, by 2025 the IAF's aircraft will provide the full spectrum of combat roles, including strike (including delivery of nuclear weapons), air dominance and maritime strike. Its Rafales and FGFA's (if the latter are realised) will be new and highly capable when compared with regionally-fielded capabilities. Although older, the Su-30 MKI fleet will continue to be the most numerous type in service, and continue to provide credible capabilities. The older types currently undergoing modernisation will contribute a relatively diminished level of capability but will continue to bolster the overall IAF combat aircraft fleet size. However, even with a favourable acquisition outcome, the IAF is faced with a chronic pilot shortage that must be remediated if it is to maximise its combat capabilities.⁴⁶

The enabling capabilities offered by AAR aircraft will provide flexible response from main operating bases, although the planned fleet size of 12 limits the force multiplication effect. To redress this shortfall, the program of upgrades to airfields in the likely tension areas of north and west India, and on Car Nicobar, further enhance the flexible response options the IAF will offer once new aircraft begin to enter service. Similarly, the AEWG fleet will permit better situational awareness and coordination of combat assets, although fleet size will constrain the area or duration over which a sustained overwatch can be provided.

Indian Navy (IN)

The IN had traditionally been accorded low funding priority because the perceived threat axes menacing India were overland, from Pakistan and China. However, with increased regional piracy, a perceived need to secure SLOCs to fuel India's economic growth, and the unwelcome presence of China's navy in relative proximity to India,⁴⁷ the IN has argued for and been accorded heightened priority as an essential contributor to India's defence. The seaborne Mumbai terrorist attacks of 2008 have also contributed to an increased focus on inshore patrolling and closer coordination

⁴⁶ Jane's, 'Air Force - India', in *Jane's Sentinel Security Assessment - South Asia*, London, Jane's, 2013, p. 3.

⁴⁷ Rao, 'The Rapid Modernisation of the Indian Armed Forces', p. 33.

with the Coast Guard, which is now subordinated to the Navy for command and control arrangements. While still apportioned a modest percentage of the overall defence budget (approximately 20 per cent in 2012-13), the Navy's funding for force modernisation has increased dramatically, by 72 per cent over the preceding year.⁴⁸ It is using its higher profile and increased funding to justify plans for a blue water navy based on three aircraft carrier battle groups, along with a submarine-launched nuclear deterrent. It bolsters Navy's cause that the political elite also sees these as prestige capabilities, befitting a country with India's great power aspirations.

Major surface combatants

The IN's modernisation plans envisage a 160+ strong combatant fleet by 2025, built around two or three aircraft carriers.⁴⁹ The only carrier currently in service, INS *Viraat*,⁵⁰ is expected to reach the end of its service life well before 2020,⁵¹ at which time its depleted embarked air wing of Harrier jets will also be retired from service.⁵² The second vessel, the INS *Vikramaditya* (former Russian carrier *Admiral Gorshkov*), is planned to enter service by the end of 2013, although its refit has been subject to ongoing delays.⁵³ The first of two indigenously-constructed vessels could enter service by 2020, however, construction progress has been slower than planned.⁵⁴ While delivery of the ships remains problematic, the first Mig-29K-equipped squadron, which will form the air wings of the carriers, has been commissioned and awaits arrival of the *Vikramaditya*.

While the future IN flagships are awaited, a program of replacement and force expansion of the supporting fleet is underway. The IN operates the full spectrum of combat capabilities of a modern navy, including destroyers, frigates, corvettes and

⁴⁸ Layton, 'New Directions for Indian Defence',

⁴⁹ Jane's, 'Navy - India', in *Jane's Sentinel Security Assessment - South Asia*, London, Jane's, 2013, pp. 2-3 quotes the Indian chief of naval staff in a July 2011 interview discussing aspirations for two carriers. Other commentators, before and since, have reported on plans for three.

⁵⁰ INS *Viraat* started service with Britain as HMS *Hermes* in 1959. Transferred to India in 1987, if the vessel serves to 2020, it will have achieved a remarkable 60 years' service.

⁵¹ 'INS *Viraat* Can Continue For 3 More Years: Antony', 22 April 2013, available at, <zeenews.india.com/news/nation/ins-viraat-can-continue-for-3-more-years-antony_843926.html>, accessed 17 May 2013.

⁵² Only eight of the originally acquired 23 Harriers are believed operational. Jane's, 'Navy - India', p. 4

⁵³ Negotiations to acquire the *Gorshkov* began in 1994. See Cohen and Dasgupta, *Arming Without Aiming*, loc. 1999.

⁵⁴ Jane's, 'Navy - India', p. 3.

patrol boats. Plans are underway to both increase overall numbers and replace ageing vessels with a view to the aspirational 160+ vessel fleet. The IN also deploys the specialist capabilities expected of a modern navy, including mine countermeasure, hydrographic and fleet replenishment vessels. It is also developing an amphibious capability, based on the former USS *Trenton*, an amphibious transport dock renamed INS *Jalashwa*. A further four new-build vessels of a similar capability are foreseen but without firm scheduling.⁵⁵

Submarine force

India's submarine fleet is intended to fulfil both conventional roles and provide the naval delivery element of India's nuclear deterrent. The current fleet comprises 14 Russian- and German-sourced diesel electric attack boats, and a nuclear-powered Russian Akula class attack boat, being operated on a ten-year lease.⁵⁶ With the older vessels due to be retired starting in 2014, and with ongoing contractual and production problems delaying their replacements, the IN's submarine fleet could contract to six or seven boats by 2015.⁵⁷ Firm plans for fleet modernisation include three indigenously-designed nuclear-powered and -armed ballistic missile submarines of the Arihant class and six French-designed Scorpene diesel electric attack boats. Planning is also mooted for six indigenously-designed nuclear-powered attack boats and a similar number of additional conventionally-powered boats.

A realistic submarine fleet in 2025 would include the two Akula class and six Scorpenes. Beyond this, the ability of India to design and launch its indigenous programs will have a large bearing on fielded capability. Were programs to stagnate, a viable option would be to seek additional Scorpene class boats but this would not address aspirations for a sea-going nuclear deterrent nor offer the range and endurance provided by nuclear attack boats.

⁵⁵ Acquisition plans were publicly reported in 2010. See 'Four Maritime Patrol Jets and 4 Amphibious Warships for Indian Navy', 5 October 2010, available at, <zeenews.india.com/news/nation/four-maritime-patrol-jets-and-4-amphibious-warships-for-indian-navy_659738.html>, accessed 1 July 2013. These vessels are expected to feature in the 13th 5 Year Plan (2017-22). However, these plans are normally endorsed by the government during the year preceding implementation, so acquisition commitment remains uncertain.

⁵⁶ Two Akulas are contracted for lease: the first was delivered in January 2012. Terms of the lease include an option to buy at its completion.

⁵⁷ Rahul Singh, 'Threat From Sea: submarine force to be weakest by 2015', *Hindustan Times*, 9 April 2013.

Naval aviation

The IN's combat capability is currently constrained by having a single aircraft carrier and a limited fleet of Harrier aircraft. With 15 of a total order for 44 Mig-29Ks delivered, supply of the air wing of India's future aircraft carriers is well advanced.⁵⁸ Surveillance capability is currently vested in three 1970s-vintage land-based Ilyushin-38 and four 1980s-vintage Tupolev-142 long-range surveillance platforms, supported by 26 shorter-range Dornier 228s.⁵⁹ Despite ongoing modernisation programs, the airframe age and limited fleet sizes of the former indicate these are likely to be retired as newly-acquired Boeing P-8 Poseidon aircraft enter service. Twelve of the latter have been ordered, with an additional 12 planned.⁶⁰ The more modern Dorniers could be expected to continue in service, although their range limits them to coastal surveillance and 'point surveillance' if forward deployed to an island or in the vicinity of a critical infrastructure point, such as a port. The IN also operates a fleet of various helicopters, in a range of support roles while embarked on ships.

Basing

The IN's fleet is dispersed among a number of homeports, which are aggregated into two operational commands, Western and Eastern Naval Commands.⁶¹ Home porting reflects the traditional focus on Pakistan as the maritime threat, with the majority of major combatants based on the west coast. However, with China becoming more active in the South China Sea and the Indian Ocean, a tri-service integrated command, with a heavy naval influence, has been established in the Andaman and Nicobar Islands. This strategy can be interpreted as 'defence in depth' from an Indian perspective. Conversely, China may perceive this as forward force projection. The ongoing investment and improvement of facilities and forces stationed at or deployed to these Indian islands provides an increasingly credible military capability screening the western approaches of the Malacca Straits.

⁵⁸ IISS, *The Military Balance*, p. 259.

⁵⁹ Jane's, 'Navy - India', p. 27.

⁶⁰ Rao, 'The Rapid Modernisation of the Indian Armed Forces', p. 28.

⁶¹ Western Command is currently headquartered in Mumbai, Eastern Command in Visakhapatnam.

Navy capability

With appropriate scheduling of maintenance events, a three-carrier navy could provide two operational vessels continuously, although this does not imply they would be at sea continuously. The inherent vulnerability of an aircraft carrier, particularly to submarines, requires that a significant battle group of vessels sail with it, ensuring its safety to conduct its role of mobile aerial power projection. Thus equipped, the IN could aspire to exercise 'sea control' in those areas of the Indian Ocean it wished to.⁶² However, naval history shows sea control to be significantly difficult to achieve and maintain, even if only for brief periods and tied to achieving limited strategic outcomes. As an emergent power with respect to credible aircraft carrier capability, India will take time to master the capabilities to allow it to exercise sea control against a credible opponent. Its fivefold advantage in combat capability over the Pakistan Navy means it can effectively neutralise this threat.⁶³ However, with China at a similar point in its development of sea control capabilities to India, there can be no guarantees of success against the Chinese Navy (PLA-N).

Of concern to realising the IN's aspirations is the poor performance in delivering new vessels. This is especially the case with respect to submarines. Failure to realise a credible fleet size will constrain the IN's operational options. Carrier battle groups always sail with submarine support as a counter to a submarine threat. Submarines have also traditionally been a preferred and proven deterrent to the Pakistan Navy. If the number of available boats remains low, India may be compelled to choose between missions, whereas a full fleet complement would allow concurrent operations.

The IN also plans to develop credible amphibious capabilities, currently embodied in a landing helicopter dock acquired from the US. With aspirations to build up to four ocean-going amphibious force projection vessels, realisation of this capability could be received negatively by Indian Ocean littoral states. To date, the IN has demonstrated a limited but proficient level of capability, with its current vessel used to support the evacuation of Indian nationals from Libya in 2011. For this operation,

⁶² 'Sea control' refers to achieving a military state of freedom to conduct one's operations with relative impunity. It differs from 'sea denial', which entails denial of access or use to an enemy. The former is typically best achieved with aircraft carrier battle groups, the latter with submarines or asymmetric forces such as mines.

⁶³ Jane's, 'Navy - India', p. 2.

a small force of naval commando was embarked. Although the Indian Army has some units designated for amphibious operations, the Indian military currently lacks the vessels to exercise the capability and develop doctrine for its effective employment. Given the nascent nature of plans to acquire this capability, and the poor inter-service coordination of Indian military services to date, it is unlikely an effective amphibious capability will mature by 2025.

Geography plays a significant role in the effectiveness of navies. The IN can, and has, neutralised the Pakistan Navy in the past, by blockading it in its ports using submarines and attack craft. With its modernised fleet, this is a capability it will retain. The increased garrisoning of the Andaman and Nicobar Islands also serves to augment Indian naval capability. It provides a support base to allow naval and air assets to project force at significant range from the Indian mainland. Postulating potential Chinese aggression, the Indian forces would be effectively home-ported at the western entrance to the Malacca Straits, whereas the Chinese flotilla would be operating at considerable range from support bases, requiring development of a credible and sustainable force capable of operating at distance.

Indian Army (IA)

The IA's capability is largely derived from its size. With 1,100,000 men under arms, and nearly as many reserves at various states of readiness, it is the largest army in South Asia by a considerable margin, and the third largest in the world.⁶⁴ This provides it with the manpower to apply considerable resources to India's two tension frontiers, with Pakistan in the west and China in the northwest and northeast. The large variation in topography and climate of the frontier regions, and the differing nature of the tensions with the bordering countries, have led to the emergence of different doctrines. These emphasise different modernisation imperatives for the respective theatres.

Structurally, the IA is divided into six geographically-defined commands, each of which is required to be capable of conducting operations independent of, and potentially concurrent with, the others. Hence, a strategic doctrine of a 'Two Front War' has emerged, acknowledging the ongoing tensions with India's two militarily most capable neighbours. The ongoing and considerable domestic insurgency issues

⁶⁴ Jane's, 'Army - India', *Jane's Sentinel Security Assessment - South Asia*, London, Jane's, 2013, p. 2.

India faces are largely the responsibility of paramilitary forces, which exist in similar numbers to the standing army.

Pakistan frontier

After several wars and the nuclearisation of both countries, the Indo-Pakistani frontier has reached a point of defensive deterrence. Future force modernisation is unlikely to create a capability edge sufficient for India to countenance mounting a decisive offensive. Indeed, there is no national imperative that would provide logic to a war intended to eradicate or subjugate Pakistan. With the Indian Army's tactical doctrine for the Pakistan frontier guided by the unofficial 'Cold Start' concept, modernisation is aimed at developing forces capable of quick and decisive offensive attack followed by a return to original defensive positions.⁶⁵ The philosophy underpinning this doctrine is that of rapid, surgical incursion with limited objectives in response to Pakistani transgressions, followed by a rapid return to the status quo, thereby forestalling an excuse for a Pakistani nuclear response. The force structure envisages up to eight Integrated Battle Groups (IBGs), each with its own armour, artillery, mechanised infantry and integrated air support.⁶⁶ Such a force structure is intended to allow independent action by any group, thereby presenting Pakistan with up to eight simultaneous attacking forces. A potential impediment to realising this aim is the reluctance of Air Force to subordinate its assets to Army control, which would be required to maximise the effectiveness of the IBG concept. The Ministry of Defence's (MoD's) 2010 decision to reallocate some attack helicopters to the Army will provide a measure of organic air support. Reporting is contradictory in relation to progress being made in deploying the IBGs; in fact, messaging has been mixed regarding the very existence of the Cold Start philosophy.⁶⁷

The principal modernisation programs underway are mindful of the capabilities required for success in achieving Pakistan frontier objectives, and therefore concentrate on the Army's principal fighting systems, being armour and artillery.

⁶⁵ Cohen and Dasgupta, *Arming Without Aiming*, loc. 1350.

⁶⁶ Cohen and Dasgupta, *Arming Without Aiming*, loc. 1372.

⁶⁷ In December 2009, the Indian Army's Training Command was reported as revising Cold Start in light of the evolving 'Two Front War' concept. Then in December 2010, in response to a request for comment on leaked US diplomatic cables reporting on Cold Start, the then Army Chief denied existence of the concept.

The existing mixed fleet of tanks, comprising approximately 1800 vehicles,⁶⁸ is being progressively upgraded and replaced by 640 Russian-designed T-90S and 248 indigenously-designed Arjun main battle tanks.⁶⁹ While this implies a significant drawdown in numbers over time, the type currently in service in the greatest numbers (1400 T-72M1s) entered service from 1988. These should continue to provide numerical strength, albeit a reducing capability, as contracts for future acquisitions are awarded. Given the longstanding tension on the Pakistan frontier, where the majority of tanks are deployed, it is highly unlikely that this element of the Army's force structure will be permitted to atrophy.

The Indian MoD has granted control of some attack helicopter capabilities to Army, to the chagrin of Air Force.⁷⁰ The immediate effect is that Army will receive the 22 AH-64D Apache Longbow helicopters on order from Boeing. Its aspiration is for a force of 100 attack helicopters by 2022, which will include the indigenously-developed Light Combat Helicopter. As this will be a new capability for the Army, it can be expected that it will take some years to develop operational proficiency and effectively integrate it into Army battle concepts.

In contrast, the IA's artillery capability has deteriorated significantly. This is in large part due to no contracts having been signed for new acquisitions since the scandal surrounding the Bofors acquisition of the 1980s.⁷¹ As a result, the current order of battle includes approximately 3000 guns of calibres ranging from 75mm to 155mm, all of which are at least 20 years old. However, the growing prominence being accorded tensions on the Chinese frontier has acted as a stimulus for modernisation

⁶⁸ Older types likely to be withdrawn during the modernisation program include 1400 Russian-designed T-72M1s, which began to enter Indian service in 1988, and 450 T-54/55s which are already being progressively withdrawn from service. Some sources report the latter as retired in 2011.

⁶⁹ Sources provide contradictory armour inventory estimates. In 'Army - India', Jane's cites the numbers as given in the text, whereas Rao, 'The Rapid Modernisation of the Indian Armed Forces', speculates on a fleet of 1000+ T-90s and firm orders for 248 Arjun MkI and a further 124 of the Mk II variant.

⁷⁰ As occurred in the ADF, there is a logical resistance to relinquishing a capability to another service. Reasons cited often include the lack of expertise of the recipient service in the capability to be ceded. The ADF's experience is that Army has become a competent operator of its aviation assets, although it took some years to reach the levels of effectiveness achieved under the previous, mature Air Force control arrangements.

⁷¹ Government corruption surrounding the award of a contract for supply of field artillery to the Swedish Bofors company contributed to the defeat of then Prime Minister Rajiv Gandhi and his party at the 1989 elections. It remains a major factor in the ongoing 'thorough' — that is, tortuously protracted — process applied to the awarding of Indian military contracts.

of the capability, as it is an effective weapon system in this frontier's terrain. Negotiations are underway to acquire up to 145 M777 howitzers from the US, and development of an indigenous derivate of the Bofors 155mm howitzer is ongoing.⁷² The acquisition from the US is proceeding under that country's Foreign Military Sales framework, which should avoid accusations of corruption. The indigenous systems are subject to ongoing development testing, and given the track record of indigenous development, could take several years to reach the Army. The Army has a long history of operating artillery, so should readily integrate the new systems.

China frontier

As China continues its own military modernisation program, its tensions with India along unresolved border regions in the latter's northeast and northwest regions will increasingly be the stronger driver of the Indian Army's modernisation program. Former Army chief, General V.K. Singh, clearly signalled this intent in a comment in a 2012 interview, saying '[w]e are restructuring to ensure offensive capabilities in the mountains'.⁷³ India has been increasing its capability along its northeastern frontier, as evidenced by the 2011 government decision to deploy Brahmos supersonic cruise missiles in the region, along with additional multiple launcher rocket systems. Later that year, MoD approved a significant expansion of capabilities in the Arunachal Pradesh border province on the Chinese frontier. If approved by government, this US\$13 billion, five-year plan, will increase forces in the region by creating four new divisions, two of which will be specialist mountain troops trained for offensive operations.⁷⁴

Systems modernisation

Army modernisation programs underway and in prospect are intended to remedy the failure in recent decades to address systems obsolescence while successive governments were sensitised by the acquisition corruption scandals of the 1980s and 90s. Recent program announcements are intended to maintain the effectiveness of the forces deployed along the Pakistani and Chinese frontiers, while ensuring their utility elsewhere, should contingencies dictate their redeployment. The extent to

⁷² Gautam Datt, 'Artillery Upgrade Crawls as India Moves Towards Acquiring 145 Howitzers From US', *India Today*, 3 March 2013.

⁷³ Rao, 'The Rapid Modernisation of the Indian Armed Forces', p. 30.

⁷⁴ Jane's, 'Army - India', p. 6.

which they could be employed elsewhere will be determined by the geography of the campaign. For example, armoured formations proficient in open terrain warfare would have limited utility in high altitude mountains. If redeployment were to be required, India's extensive and well-developed rail, and improving road, networks make the rapid redeployment of military forces a practical planning consideration. These systems have been tested and proven to be efficient.

Personnel issues

Whether or not Army's ambitious materiel modernisation plans are realised, in the face of historical difficulties in negotiating contracts and more recent fiscal pressures encountered by the government, it must overcome the significant capability inhibitor of a serious shortfall in the strength of its officer corps. Resulting in part from unresolved issues regarding pay, both in service and retirement, as at June 2011 there was a shortfall of approximately 12,500 officers.⁷⁵

Army capability

The Indian Army, by virtue of its size and current equipment, has achieved the frontier security tasks assigned to it by government. This status quo is sustainable into the next decade on the Pakistan frontier. Modernisation programs by both nations, the prospect of 'Cold Start'-like strategies being invoked by both sides in the event of hostilities, and the moderating effect of mutual nuclearisation have combined to produce an enduring if uneasy balance. As neither nation has a declared intent to annex the other, and with the contested regions in Jammu and Kashmir (J&K) only likely to be resolved via diplomacy, the maintenance of credible deterrent forces along the frontier effectively achieves India's national objectives.

The rise of China, economically and militarily, presents a considerable and growing risk of military miscalculation along its disputed Indian frontiers. The focus of both countries on increasing capabilities in these regions constitutes a localised arms race. With similar concerns over mutual intentions being expressed in the naval domain, there is a risk that once each nation obtains a credible blue-water navy, geopolitics could bring naval and land tensions to a heightened level.

⁷⁵ Jane's, 'Army - India', p. 3.

Strategic forces

India aspires to field a 'nuclear triad', with the means to deliver nuclear weapons from land, air and sea. While the respective military services would provide the delivery systems, command of the country's nuclear arsenal lies with the Political Council, which is chaired by the prime minister. The delay in responsiveness that central command implies sits well with the declared policy of 'no first strike'. There is considerable debate as to India's willingness to employ its nuclear arsenal. Sceptics consider it more a capability of prestige, intended to match the nuclear arsenals of Pakistan and China. However, programs continue to develop and field increasingly sophisticated and longer-range delivery systems.

Surface launch systems, in the form of ballistic missiles, are in service and are being progressively developed by the DRDO. The Agni V is the latest variant in development. While early in its test launch program, demonstrated capability in earlier variants points to high confidence that the system will be fielded by 2020.⁷⁶ It has a declared range of 5000 km range, and is reported as being capable of carrying yet-to-be-developed multiple warheads payloads. The Agni V will be able to hold most significant targets in China at risk.

The IAF has the capability of delivering nuclear weapons, with a number of its strike aircraft compatible with the role. The naval-delivery capability is still under development. A submerged launch had been successfully achieved, however, the navy lacks submarines capable of ballistic missile launch. Given the already discussed uncertainty surrounding the maturation of the IN's next-generation submarine fleet, certainty cannot be accorded to the date at which a submarine nuclear deterrent might be deployed. This capability, if realised, has the potential to escalate tensions with China, against which the capability would presumably be targeted.

⁷⁶ Agni V was first test fired on 19 April 2012. A subsequent test was reported as expected during May 2013. See Hernant Rout, 'Another Trial of Nuke-Tipped Agni V Next Month', *The New Indian Express*, 24 April 2013.

India's strategic options and their implications for Australia

India's military forces have developed with a focus on the land threats posed by Pakistan, and more recently, by a rising China. These perceived menaces, along with domestic terrorism, remain the key drivers guiding modernisation of the Indian Army. Intended to ensure the territorial integrity of the Indian state against external aggressors, the declared and demonstrated application of the Army towards this end is generally accepted by India's other neighbours. Successive governments across the political spectrum have utilised the Army to ensure domestic territorial security. This perception could be tested were India to achieve its aspiration of developing a large-scale amphibious capability. However, the nascent nature of this project, the protracted Indian acquisition process, and the plethora of capabilities competing for a finite budget make it unlikely that a credible and sizeable ocean-going amphibious capability will be realised by 2025.

Given the size of India's Army, the national policies of strategic autonomy and use of foreign policy outreach to resolve border disputes peacefully, it is virtually inconceivable that Australia would be bilaterally requested to contribute to a resolution of border tensions on the sub-continent. Were tensions to escalate against either Pakistan or China, India has shown a preference for bilateral resolution with the protagonist. If a serious conflict were to break out, Australia's response would most likely be guided by resolutions taken by the international community in the UN. The situation at sea in the Indian Ocean is more complex, with a greater potential for scenarios of heightened tension that could directly impact on Australia and its interests.

A stable and peaceful South Asia is a situation desired by Australia. One expression of commitment to this principle is Australia's membership of the Indian Ocean Rim Association for Regional Co-operation (IOR-ARC), a grouping of nations which includes the region and the majority of nations of South Asia. Among the Association's objectives is a commitment to the 'sustained growth and balanced development of the region'.⁷⁷ Acknowledged in the 2013 Australian Defence White Paper as a region of growing strategic importance, the security of trade crossing the Indian Ocean is recognised as important to Australian's strategic interests.⁷⁸

⁷⁷ 'IOR-ARC Charter', available at <www.iorarc.org/charter.aspx>, accessed 2 July 2013.

⁷⁸ Department of Defence, *Defence White Paper 2013*, p 65.

Regionally, in 2011 the IOR-ARC identified maritime safety and security as one of its six focus areas for cooperation.⁷⁹

It is the modernisation of the IAF and IN that, if acquisition schedules are maintained, will offer India new strategic options for the utilisation of its conventional military capabilities by 2025. In particular, modern IAF combat aircraft, supported by AEW/C and AAR assets, will provide strategic reach into the Indian Ocean. With the option of deploying assets to its upgraded Andaman and Nicobar Islands bases, the force projection radius will be extended into the South China Sea. Commissioning of new aircraft carriers will provide the IN a credible ocean-going deterrent, capable of localised sea control. New maritime surveillance assets will increase situational awareness to make best use of naval and air assets in response to threats and incursions. Equipped with these capabilities, Indian policy makers will be confronted with choices of how to posture the force and articulate the state's intention for its use. The more credible options are explored in the following sections. How other nations perceive the policy India chooses to implement will shape their response, and consequentially impact on the broader community of Indian Ocean nations. Australia has declared an intention to focus its growing bilateral defence relationship with India in the maritime domain, given shared security interests in the Indian Ocean.⁸⁰ As such, the manner in which India chooses to employ its maritime power is of particular interest to Australia.

Indian Ocean 'Regional Policeman'

India has a declared intention of being the pre-eminent power in the Indian Ocean, which it sees as its natural sphere of influence. It already operates the largest and most capable regional air force and navy which, subject to realisation of modernisation plans, will increase in lethality, reach, persistence and situational awareness. It may choose to adopt the role of protector of the Indian Ocean to provide security of SLOCs for itself and other nations reliant on maritime trade, as an expression of national prestige, and to relieve the US of this responsibility. Indian

⁷⁹ Australian Government Department of Foreign Affairs and Trade, 'Indian Ocean Rim Association for Regional Cooperation', available at <www.dfat.gov.au/geo/indian_ocean/regional_orgs/ior-arc.html>, accessed 1 July 2013.

⁸⁰ Department of Defence, *Defence White Paper 2013*, p. 65.

Ocean littoral states might bridle at Indian pre-eminence⁸¹ but would not be in a position to militarily challenge the Indian position. However, with China already expressing disquiet at perceived containment, the dominance of the IN along its SLOCs would likely elicit a Chinese response. The growth in maritime power of both China and India, and the demonstrated willingness of each to operate in the other's self-declared sphere of influence, presents a likely scenario for escalation of tension in maritime regions on which Australia relies for its economic viability.

China's own modernisation programs will likely deliver blue-water naval assets of similar capability to India by 2025, with a capacity for power projection into the Indian Ocean. The potent US naval presence will remain as long as it satisfies US strategic interests. India and the US will have mature doctrine for aircraft carrier operations, while China will still be developing this capability. All three nations will have ocean-going submarine forces. With naval interests concentrated on the geographic areas occupied by the SLOCs, the potential for encounters between the navies is heightened. Even in the absence of declared hostilities or heightened tensions, the risk of miscalculation—and attendant potential of escalation—is ever-present. Clear and accepted rules of engagement must be in place and honoured by all parties.

Australia has reiterated its intention to deepen its bilateral defence relationship with India, with a maritime focus.⁸² Having declared a desire to develop the ability to work in concert with the IN,⁸³ Australian vessels could conceivably be present in a zone of tension between Chinese and Indian naval forces. Rules of engagement for chance encounters must be in place to guide naval commanders. This is normally

⁸¹ Behuria, Pattanaik and Gupta, 'Does India Have a Neighbourhood Policy?'. This article takes the Indian Ministry of External Affairs' definition of 'neighbourhood' as being countries that border India.

⁸² The strengthening of the maritime aspect of bilateral defence ties was reiterated in the joint press release issued at the conclusion of the 2013 visit of the Indian Defence Minister, Mr Antony, to his Australian counterpart, Mr Smith. This was the first visit by an Indian Defence Minister to Australia. See 'Minister for Defence and India's Minister of Defence – Joint Statement – Visit of Mr A. K. Antony, Defence Minister of India, to Australia 4-5 June 2013', available at <<http://www.minister.defence.gov.au/2013/06/05/minister-for-defence-and-indias-minister-of-defence-joint-statement-visit-of-mr-a-k-antony-defence-minister-of-india-to-australia-4-5-june-2013/>>, accessed 7 June 2013.

⁸³ The Australian and Indian Defence Ministers declared their intention to build cooperation to a point of a bilateral naval exercise in 2015, saying that with ongoing interaction, by 2025 joint patrolling is feasible. See 'Minister for Defence and India's Minister of Defence – Joint Statement – Visit of Mr A. K. Antony, Defence Minister of India, to Australia 4-5 June 2013'.

the case but will likely take on heightened importance when working with new partners and encountering navies whose own rules and procedures might be less well understood.

'Economic diplomacy' should dictate that assurance of SLOCs is in the interests of all maritime trading nations. If that is understood by all nations with a naval presence in the region, a framework for co-existence, if not cooperation, should be achievable to ensure a stable region. The IOR-ARC has a role to play in this dialogue. With India and Australia as member nations, and the US and China as dialogue partners, the major Indian Ocean naval powers already have an established forum in which to discuss maritime stability. China remains the major unknown in the equation, and it may be that its bilateral interaction with India along their common land frontier will shape its broader policy towards India, including its conduct at sea. While not in a strong position to directly influence India's dealings with China, Australia can position itself as a responsible contributor to naval stabilisation through its growing bilateral naval relationships with both India and China. Advocacy in the IOR-ARC for sustained economic development supported by assured maritime trade is another avenue whereby Australia can keep the stakes of military miscalculation at the forefront of the thinking of the emerging maritime powers.

Indian Ocean 'Deputy Sheriff'

An alternative scenario is one in which the US retains naval pre-eminence in the Indian Ocean, with India as a rising 'junior partner' in the provision of regional maritime security. This scenario does not accord well with India's national view of its regional role but may emerge due to circumstances beyond its control. A desire by the US to maintain a significant regional presence in line with its national objectives could lead to this outcome. Alternatively, delays in the implementation of India's naval modernisation plans, accompanied by an increase in regional instability, might lead India to request that the US retains the dominant naval role. A likely cause of instability is an increase in Chinese naval presence and activity. Delays in realising India's military modernisation plans may mean this presents a challenge which is beyond its capacity to effectively counter unilaterally.

This scenario places the onus on the US and India to craft the format of shared responsibility. As the US is currently active in the Indian Ocean without a direct

commitment of Australian support to its activities, the impact on Australia of this scenario would be guided by the evolution of its relationship with the US rather than with India. An increased Chinese presence might precipitate increased Australian naval commitment in concert with the US, derived from direct Australian national interests. In this scenario, however, the driver would be China's military rise, not that of India. Under the aegis of US dominance, naval task forces comprising vessels of the US, Indian and Australian navies might patrol together. However, as is the case in contemporary operations, national rules of engagement would guide the response options of individual combatants. Therefore, an Australian response to an incident would be guided by national guidance formulated cognisant of wider national interests.

An ongoing US regional naval dominance may go some way to reducing the likelihood of regional maritime tensions escalating. Despite Chinese concerns about US containment, this scenario postulates a continuation of the status quo, as it relates to the regional maritime power balance in the Indian Ocean. India's subordinate role reduces the potential for a unilateral reaction on its part to be misconstrued. Similarly, any Sino-Indian tension along their land frontier could be seen as a separate event, rather than as a 'second front' of Chinese aggravation directed toward India. Australia's role would be in support of US-led naval action, if required, and where this accorded with Australian national priorities.

Leader of 'a coalition of the regional willing'

India and China are not the only Asian nations embarked on military modernisation programs, although their programs stand out due to their ambition and the scale of the underlying economic means to support them. Malaysia, Indonesia and Vietnam are among a number of regional nations situated in proximity to the SLOCs which are embarked on naval modernisation programs. Each has a growing bilateral relationship with India. Singapore, already with a significant military capability situated strategically on the SLOCs, has also developed a firm relationship with India. Although the major Asian multilateral forums have not yet concentrated on security cooperation, nor formally welcomed India as a member, a catalyst could emerge that provides such a focus. A shared wariness of Chinese naval intent, coupled with reliance on maritime trade for economic prosperity, might be such a catalyst.

The permutations of this scenario are manifold due to the number of nations possibly involved, and are subject to too many variables shaping likely outcomes to be treated in this paper. India's historical preference for bilateral partnerships might influence it to seek smaller coalitions should the necessity arise, perhaps focusing on nations most proximate to the trigger event as the most obvious coalition partners. It is likely that the size of an Indian military contribution, along with its self-perception as a regional leader, would drive it to seek to impose itself as the leader of a coalition. Once again, Chinese actions appear a likely trigger. However, India's caution to avoid formal alliancing may assist in avoiding it becoming engaged in military activity outside its declared and preferred area of operations. With a number of Asian nations in dispute with China over territorial claims, notably in the South China Sea, India would wish to have freedom to consider its response should an 'out of area' regional interest conflict arise. The fact that the SLOCs that support its economic growth, and which it seeks to secure, extend through this region will be a consideration to be factored into any response.

In this scenario, Australia would be guided primarily by its direct interests in assurance of SLOC access to Asia, and by its various bilateral and multilateral commitments and undertakings to regional nations. The participation of India in a coalition of the willing would most likely be welcomed, although the command and control arrangements might take careful crafting so as to maintain coalition cohesion in addressing the threat while accommodating the non-military outcomes sought by nations through their participation. Strengthening a position of regional dominance and prestige is likely to be one of the outcomes sought by India.

Impact on Australia

The emergence of the term Indo-Pacific in recent Australian policy documents reaffirms the nation's future is tied to its geography, and acknowledges that the rise of India bestows an increased attention to Australia's western flank. Australia also has significant economic interests in the region, which are not restricted to its assurance of access to markets and energy. Substantial national wealth is located in Western Australia and off Australia's western coastline. A modern Indian military, capable of projecting force into the Indian Ocean in line with national objectives, has the potential to also contribute to the achievement of Australian national objectives of securing its resources and routes to market.

The concurrent military rise of China and India serves as the basis for the potential conflicts and Indian military strategies postulated in this paper. Consideration of historical and ongoing difficulties with Indian military acquisition and industrial efficiency also point to uncertainty of its modernisation plans being achieved to schedule.

Delays may give China a military edge, and consign India to play a supporting role to other nations with regional interests in constraining any expansionist Chinese activity. While this might embolden China regarding its border disputes with India, mass of force is a more important consideration than the deployment of high technology on this frontier. A military imbalance in the maritime environment would be seen by India as Chinese encroachment into its sphere of influence. However, without the military means to counter, India would be reliant on the contribution of nations sharing its views. Australia's naval power, although regionally significant, is never going to allow it to take the lead in countering the capabilities China is likely to possess by 2025.

As Australia seeks to engage China on many fronts, including the diplomatic, immediate recourse to military action as a response to heightened Chinese naval activity in the Indian Ocean is an unlikely Australian reaction. In the event of heightened Sino-Indian tensions in the maritime environment, Australia may be well placed to facilitate dialogue. With growing bilateral relationship with both nations, and considerable vested interest in maritime security, Australia is well credentialed to put itself forward as a concerned and trusted interlocutor.

Ultimately, the rate of modernisation and state of the IAF and IN in 2025 will condition Indian policy with respect to the Chinese naval presence in the region. While Australia seeks to build a multi-dimensional relationship with India, including in the military domain, the Indian preference for non-binding engagement will not bind Australia to action. In this way, Australia can forge ties with a like-minded emergent regional power while retaining significant freedom of action to choose the way in which it responds in times of regional tension.

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