India – China in 2030: A Net Assessment of the Competition Between Two Rising Powers

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INDIA - CHINA IN 2030:
A NET ASSESSMENT OF THE COMPETITION
BETWEEN TWO RISING POWERS

Mick Ryan
Submitted 16 December 2011
Net Assessment
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Phase 1. The Nature of the Competition</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic Goals and Perceptions</td>
<td>5</td>
</tr>
<tr>
<td>The Impact of Strategic Culture</td>
<td>6</td>
</tr>
<tr>
<td>Application of National Resources</td>
<td>8</td>
</tr>
<tr>
<td>Economic Trends</td>
<td>10</td>
</tr>
<tr>
<td><em>Energy – The Key Enabler to Economic Growth</em></td>
<td>10</td>
</tr>
<tr>
<td>Military Spending Trends</td>
<td>12</td>
</tr>
<tr>
<td>Demographic Trends</td>
<td>14</td>
</tr>
<tr>
<td>Research and Development Trends</td>
<td>15</td>
</tr>
<tr>
<td>Differences in Strategic Competencies and Characteristics</td>
<td>16</td>
</tr>
<tr>
<td>Key Judgments on the Nature of the Competition</td>
<td>18</td>
</tr>
<tr>
<td> *Chinese view of India.</td>
<td>19</td>
</tr>
<tr>
<td> <em>Chinese Strategy for India</em></td>
<td>20</td>
</tr>
<tr>
<td> <em>India’s View of China</em></td>
<td>21</td>
</tr>
<tr>
<td> <em>India’s Strategy for China</em></td>
<td>22</td>
</tr>
<tr>
<td><strong>Phase 2. Balances</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to the Balances</td>
<td>23</td>
</tr>
<tr>
<td>Balance 1 - <em>Command and control capability.</em></td>
<td>24</td>
</tr>
<tr>
<td>Balance 2 - <em>Strategic Forces</em></td>
<td>29</td>
</tr>
<tr>
<td>Balance 3 - <em>Conventional Maritime capability</em></td>
<td>33</td>
</tr>
<tr>
<td>Balance 4 - <em>Conventional Air-land Capability</em></td>
<td>38</td>
</tr>
<tr>
<td><strong>Phase 3: Scenarios</strong></td>
<td></td>
</tr>
<tr>
<td>Introduction to the Scenarios</td>
<td>43</td>
</tr>
<tr>
<td>Scenario Drivers</td>
<td>43</td>
</tr>
<tr>
<td>Critical Uncertainties</td>
<td>44</td>
</tr>
<tr>
<td>Scenario 1 – <em>Strategic Competition</em></td>
<td>45</td>
</tr>
<tr>
<td>Scenario 2 – <em>High Seas Confrontation</em></td>
<td>47</td>
</tr>
<tr>
<td>Scenario 3 – <em>Border Conflict</em></td>
<td>49</td>
</tr>
<tr>
<td><strong>Phase 4: Implications</strong></td>
<td></td>
</tr>
<tr>
<td>Principal Implications of the Competition</td>
<td>52</td>
</tr>
<tr>
<td>Uncertainties</td>
<td>55</td>
</tr>
<tr>
<td>Risks</td>
<td>56</td>
</tr>
<tr>
<td>Areas for Further Examination</td>
<td>57</td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>58</td>
</tr>
<tr>
<td><strong>End Notes</strong></td>
<td>59</td>
</tr>
</tbody>
</table>
Assessing the Future India - China Balance

Introduction

For the first time in more than half a millennium, China and India are simultaneously moving upward on relative power trajectories. In the 15th century, China ruled the eastern seas and India was a major trader, and key post, in the East-West trade routes. In 1500, China and India together accounted for nearly 50 percent of total world output. Europe, by contrast accounted for 20%. They retained economic and strategic influence until the early 1820s, and then commenced a sharp decline until together they accounted for only 9 percent of world output by 1950. In the past three decades however, this decline was reversed and they have leveraged their increased participation in the global economy to increase their economic might and geostrategic influence. By 2030, they will have regained their global economic pre-eminence.

Both nations possess massive manpower, scientific, industrial and technological bases as well as large armed forces. They are both nuclear powers and have nascent space programs. Historically, China and India have demonstrated the capacity and will to act as hegemons, dominating the security environment of their regions. They also have a history of rivalry. This manifested itself in the 20th century as war in 1962, as well as armed skirmishes in 1967 and 1987. Each possess weak points, and both have domestic linguistic, ethno-religious and politico-economic fault lines which demand careful management.

This paper examines the balance between China and India in 2030. The assessment also incorporates the actions of other actors such as the U.S. and Pakistan, as well as regional actors, where necessary. The assessment uses a mix of quantitative and qualitative measures, and seeks to avoid previous assessment templates wherever possible. This is a unique competition, not previously faced by our planners, and requires a unique approach.

The paper is based on the following starting assumptions:

a. A global multipolar system is emerging with the rise of China, India, and others. With a shift in the locus of global politics from the Atlantic to the Pacific, India, the U.S. and China will define the emerging global balance of power. This triangular relationship, or tri-polarity, is likely to be the most significant aspect of the emerging 21st century global system.

b. The growth of the Chinese and Indian economies over the past decade, and in the next two decades, will lead to increasingly assertive political and military strategies from both nations.

c. The increasingly assertive nature of both nations will bring them into competition with each other, as they seek global stature and access to energy resources and raw materials to continue their economic growth.
d. There has been, and there will continue to be, a continuing technological revolution. This will particularly manifest in the fields of information technology, biotechnology, nanotechnology, hypersonics, and materials science. This ongoing revolution will impact on geopolitics and military balances, as well as the India-China competition.\(^8\)

e. Significant discontinuities are possible. The National Intelligence Council (2008) has noted that historically, geopolitical rivalries trigger discontinuities more than technological change. Technology is resulting in radical change and has been a major driver. However, over the past century, geopolitical rivalries and their consequences have been more significant causes of the multiple wars, collapse of empires, and rise of new powers than technology alone.\(^9\)

The assessment of the India-China competition is built in four parts:

*The Nature of the Competition.* The first element of the balance examines the nature of the competition between India and China. Description of competition describes how both sides see the different areas of competition, as well as the importance attached to each.\(^10\) This also includes India-China contrasts that affect the competition, including objectives, strategic culture, differences in strategic characteristics and competencies, and the application of national resources to realizing strategic goals.

*Key India-China Balances.* The next part of the paper is an examination of key balances. These balances are neither exhaustive nor independent of each other. Significant issues will differ depending on the context, but were possible, each balance will include a basic assessment, and consider goals, key asymmetries, trends, and implications. The key balances are: 1. Command and Control Capability; 2. Nuclear Forces; 3. Conventional Maritime capability; and, 4. Conventional Air-land Capability.

*Scenarios.* Through the extrapolation of long-term trends from these key balances, three India-China scenarios have been generated to examine how the balance could manifest in 2030.\(^11\) Key drivers and critical uncertainties are incorporated into the scenarios and described in detail. These scenarios are reviewed from both the Indian and Chinese perspectives based on strategic aspirations and the investment in military capabilities likely to be deployed in 2030. This also will highlight issues that earlier parts of the paper have not identified.

*Implications.* The last section will be an overall assessment of the balance in the India-China competition. This section describes where there are strategic asymmetries, and environmental opportunities for both India and China — *as seen from their point of view* — and where they might seek to improve the situation in their favor. Finally, it describes potential impacts on the U.S. as well as issues that require further examination.
Phase 1: The Nature of the Competition

Introduction. There is a marked asymmetry in the mutual perceptions of India and China. India merits little attention from China and is not taken seriously as a security threat. India has many more experts on China than China has on India. China’s indifference to India infuriates the Indians. Both nations possess strategies for dealing with each other, which are likely to change as they continue to grow and gain confidence.

This assessment will provide insights into the trajectory of change of strategic objectives. A review of the strategic culture of each nation provides further insights into how each may see the others potential future strategic goals. Finally, the wherewithal of each nation to realize their strategic goals is their capacity to harness their respective economic, demographic and research and development capabilities. Together, these will comprise a holistic view of the nature of the India-China competition.

China. The politics of the People's Republic of China take place in a framework of a single-party socialist republic. State power within China is exercised through the Communist Party of China; no substantial legal political opposition groups exist. The ruling Communist Party committee at each level plays a large role in the selection of appropriate candidates for election to the local congress and to the higher levels. Central party control is tightest in central government offices and in urban economic, industrial, and cultural settings; it is considerably looser over government and party organizations in rural areas, where the majority of China's people live.

The current administration – the fourth generation of Chinese leadership since 1949 – is due to end its reign in 2012. The fifth generation will come to power during the 18th Party Congress in 2012, when Hu Jintao is due to step down as Party Secretary. In the fifth generation of leadership, there are likely to be more managers and financial experts, including successful entrepreneurs. Provided China's power transitions and government institutions remain stable in the next decade, the sixth generation of leaders will come to power at the 20th Party Congress in 2022. This may be the generation where significant political reform will take place after economic growth has been stabilized. But it could also lead to significant political instability.

India. The politics of India takes place within the framework of a federal constitutional republic, in which the President of India is head of state and the Prime Minister of India is the elected head of government. Executive power is exercised by the President and is independent of the legislature. Legislative power is vested in both the government and the two chambers of the Parliament of India. Federal and state elections generally take place within a multi-party system. The judiciary is independent of the executive and the legislature.

While India has had a federal form of government like the United States, the central government has greater power in relation to its states. The national government has the power to dismiss state governments under specific constitutional clauses or if no majority
party or coalition is able to form a government. The central government can also impose
direct federal rule known as President's Rule.

Strategic Goals and Perceptions

Chinese Strategic Objectives. China uses white papers, speeches, and articles as its means
to publicly communicate policy and strategy. Published on March 31, 2011, China’s
Defense White Paper for 2010 describes four national goals:

a. Safeguarding national sovereignty, security and interests of national development.
b. Maintaining social harmony and stability.
c. Accelerating the modernization of national defense and the armed forces.
d. Maintaining world peace and stability.

The Defense White Paper for 2010 also notes that China continues to implement the
military strategy of Active Defense while maintaining a no first use nuclear weapons
policy. China’s stated defense strategy is focused on fostering a security environment
conducive to China’s comprehensive development. China’s leaders speak about their
strategic priorities in terms of what they call China’s core interests. In a December 2010
speech on China’s foreign policy, State Councilor Dai Bingguo described China’s core
interests as:

a. The state system, political system, and political stability of China; that is the
leadership of the CCP, the socialist system, and the path of socialism with Chinese
characteristics.
b. The sovereignty and security, territorial integrity, and national unity of China.
c. The basic guarantee for the sustained development of the economy and society of
China.

Chinese Perceptions of India. Chinese military posture continues to be overwhelmingly
focused on Taiwan and the United States, not India. While some Chinese military
analysts have recently started paying more attention to India, their ideas do not appear to
have had a significant impact on Chinese military planning or policy. China’s relationship
with Pakistan functions as a critical impediment that prevents the fullest normalization of
China-Indian ties. While China has indicated a willingness to reduce its military assistance
to Pakistan, Chinese officials have made clear that they have no intention of cutting off
Pakistan and that it remains a valued ally. Chinese activities in Myanmar exacerbate this
problem. The Indians see this as China executing a strategic encirclement of India.

China continues to give India a low priority in its foreign relations. It does not take India
seriously. Underlying this relaxed attitude towards India is China’s confidence about
Chinese capabilities and its low opinion of India capabilities. The Chinese take pride in their economic reforms and the resulting dramatic growth; they look down on the Indians for their slower growth and continuing economic problems. The one exception to this is the Chinese admiration of India’s IT industry, especially its software.  

*Indian Strategic Objectives.* India possesses a multi-dimensional foreign policy, and pursues a range of interests concurrently. However, six strategic themes have the most impact on India’s search for its place in the emerging international balance of power:

a. Promote economic growth targets and ambitions.

b. Achieve energy security to guarantee the current trajectory of its economic growth.

c. Achieve a balancing act between fighting terrorism and not alienating its indigenous Muslim population.

d. Foster a peaceful regional periphery to accelerate domestic economic development. This includes an emphasis on building networks of inter-connectivity, trade, and investment so that the region can benefit from India’s rapid economic growth and rising prosperity.

e. Address the challenge of a rising China. China remains a preeminent strategic preoccupation of most Indian strategists.

f. Gain the recognition and respect due a nuclear weapons state, while remaining steadfast in its commitment to the goal of global, universal and non-discriminatory nuclear disarmament.

g. Confirm India’s due place in the emerging international balance of power, as one of three great powers.

*Indian Perceptions of China.* The first core perception in India of China is that it does not present a clear cut, short term military threat. But the longer term is uncertain. Indian analysts believe that, over the long-term, China’s growing economic influence threatens to fundamentally alter the strategic balance in Asia. They see China as a model to be emulated and a challenge to be balanced. Therefore, China has to be viewed as a potential threat or challenge to Indian interests in the long run because it may emerge as a more assertive power in future.

A second perception is that certain features of China’s strategic interests differ from India’s, and that the mismatch poses security problems for India. Key among these are the unresolved border dispute, and Chinese military assistance to Pakistan (including nuclear and missile assistance). Chinese proliferation activity is believed to pose an indirect threat to India. Indian strategic analysts have generally not found Chinese arguments convincing that the flow of assistance to Pakistan for their nuclear weapons program is part of regular, sovereign state to state relations.
These actions are seen by India as China’s effort to undercut the natural Indian dominance of South Asia, and therefore force India to expend additional resources to maintain its preeminence within the subcontinent rather than using them for expanding its sphere of influence in areas that are of greater significance to China. A final perception is the potential for China to not acquiesce to the rise of India as a power having reach beyond South Asia (and eventually as a world power).

The Impact of Strategic Culture

Strategic culture is the context that surrounds and gives meaning to strategic behavior and this behavior is affected by culturally shaped or encultered people, organizations, procedures and weapons. Colin Gray (1984) has examined the concept of strategic culture at length. In particular, he argues that understanding strategic culture may provide an improved capacity for understanding enduring policy motivations and make predictions, as well as understand the meaning of events in the assessment of others.

China. The impact of culture is central to understanding China’s military and security affairs. Chinese strategic culture is a critical influence not only on why China uses force, but where and against whom. Strategic culture can also be employed to understand how China perceives the strategic traditions of other states and uses these assumptions to formulate threat assessments. By understanding Chinese strategic culture, it is also possible to have a clearer picture of Chinese interpretations of Indian strategic culture.

The idea that contemporary Chinese international relations have been heavily influenced by an ancient and enduring civilization is especially prevalent. Chinese philosophical thinking has deep cultural and historical roots. Confucianism provides many of the essential elements in Chinese military thought and Chinese conduct of international relations. Even the writings of the Chinese military strategist Sun Tzu had a strong Confucian philosophical underpinning. Confucian thought has much influence on China’s non-expansionist and defensive-oriented strategic culture. However, more recent Chinese history has also played a critical role in this development. Historical events during the 19th and 20th centuries left lasting impressions on the Chinese people, and continue to define China’s modern strategic culture. The crucial national narrative of the “Century of Humiliation” at the hands of imperialist and hegemonic powers is central to Chinese nationalism today.

The manifestation of ancient, and more recent history, is several strands which define Chinese strategic culture and behaviour. The first of these strands is the linked concepts of surprise and deception. While this can be traced back to the writings of Sun Tzu, it is given modern form in China’s inclusion of trump weapons – including psychological warfare – which seeks to undermine an enemy’s ability to conduct combat operations through operations aimed at deterring, shocking, and demoralizing enemy military personnel and supporting civilian populations (see also the Three Warfare’s Doctrine).

A second strand of Chinese strategic culture has been a shift towards minimum force, if violence is necessary. Linked to the concept of Limited War, evidence of this strand are
the 1962 Sino-India war and the 1979 Sino-Vietnam War. This also has a historical antecedent in Sun Tzu, where long protracted wars are described as harmful to the state.

A third strand of Chinese strategic culture is the centrality of the armed forces in society and national security planning. A final strand is the perception that threats to China’s national security are very real and domestic threats are as dangerous as foreign threats. National unification is a traditional Chinese core strategic cultural value.

Together, these have resulted in a Chinese strategic culture that blends Confucian/Sun Tzu thought and realpolitik. The influences of traditional strategic culture, especially the nonviolent approach of Confucianism to external aggression exists in the present Chinese calculation of security strategy, however they are only secondary to the ongoing pursuit of material strength.

India. India’s strategic culture is also rooted in its ancient cultural and religious heritage. A crucial self perception is that India is a state of major potential and future international importance. It has a great power’s worldview, even if its international role is currently modest. India sees its interests and values being best served by a multipolar world order in the future.

An element of India grand strategic thinking is the belief that it must maintain a value (or principle) of strategic autonomy, which it has pursued previously with its policy of international non-alignment. India’s founding and subsequent leadership of the Non Aligned Movement came from a desire to avoid the East-West ideological confrontation of the Cold War, and led it to pursue alternative interests that strictly avoided any perceived tilt in either direction. As Prime Minister Jawaharlal Nehru asserted in his speech before the 1955 Asian-African Conference, marking NAM’s founding, every pact has brought insecurity and not security to the countries which have entered into them.

However, it is foreseeable that these traits may be subject to modification in the coming decades. This is due to generational changes in Indian leadership who are less steeped in tradition. It is may also be the result of the rise of new business entrepreneurs in high technology spheres who operate with a less parochial and more globally oriented paradigm, and the impetus of regional political leaders and upward mobility of lower strata of society who are less easily socialized in a standard strategic outlook.

India’s strategic culture has drawn selectively from various threads of its past civilization values and larger political culture. The dominant war and peace elements of India’s strategic culture lean more to the realpolitik side of the mythological and religious spectrum, and away from the pacifist themes that had gained prominence, temporarily, as a result of publicity about Mahatma Gandhi’s influence on the nationalist movement. But both sources of inspiration, a readiness for war and pacifist inclinations, have validity in the strategic culture. The emphasis may shift in facing different challenges over time.
Application of National Resources

As Bernard Brodie noted, *strategy wears a dollar sign*. Economic growth and other economic issues are part of this assessment because they determine how much each nation may be able to invest in the future development of their military forces. In compiling a holistic the Nature of the Competition, the relevant areas for examination are as follows:

a. *Economic Trends.* This provides insights into the extent that the Indian and Chinese military can gain a share of national budgets.

b. *Military Spending Trends.* Trends in this area flow directly from economic trends, and those on historic military spending.

c. *Demographic Trends.* This provides insights into the ability of the Indian and Chinese military to access personnel in the required quality and quantity.

d. *Research and Development Goals and Trends.* Access of the military to industrial and technological resources is necessary to produce or acquire equipment, and determines the ability to exploit key technologies. It also supports economic growth.

Barring a nuclear or climate cataclysm, economic power will continue to shift to the South and East. This shift is likely to prove robust even in the event of major unexpected shocks, such as wars and global depression. The history of the twentieth century suggests that the advance of globalization and the spread of technology are extremely powerful forces that may be temporarily interrupted and even reversed, but not permanently stopped.

Though the last forty years have been relatively calm compared to the previous forty, they nevertheless saw the fall of the Berlin Wall, China’s explosion onto the international scene, and three major financial crises (the Debt Crisis of the 1980s, the Asian Financial Crisis, and the Great Financial Crisis of 2007–2009). It is certain that some will occur in the future. Notwithstanding this, the economic and demographic trends that follow are based on the best data available.

**Economic Trends**

The world’s economic balance of power is shifting rapidly, and the trend has only been accelerated by the global recession. China remains on a path to overtake the United States as the world’s largest economic power within a generation, and India will join both as a global leader by mid-century.

China and India are the world’s two most populous countries. They have sustained the world’s highest annual gross domestic product (GDP) growth rates over the past decade—9 percent for China and 6 or 7 percent for India. The two countries have been among the world’s most successful in weathering the challenges of the global economy’s Great Recession since 2008. China has accomplished this through a combination of a large
government stimulus program and an effective infrastructure-building program. India’s similarly successful efforts in sustaining rapid growth despite the global recession have been due to its lesser dependence on exports to drive its economy and an expansion of domestic demand.55

The China-India economic relationship has also improved markedly in recent years, and now shows great promise for the future.56 But challenges such as the Chinese friendship and military linkage with Pakistan, and anxiety in India about Chinese encirclement, places limitations on how close the relationship can become.57

There are a wide variety of projections of GDP for India and China for 2025, 2030 and even 2050. A recent RAND study, which examined 27 different economic studies of Indian and Chinese GDP forecasts for 2025 found significant disparities. The range of forecasts for China was 13-31 trillion US dollars. The range of forecasts for India was 5-12 trillion US dollars.58 Maddison (2006) predicts a GDP for China of approximately 21 trillion and for India approximately 8.7 trillion.59 Looking even further out, Goldman Sachs has predicted that China’s GDP will be 70 trillion dollars by 2050!60 Using a range of estimates for projected growth over the next two decades, an average figure of 22 trillion dollars for the Chinese GDP, and 9.0 trillion dollars for the Indian GDP in 2030 is derived. A list of these predictions is shown in Figure 1, below.

<table>
<thead>
<tr>
<th>Source</th>
<th>China GDP 2030</th>
<th>India GDP 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAND study, 2011</td>
<td>$13-31 trillion</td>
<td>$5-12 trillion</td>
</tr>
<tr>
<td>Maddison, 2006</td>
<td>$21 trillion</td>
<td>$8.7 trillion</td>
</tr>
<tr>
<td>Goldman Sachs, 2009</td>
<td>$14.7 trillion</td>
<td>n/a</td>
</tr>
<tr>
<td>US Energy Outlook 201162</td>
<td>$28.9 trillion</td>
<td>$11.2 trillion</td>
</tr>
<tr>
<td>Price Waterhouse Coopers, 2008</td>
<td>$25 trillion</td>
<td>$8 trillion</td>
</tr>
<tr>
<td>Carnegie Endowment, 201063</td>
<td>$21.5 trillion</td>
<td>$5.3 trillion</td>
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**Figure 1. GDP Estimates for 2030.**

The average annual growth rates of India and China is likely to be similar over the next 15 years. However, the absolute difference between their respective GDPs is likely to increase in China’s favor, because of the differences in starting points: China’s 2010 GDP of US$5.8 trillion is about three times larger than India’s (US$1.72 trillion in 2010).65 Where China’s GDP in 2010 was $4 trillion larger than India’s, in 2030 the difference between their respective GDPs is expected to jump to as much as $19 trillion. Therefore, economic trends are favorable to China out to 2030.66

When reviewing these projections, it must be kept in mind that any number of variables could impact on forecast growth rates. For example, the reduction in China’s annual growth rate over the longer term from its current 9-10% per annum, may lead to societal tensions because of a fall off in job availability. Or, growth may exceed expectations; in 2003-2008 actual growth turned out to be higher on average than predicted, particularly in China and India.68
Energy – The Key Enabler to Economic Growth. While there are many components of economic growth, the principal driver that is likely to generate continued competition between India and China is assured access to energy. China and India continue to lead world energy demand growth. Since 1990, energy consumption in both countries as a share of total world energy use has increased significantly, and together they accounted for about 10 percent of total world energy consumption in 1990 and 21 percent in 2008. Figure 3, below, shows trends in energy consumption out to 2035. Chinese demand for energy is expected to grow at 3.0% annually to 2030, and grow from a requirement of 86 quadrillion Btu in 2008, to over 177 quadrillion BTU in 2030. Indian demand for energy is expected to grow at 3.2% annually to 2030, and grow from a requirement of 21 quadrillion Btu in 2008, to over 44 quadrillion BTU in 2030.

Figure 2. Projected Size of Major Economies 2006-2050.

Figure 3. Projected Energy Consumption to 2035
US, India and China (quadrillion Btu)
China will continue to seek to buttress its market power by cultivating political relationships designed to safeguard its access to oil and gas. Beijing’s ties with Saudi Arabia will strengthen, as the Kingdom is the only supplier capable of responding in a big way to China’s petroleum thirst. Beijing will want to offset its growing reliance on Riyadh by strengthening ties to other producers. Iran will see this as an opportunity to solidify China’s support for Tehran, which probably would strain Beijing’s ties to Riyadh.  

![Figure 4. Chinese Energy Routes](image-url)

Although energy independence is no longer realistic for China, given population growth and increasing per capita energy consumption, Beijing still seeks to maintain a supply chain less susceptible to external disruption. In 2009, China imported approximately 56 percent of its oil and conservative estimates project that China will import almost two-thirds of its oil by 2015 and three-quarters by 2030. Beijing looks primarily to the Persian Gulf, Central Asia, and Africa to satisfy its growing demand for oil.

India will continue to seek assured access to energy by making overtures to Burma, Iran, and Central Asia. Pipelines to India transiting restive regions – such as the TAPI pipeline connecting Turkmenistan, Afghanistan, Pakistan and India, and the proposed IPI pipeline from Iran, through Pakistan to India - may connect India to local instabilities.

Future perceptions of energy scarcity may drive India and China to take actions to assure their future access to energy supplies. In the worst case this could lead to conflicts if government leaders deem assured access to energy resources to be essential to maintaining domestic stability, or in the case of China the survival of their regime. However, even actions short of war will have important geopolitical implications as states undertake strategies to hedge against the possibility that existing energy supplies will not meet rising demands. Energy security considerations are already driving China and India to purchase equity stakes in energy fields, and evolving competitions are increasingly being supported by military capabilities leading to the potential for heightened tensions and even conflict.
Concerns about assuring future access to energy supplies also are fostering increased naval competition. Despite the growing number of pipeline projects, China will remain dependent on sea transfers of energy from suppliers in the Middle East. This raises concerns about the future of maritime security from the Persian Gulf to East and Southeast Asia. Maritime security concerns are providing the rationale for a series of naval buildups and modernization efforts in the region, such as China’s and India’s development of blue-water naval capabilities, to protect critical economic assets and secure access to energy resources.

**Military Spending Trends**

It is difficult to obtain reliable data on defense procurement from the official budgets of both countries, but the difficulties are much more acute for China. In general, the gaps in China’s official data coverage are larger and more opaque than those for India. Estimating Chinese military expenditures is a difficult process due to the lack of accounting transparency and China’s still incomplete transition from a command economy. Additionally, China’s published military budget does not include major categories of expenditure, such as foreign procurement.

With the information that is available from the past 20 years, it is possible to identify spending trends and make an approximation of 2030 expenditure based on historic allocations of national financial resources for defense. According to data in the *Stockholm International Peace Research Institute* databases on world military expenditure, China has on average spent 1.97% of GDP on defense between 1990 and 2010. Using the same data, India has on average spent 2.8% of GDP on defense between 1990 and 2010. A recent RAND report, which examines China and India in 2025, gives the “best” estimate for India’s defense spending of approximately $277 billion in constant 2009 dollars, using PPP conversion rates. The corresponding “best” estimates for China’s defense spending is $1,258 billion.
Defence Expenditure: India and China 1990-2030

Given the data on likely GDP for China (approximately 22 trillion, see above) and a historical spending on defense of 2% of GDP, a mid range figure of approximately $440 billion per year seems more likely. If the highest and lowest GDP estimates were employed, we could produce a low estimate of $260 billion and a potential high of $620 billion for Chinese military spending. Using the same estimates on likely GDP for India (approximately 8.5 trillion, see above) and a historical spending on defense of 2% of GDP, a mid range figure of approximately $250 billion per year seems more likely. If the highest and lowest GDP estimates were employed for India, we could produce a low estimate of $140 billion and a potential high of $336 billion.

Demographic Trends

China and India are the only countries in the world with populations of more than 1 billion. According to U.S. Census Bureau’s International Data Base estimates, there are now 1.189 billion people in India. India’s population is projected to grow to 1.460 billion people in 2030, and continue to grow through at least 2050 (when it will be 1.656 billion). India is expected to surpass China in 2025, whose population is projected to reach a maximum, of 1.395 billion, in 2026 and to decrease thereafter. According to U.S. Census Bureau’s International Data Base estimates, there are now 1,336 billion people in China. China’s population is projected to grow to 1,391 billion people in 2030.

China is likely to continue to have higher GDP per capita than India, which matters more on the world stage than numbers of people. In the long term, however, China’s prospects may be hindered by its demographics. An aging population without an established safety net will create demands for new types of services (especially health care), reducing the
disposable income of the working population through wealth transfers to the elderly and laying claim to the large national savings pool that China has built up during the boom years. 87

Figure 7. Population Trends for India and China to 2035. 88

In the future, India will have more favorable demographics than China, but whether it is able to reap a demographic dividend will depend on successful government implementation of an ambitious economic development agenda. 89

Both countries have, and will continue to have, very large military-age populations and are unlikely to face a shortage of people available for military service. However, underlying social and economic changes may change the internal culture of the people in the military and by extension the militaries themselves. At present, most of the conscripts in the Chinese People’s Liberation Army (PLA) are the only children in their families, and their representation has been increasing with the entry of the one-child policy cohorts into service, from 20.6 percent in 1996 to 52.4 percent in 2006. Officer reenlistments for only-child personnel are likely to be affected by greater economic opportunity and the need to provide for elderly parents. 90

India’s military will not face the same fertility-induced social problems as China’s, as India’s fertility rate is still above replacement level. However, India will face problems similar to China’s in officer and highly technical cadre accession and retention, as the broader economy will be more strongly competing with the military for talent. This may even be more acute in India, because the higher levels of income disparity will shrink the available pool of highly qualified candidates, thus increasing the competition and raising the wages that the military will have to offer in order to attract top talent necessary for a military proficient in the full spectrum of warfare. 91

Research and Development (R&D) Trends

Scientific research, invention, and innovation are key drivers of economic growth. 92 It also underpins the development of leading edge military capabilities. Both China and India have ambitious indigenous research and development programs.
China. The Chinese defense R&D apparatus has been undergoing a far-reaching overhaul and expansion to overcome serious organizational, managerial and operational problems that have crippled its ability to conduct high-quality work for much of its 60-year history. Developing a robust defense R&D system is a top priority in China’s 2006–2020 Medium and Long-Term Defense Science and Technology Development Plan, which emphasizes:

a. Shifting ownership and funding of key portions of the state-controlled defense R&D apparatus to the country’s ten leading defense conglomerates.

b. Developing an extensive defense-laboratory system to pave the way for long-term technological breakthroughs.

c. Breaking down barriers that have kept the defense R&D system separate from the rest of the national R&D base, and forging close links with universities and civilian research institutes.93

The Chinese defense industry, in conjunction with the PLA, has drawn up major plans to guide weapons, technological and industrial development over the next five to ten years. These include the 12th five-year defense science and technology program covering 2011–2015. The principal aspiration is to attain the technological level of first-tier global military powers within the next ten to 15 years.94

As part of a broad effort to expand basic research capabilities, China identified five areas that have military applications as major strategic needs or science research plans requiring active government involvement and funding: material design and preparation; manufacturing in extreme environmental conditions; aeronautic and astronautical mechanics; information technology development; and, nanotechnology research. In nanotechnology, China has progressed from virtually no research or funding in 2002 to being a close second to the United States in total government investment.95 China is also focusing on the leading edge technologies for rapid development. These include: Information Technology; New Materials; Advanced Manufacturing; Marine Technologies; and, Laser and Aerospace Technologies.96

India. India has maintained a policy that it should produce 70% of its required military equipment domestically by the end of this decade, rather than the 30% produced currently. India’s Minister of Defense, A.K. Antony, recently conceded that self-reliance is our motto, but it is still a distant dream. In January 2011, India took an important step toward realizing this aspiration by releasing its first-ever Defense Production Policy.97 This policy is significant in that it articulates an agenda for supporting a domestic defense-industrial base, rather than couching these intentions in dense procurement documents, as had previously been the case.98

The policy is intended to serve as a guide for India to achieve substantive self-reliance in the design, development, and production of equipment, weapons systems, and platforms; create conditions conducive to private industry taking a more active role; and broaden the defense R&D base of the country.99
Like China, India is working in various areas of military technology which include aeronautics, armaments, combat vehicles, electronics, instrumentation engineering systems, missiles, materials, naval systems, advanced computing, simulation and life sciences. In particular, it is focused on:

a. The design, development and production of state-of-the-art sensors, weapon systems, platforms and allied equipment for its military services.

b. The provision of technological solutions to the military to optimize combat effectiveness.

c. The development of infrastructure and quality manpower to build a strong technology base.\(^{100}\)

**Funding Research and Development.** To realize their research and development objectives, both China and India are increasing their allocation of financial and human resources. In India, military research and development has absorbed approximately 6.4% of defense expenditure over the period 2003-2011.\(^{101}\) India has invested approximately 0.7-0.8% of its GDP in national research and development activity over the period 1997-2007. However, it has a stated goal to increase the percentage of GDP spent on research and development to 2.5%.\(^{102}\) This is important because civilian research can often have important military applications.

China is the third-largest global research and development spender after the United States and Japan. Its percentage of GDP spent on research and development has grown annually by 18 percent since 2000, from 0.25 percent of GDP in 1996 to around 1.01 percent in 2006. Like India, China aims to increase the percentage of GDP spent on research and development to 2.5%, but by 2020.\(^{103}\)

Military research and development trends for China are difficult to estimate given the opacity of their military budget. Even the US Department of Defense Reports to Congress on China’s military are not able to break out separate figures. However, the ISS Military Balance for 2011 estimates that Chinese government research and development reached 8% of total defense expenditures in 2009.\(^{104}\) The true level of research and development funding for the Chinese military remains a key uncertainty.

**Differences in Strategic Competencies and Characteristics**

China and India have both demonstrated competencies, or characteristics, in certain strategic fields which can provide insights into future capability.

**Similarities.** Key similarities include:

a. A sense of civilization and antiquity, which is coupled to a belief that ‘their time has come’ as a global power.
b. Increasing GDP, and as a consequence, an increased capacity (and willingness) to invest in defense.

c. Massive human resources, at least in the sense of quantity. Consequently, there is unlikely to be a shortage of suitable manpower for military requirements.

d. An increasing demand for energy, and assured access to that energy. This will have an impact on both economic and national security policy of both nations, and the remainder of the world.

c. Both countries understand that science and technology plays a crucial role in achieving economic growth. Consequently, they have set levels of R&D expenditure similar to those of industrialized countries.  

**Differences.** Key differences include:

a. India is model democracy and has remained so since its formation. China is a repressive one-party state, with a demonstrated willingness to employ violence against its own people to retain power.

b. Even with large growth in both nations, and similar levels of manpower, in 2030 there will remain a disparity in financial resources between China and India.

c. China sees its domestic and foreign security agendas as closely linked. India does not.

d. China has demonstrated a significantly advanced capacity to indigenous production of advanced defense products. India, on the other hand, has not yet been able to do so due to bureaucracy and corruption.

**Key Judgments on the Nature of the Competition**

China-India relations, despite fitful improvements, will remain competitive. The two nations have divergent self-images and different political systems. They also both wish to emerge as major powers beyond Asia. India’s continued expansion of the strength and reach of its maritime capabilities will provide the Chinese with further reason to be wary of Indian intentions.

The relationship is likely to remain very competitive in Southeast Asia. In January 2001, India signed defense pacts with Indonesia and Vietnam. This was part of India’s attempt to woo the nations of Southeast Asia under the ‘Look East’ policy started in the 1990s. Other territorial disputes dog the relationship. China still does not accept Sikkim’s incorporation into India. China has also held firm on its hold of Arunachal Pradesh. The Chinese remain concerned about India exploiting the Tibet issue because they have not completely succeeded in suppressing Tibetan dissent or legitimizing their rule.
Neither India or China are comfortable with the rise of the other. They are likely to compete for influence in Central and Southeast Asia, and for leadership in international organizations such as the United Nations. They are also likely to compete more economically. Chinese and Indian strategy is currently constrained by three continuities:

a. While the polarity of the international system has changed, its ordering system has not. They must continue to pursue their interests and cope with US primacy in the international system. However, by 2030, this may not be the case.

b. As long as the US, India and China possess nuclear retaliatory potential, they need not have the forces to prevail in a conventional conflict but do need to be able to test the resolve of adversaries they cannot defeat.

c. While the world stage has changed, geography and history still combine to pose daunting foreign policy challenges.

Growing concerns over maritime security may create opportunities for multinational cooperation in protecting critical sea lanes. But mutual suspicions regarding the intentions behind naval build-ups by potential regional rivals or the establishment of alliances that exclude key players would, however, undermine efforts for international cooperation. A naval arms race in Asia may emerge in response to China’s further development of naval power projection. A naval arms race might also be spurred by “anti-access” capabilities—such as attack submarines and long-range anti-ship missiles—that become widely viewed as efforts by Beijing to extend its political influence in the region and to deter attempts to cut off China’s seaborne energy supplies by threatening mutual disruption of sea trade.

There is an inherent tension in Chinese strategic culture today. This places a deep-seated tendency to conceal military capabilities and force development against a partial acceptance that excessive secrecy inflames regional and global anxiety about China’s rising power. Additionally, extreme secrecy is increasingly difficult to reconcile with China’s role in the integrated global economy, which depends upon transparency and the free flow of information for success.

Another source of tension between emerging Chinese military power and China’s tradition of secrecy is that many of China’s new military capabilities are difficult or impossible to hide. Examples of such capabilities include advanced aircraft, long range missiles, and modern naval assets. Furthermore, missiles, space-based, and counter-space systems must be tested and exercised before being operationally deployed with confidence. The PLA’s growing inventory of these new assets and the ranges at which they operate effectively prevents their concealment.

*The Chinese View of India.* In the view of many Chinese analysts, India is one of the world’s four great civilizations. Once a glorious empire, India now seeks to reclaim its rightful place in Asia and the world after being exploited by imperialism for hundreds of years and then being held back by wrong-headed economic policies for decades. At the
dawn of a new century the economy has been unleashed and its citizens are eager to achieve their country’s full potential. India also represents a looming strategic threat to China, albeit not one that provokes the high level of concern that the United States or Japan does.116

China sees itself as the rightful preeminent power in Asia and India as its major medium- to long-term competitor for this position. In the view of many Chinese strategists, India possesses an ambitious, belligerent, and expansionist strategic culture. Of course there are less extreme views of India, but few if any of China’s strategic thinkers seem to hold warm or positive views of India for China’s future. Moreover, Chinese analysts tend to hold realpolitik views of the world and view China’s neighbors with wariness if not outright suspicion.117

**Chinese Strategy for Dealing with India.** Chinese strategy towards India has five components:

a. A feigned indifference towards India coupled with denial that India is a potential rival.

b. An effort to minimize direct conventional military competition with India, while subtly treating India as a significant nuclear threat.

c. Maintenance of an enduring relationship with Pakistan while avoiding encouragement of Pakistan’s revisionist policies towards India.

d. Bolstering engagement with Southeast Asian states while remaining engaged with smaller nations in South Asia.

e. A continued focus on maintaining a high economic growth rate that generates a larger amount of resources for power-political purposes.118

This suggests that China very much sees India as a potential challenger. India’s emerging economic strength and geophysical location make it relevant to China’s long term security in several ways. India could become a major regional rival for influence in Central and Southeast Asia. India also has a large (and growing) navy, which dominates the sea lanes through which must pass most of the oil supplies vital for China’s energy security. This is a key asymmetry – India can affect China’s energy supplies but China cannot affect India’s supplies to the same degree. Finally, India’s location makes it an ideal location for any containment of China by the US in concert with other allies.119

**The Indian View of China.** China does not figure prominently as a classical enemy of India, but a sense of Indian rivalry with China has emerged in recent decades. In antiquity, the Himalayan wall stood in the way of invasions from the northeast. Classical Chinese empires were oriented to the great rivers and agricultural resources of central and eastern China, and simply did not have reasons or energy to invade India and never threatened to colonize India. However, with partition and the creation of Pakistan, and the dispute over
Kashmir, India’s concern about defining and defending its frontiers is understandable. This provoked the Chinese military incursion into eastern India in 1962.\textsuperscript{120}

As far as China figures in Indian strategic culture as an \textit{enemy}, there are several aspects to consider. First, India is sensitive to China’s appeal as an alternative ancient civilization, with a large modern population, that is almost bound to collide with India in seeking influence for security and commercial purposes in adjacent regions. Second, China has been a major source of military and nuclear assistance to Pakistan, giving China an ally or partner on the Arabian Sea. China’s nuclear and missile assistance to Pakistan has also caused concern.

Nevertheless, concerns about China are not overplayed in Indian strategic culture. Rather, India’s sense of civilization and antiquity is seen as at least equal (if not superior) to China’s, and India has been prudent in seeking a non-confrontational relationship with China in which trade channels and other forms of exchange are growing and are being used to limit China’s reliance on Pakistan.\textsuperscript{121}

\textit{India’s Strategy for Dealing with China.} From the 1962 war onwards, India’s overall policy towards China was centered on the border dispute.\textsuperscript{122} However, the current Indian strategy for dealing with China is subtle and multidimensional:

a. Avoid picking rhetorical, political or military fights with the Chinese and build confidence.

b. Improve relations in areas where rapid improvement is possible, such as bilateral trade and fighting terrorism.

c. Protect itself against the worst should relations sour. Nuclear deterrent, conventional force modernization, development of leading edge technologies such as IT, aviation, biotech and advanced materials manufacturing are used to ensure access to the best military capabilities.

d. Revitalize relations with peripheral Asia states in Southeast and East Asia.\textsuperscript{123}
Phase 2: The Key India-China Balances

Employing the context of the *Nature of the Competition*, this next element of the examination of India-China competition will be divided into key balances. As Marshall has found with his net assessments, these balances are neither exhaustive nor independent of each other. Significant issues will differ depending on the context — thus, each may be measured differently.\textsuperscript{124} The key balances are:

a. *Command and Control Capability*. This includes joint integration and doctrine, as well as space-based, and cyber, capability. These capabilities underpin national and military activity in peace and war.

b. *Strategic Forces*. Both India and China possess nuclear weapons, nuclear command and control, and the means to deliver these weapons over long distances.

c. *Conventional Maritime Capability*. There is significant potential for competition in this area. Maritime capability incorporates air power in support of naval operations.

d. *Conventional Air-land Capability*. Both nations, in the past decade, have improved the quality of their land and air forces. Given the shared border, and the likelihood that any conflict in this region is likely to be air-land in nature, this balance is an important part of the strategic competition.

Each balance will consider the following:

a. *Basic Assessment*. This includes how India and China might assess each other.

b. *Key Asymmetries*. This includes organizational or cognitive asymmetries.


d. *Impacts*. This examines where the Chinese and Indians may see opportunities for gaining advantage, in peace and war, and how they assess weaknesses in their own forces and doctrines that must be redressed or protected.
The Command and Control Balance

Introduction

Both China and India are aggressively pursuing advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance, or C4ISR, capabilities. These capabilities underpin all military planning, command, strike and movement, in both peacetime and war. By 2030, they will have capabilities that will match US capacities at least quantitatively, if not qualitatively.

Basic Assessment

Both nations have recognized the necessity to modernize their doctrine and conduct joint operations. China’s military has been working for several years to develop the capability to conduct integrated joint operations (IJO), a concept the PRC believes essential to modern warfare. IJO are characterized by the integration of multiple service elements under a joint command headquarters, making full use of advanced information technology and a networked command platform. The Indians are somewhat further behind in this regard, with their Integrated Defence Staff being a more recent innovation. One of the primary objectives of HQ IDS is to promote jointness within the Services.

Chinese analyses of US military operations in the Persian Gulf wars, Kosovo and Afghanistan have yielded one critical insight: contemporary and future warfare is inordinately dependent on a complex but exposed network of sophisticated command, control, communications and computer-based intelligence, surveillance and reconnaissance systems operating synergistically in and through space. As such they have developed a sophisticated range of space-based capabilities, launch capacity and counter-space capacity. The Indians, also recognizing the importance of space based capabilities have also developed an indigenous space industry, although their counter-space capacity is very limited.

Key Asymmetries

With the information that is available, it is apparent that China leads in elements considered within this balance. This should pose considerable alarm in India, given the fundamental importance of contemporary joint warfighting doctrine and space / cyber based capabilities for a modern military organization. Space-based, and cyber capabilities will only gain in importance out to 2030.

Trends

The Move to Jointness. The Indian Integrated Defence Staff (IDS) was created on October 1, 2001 as a sequel to the decision by the Group of Ministers based on Kargil Committee Report. The staff of HQ IDS is provided from three Services, and other elements of the Ministry of Defence. During 2010, the Indian Integrated Defence Staff (IDS) Headquarters released four classified joint doctrines on: electronic warfare; maritime air
operations; perception management and psychological operations; and air and land operations. A fifth joint doctrine on sub-conventional operations emphasized that employing the armed forces was not the natural choice for countering internal threats.

Notwithstanding these measures, the Indian military remains primarily Service-centric. As Cohen (2010) has noted, the Services are *basically on their own; they follow different strategies and are ready to fight different wars.* Strong institutional proclivities remain, and they each promulgate Service-centric warfighting doctrine despite recent moves towards jointness. The Army focus is its Cold Start doctrine focused on Pakistan. The Air Force is focused on strategic penetration, air dominance and defense. The Navy, as demonstrated in its most recent document, *India’s Maritime Strategy 2007.* As Cohen notes, *India is some distance from a Goldwater-Nichols transformation; the present joint staff is a token operation.*

There are no publicly available official documents that describe Chinese military doctrine. The Chinese view these as classified information and do not release them to foreigners. Western conclusions about Chinese military doctrine are drawn from partial information contained in journal articles, PLA military academic books and interaction with foreign officials by Chinese military personnel. What is known is that China takes a different approach to doctrine from the West. Where in the west, doctrine is hierarchical, with theory trickling down from strategy to operations to tactics, the Chinese divide their military doctrine in *Operational Theory* and *Operational Practice,* linked through *Military Science.*

Further, their views of war entail three levels: war, campaigns and battles. This was formalized in 1999 in the official New Generation Operations Regulation, which is believed to be the highest level operational and training guidance for the military. It is thought that these New Generation Operations Regulations have been issued for the Army, Navy, Air Force, the Second Artillery and logistics, although is yet to be confirmed definitively.

**Space Based Capability.** India ascribes great value to becoming and being acknowledged as a space-faring nation. Over the past several decades, India developed a clear space policy which is focused on civilian activities. In the last decade, India has expanded its activities and has an increasingly strong military space program.

The INSAT series brought about revolutionary changes in India’s communication sector. The series, consisting of multipurpose satellites, offer services in the area of television broadcasting, weather forecasting, disaster warning, and search and rescue missions. India also has the largest constellation of Remote Sensing Satellites, providing services to both national and global customers. Indian Remote Sensing Satellites provide a range of spatial resolutions and their state of the art cameras are reported to provide pictures of the Earth in different spectral bands. Both communications and sensing satellites have clear dual uses in the civilian and military realms.

China’s space program has been on display over the past few years. It has put its *taikonauts* into orbit, launched data-relay and global positioning satellites, and proven its
anti-satellite prowess. By most contemporary assessments, China’s capabilities in space rank a distant third behind the United States and Russia. Rapidly emerging space reconnaissance capability accentuates the path China is taking in its satellite development. Until recently, China focused on building and launching dual-use satellites. However, with the *Yaogan* (remote sensing) series in particular this trend appears to be giving way to space capabilities with clearer military application.\(^{130}\) China is also deploying imagery, reconnaissance, and Earth resource systems with military utility.

In one critical area, China is rapidly emerging as a leader. Since December 2009, the People’s Liberation Army (PLA) has made great strides in its satellite reconnaissance capabilities in the maritime environment. Within a year of the December launch of *Yaogan*-7, the daily time in which China could use its satellites to locate and identify naval vessels may have doubled. This marks a turning point: China’s constellation of satellites is transitioning from the limited ability to collect general strategic information, into a new era in which it will be able to support tactical operations as they happen.\(^{131}\)

**Counter-Space Capability.** Chinese strategists regard the ability to utilize space and deny adversaries access to space as central to enabling modern, *informationized* warfare. Although PLA doctrine does not appear to address space operations as a unique operational campaign, space operations are an integral component of other PLA campaigns.\(^{132}\) Among the many lessons that Chinese analysis of US military contemporary operations has yielded is the insight that the US is inordinately dependent on its complex but exposed network of sophisticated command, control, communications and computer-based intelligence, surveillance and reconnaissance systems operating in and through space. The Central Military Commission of the Chinese Communist Party has authorized counter-space programs remarkable for its comprehensiveness and diversity.\(^ {133}\)

Key elements of Chinese counter-space capability are believed to include:

a. *Space object surveillance and identification.* Nullifying foreign space systems, either kinetically or by denying them the information they seek to obtain or transmit.

b. *Direct attack weapons.* These are particularly effective against satellites in low Earth orbit, where most remote-sensing, meteorological and electro-optical, infrared and radar-intelligence satellites, and their associated relays, currently operate.

c. *Directed-energy weapons.* As part of a larger effort to develop ’new concept weapon’, China has devoted considerable resources to directed-energy systems, particularly ground-based high- and low-energy lasers, for counter space purposes. China’s laser program is mature and its domestic research and development efforts are recognised as world class.

d. *Electronic attack.* Chinese military planners have concentrated on electronic attack methods to stymie critical foreign space assets located in medium, geosynchronous and eccentric Earth orbits where these other technologies are less effective.
e. **Ground attack.** The easiest form of counter-space operation consists of physical assaults on the ground segments associated with telemetry and control; data reception, analysis and distribution; and, assembly and launch facilities.\(^{134}\)

India is not known to possess a counter-space program, or the capacity to deploy such a capability in the short term. However, in the coming two decades, the Indians may have no choice but to do so, even if solely for deterrent purposes.

**Cyber Capabilities.** Since the demonstration of the potential of network warfare in the first Gulf War, China has sought to absorb this technology. The PLA Communications Corps is now estimated to represent approximately 10 percent of PLA troops. Since the transition to a Integration Joint Operations approach, China has significantly improved its network-based computer activities. Beginning in 2000, the Chinese have built a new integrated C4IKSR (the K stands for kill) system called *Qu Dan*, which integrates cellular and satellite communications systems and is linked to satellite, aircraft and electronic sensors.\(^{135}\)

It is now apparent that China is one of the most aggressive users of computer network operations to conduct surveillance and espionage. The 2011 report to Congress on foreign espionage has called the Chinese *the world’s most active and persistent perpetrators of economic espionage*\(^{136}\). They are thought to be capable of attacking and shutting down vital military and civilian network infrastructure in Western nations, and elsewhere.\(^{137}\)

India has conducted cyber warfare operations on several occasions in the last two years. This has provided the impetus for Indian plans to establish a National Cyber Command. About $3 billion has been set aside for establishing the command, and planning for the establishment of the command is well advanced. Currently, responsibility for cyber war is diffused among various intelligence agencies. One remit of the National Cyber Command will be an interdepartmental, inter-services, multiagency, multidisciplinary approach to dealing with emerging cyber warfare threats.

**Implications**

Where India may see opportunities, and Chinese weakness:

a. **Computer Network Operations Capability.** A concern for China is the awareness of their own vulnerability to cyber attack. Whenever allegations of Chinese state-sanctioned cyber-exploitation or hacking operations are made, the default position of Chinese government spokesmen has been to emphasize that China too has been the victim of such operations. While allowing for a degree of disingenuousness in these comments, there is an element of truth to them. Many Chinese government systems rely on Western hardware and software, much of which is pirated.\(^{138}\)

b. **Development of Counter Space Capabilities.** The solution to redressing emerging India space vulnerabilities lies in developing, among other things, offensive counter-space capabilities. These will almost certainly be required, if for no other reason than
to deter Beijing’s use of anti-space weaponry and to hold at risk its own emerging assets in space, which are likely to become even more important for both economic and military purposes as China evolves into a great power. Offensive India counter-space capacity serves the limited but critical purpose of raising the costs of China’s evolving space-denial strategy, increasing the probability that Beijing will desist from asymmetric attacks on Indian space assets.\(^{139}\)

c. **Improved Space Surveillance.** India must improve its space situational awareness to be able to comprehensively identify and assess all orbiting objects, better anticipate the sources and capacity for counter-space attacks, and effectively identify the origin of any attack.

d. **Survivability.** A program to enhance the survivability of space platforms though systems hardening, increased maneuverability, autonomous operations options, integrated organic attack-reporting technologies, and possibly on-board active defenses, is long overdue.

e. **Reserve Capacity.** India should enhance its ability to recover from space attacks by investing in reserve satellites either on-orbit or on the ground, in rapid and responsive space-launch capabilities, and in redundant, preferably mobile, control stations capable of seamlessly managing space operations in case of damage to primary control centers.\(^{140}\)

Where China may see opportunities, and weaknesses in India:

a. **Space Surveillance.** The implications of a growing space-based reconnaissance capability are suggestive of China’s global reach potential in 2030. From the narrow perspective of capabilities, a robust reconnaissance system, and the military systems it supports, comprises a small, but important component of the PLA’s ability to operate far from its home shores.\(^{141}\)

b. **Computer Network Operations Capability.** Chinese network attack capabilities are likely to have already compromised Indian systems. The Chinese are likely to retain an advantage in this field for some time, and can be expected to employ this advantage in both peacetime and war.
The Strategic Nuclear Balance

Introduction

Both India and China possess nuclear weapons, nuclear command and control, and the means to deliver these weapons over long distances. The use of nuclear weapons represents the worst case scenario in the India-China competition, and demands examination.

Basic Assessment

While a nuclear war is not likely, it does remain within the realms of possibility. Additionally, the environment is a nuclear triangle of India-China-Pakistan. There is no historical precedent for the creation of a stable deterrence regime in such an environment. Despite the presence of nuclear weapons on the sub-continent and on the high seas, a localized conflict between China and India – either on their shared border or on the high seas – remains a possibility by 2030.

China has historically viewed nuclear weapons as tools of coercion, with their value stemming from possession rather than use. Leaders have seen nuclear weapons as useful for deterring a nuclear attack and countering coercion, but not for fighting or winning wars. This has impelled China towards a minimum deterrence posture, underpinned by a small arsenal kept off alert, and a no-first-use (NFU) declaratory policy that relies on the threat of a retaliatory strike on an adversary’s cities.\(^{142}\) China is estimated to have approximately 240 strategic nuclear warheads to arm its triad of missile forces, submarines and bomber aircraft. It is improving its delivery systems in range, accuracy, mobility and survivability. While it may have the ability to arm its missiles with multiple, independently targeted re-entry vehicles (MIRV).\(^{143}\)

China has made steady progress in recent years to further develop its offensive nuclear capabilities. Additionally, it is both qualitatively and quantitatively improving its strategic missile forces.\(^{144}\) China is modernizing its nuclear forces by adding more survivable delivery systems. For example, in recent years the road mobile, solid propellant DF-31 and DF-31A intercontinental range ballistic missiles (ICBM) have entered service. China may also be developing a new road-mobile ICBM, possibly capable of carrying a multiple independently targeted re-entry vehicles (MIRV).\(^{145}\)

India’s nuclear capability is aimed at maintaining a minimum credible nuclear deterrent...it is not a fixed quantification, it is a policy approach dictated and determined in the context of our security environment. Militarily, India’s small arsenal of nuclear weapons is intended to deter both Pakistan and China. India’s nuclear doctrine is premised upon a ‘credible minimum deterrent’. Like China, India claims a NFU policy, a pledge not to use nuclear weapons against non-nuclear armed states and a long-term commitment to disarmament.
India is estimated to have 80-100 assembled nuclear weapons, with approximately 50 of them operational, as well as both ballistic missiles and bomber aircraft. India has many aircraft suited for delivering nuclear weapons. India has also worked for many years to develop nuclear-capable ballistic missiles. The Agni-V ballistic missile, with a 5000 kilometer range, is scheduled for its first test in December 2011. Assuming it could be fitted with a nuclear warhead, it would bring major Chinese cities, including both Beijing and Shanghai, into Indian nuclear range. Indian sources explicitly describe the Agni III and V as designed to deter China. Indian analysts have speculated that an effective retaliatory strike would require India to hit at least ten major Chinese cities.

**Key Asymmetries**

The Chinese nuclear force has a quantitative and qualitative edge over the Indians in every field that open source information is available for.

a. **Survivability of the Nuclear Force.** With its underground facilities, mobile launch systems and extant at-sea basing for nuclear missiles, China has a significant edge in the survivability of its force.

b. **Delivery Systems.** China has a larger number of delivery systems and also has more longer range missiles that are able to place targets in India at risk. This will, however, change by 2030 with deployment of longer range Indian missile systems.

c. **Number of Warheads.** The PLA is assessed to have a larger inventory of nuclear weapons than India. It currently possess more than double the number that India is thought to possess. This is unlikely to change by 2030.

**Trends**

**Improving Command and Control of the Nuclear Force.** The Second Artillery Force organizes and commands its own troops to launch nuclear counterattacks and conduct operations with conventional missiles. India’s Nuclear Command Authority now controls the nation’s nuclear weapons.146

![Nuclear Weapons and Delivery Systems 1990-2030](image)

**Figure 8. Nuclear Weapons and Delivery System Trends.**147
Increase in size of missile forces. Both nations have continued a trend, evident over the past two decades, of increasing the quantity of nuclear armed missiles.

Development of Longer Range Missiles. Both nations continue to develop missiles capable of mounting nuclear weapons with intercontinental range.

Development of Submarine Based Nuclear Weapons. While China has a slight edge in both the quantity of submarines now and likely in 2030, both nations have recognised the importance of a submarine based nuclear deterrent. Both are developing indigenous solutions for their ballistic missile submarine requirements.\textsuperscript{148}

Enhanced Survivability of the Nuclear Force. China’s strategic missile force and the Second Artillery Corps have built and utilized UGFs and utilizes them to protect and conceal their newest and most modern mobile missiles. Since December 2009, several PRC and foreign media reports offered additional insight into this obscure tunnel network, which reportedly stretches for over 5,000 km.\textsuperscript{149}

Development of Missile Defense Systems. China is proceeding with the research and development of a missile defense umbrella. India is seeking missile defenses to reduce its vulnerability to nuclear attack. There are reports that India is developing a two-tiered ballistic missile defense system.\textsuperscript{150}

Strategic Implications

For India. Where India may see opportunities, and weaknesses in China:

a. Ensure the possession of sufficient missiles and warheads for an assured second strike capability to ensure an appropriate level of deterrence is achieved.
b. Develop an ICBM capability that puts Chinese cities at risk, therefore enhancing deterrence and minimize the chance of nuclear weapons use as the result of a limited conflict.
c. Split investment in the long-range nuclear force between land and sea deployed systems.
d. Sustain the ‘hotline’ with China, and build in additional control measures similar to those established between the U.S. and the USSR during the Cold War.
e. Seek public clarification from China on the clear meaning of its No First Use Policy.

For China. Where China may see opportunities, and weaknesses in India:

a. Continue to develop anti-ballistic missile forces, in force the Indians into a choice of where to place their more limited financial resources for research and development.
b. Continue to enhance the UGFs to ensure the survivability of the nuclear force.
c. If a triad of air, sea and land based nuclear delivery systems is to be maintained, commence development of a new, long range penetrating bomber (manned or unmanned). This would have utility against India, Taiwan, Japan and the U.S.
Figure 9. Indian and Chinese Nuclear Capability.\(^{151}\)

<table>
<thead>
<tr>
<th>INDIA</th>
<th>CHINA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nuclear Warheads</strong></td>
<td><strong>Nuclear Warheads</strong></td>
</tr>
<tr>
<td><strong>QTY</strong></td>
<td><strong>QUALITATIVE JUDGMENT</strong></td>
</tr>
<tr>
<td>60-80</td>
<td>India’s nuclear stockpile includes 60-80 assembled nuclear warheads, with only about 50 fully operational.</td>
</tr>
<tr>
<td><strong>100+ by 2030</strong></td>
<td>The current number is likely to grow over the next decade.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nuclear Delivery Systems - Aircraft</strong></th>
<th><strong>Nuclear Delivery Systems - Aircraft</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>Su-30 (Range 1,500km)</td>
</tr>
<tr>
<td>52</td>
<td>Mirage 2000 (Range 1,850km)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nuclear Delivery Systems - Submarines</strong></th>
<th><strong>Nuclear Delivery Systems - Submarines</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>INS Arihant, was launched for sea-trials in 2009.</td>
</tr>
<tr>
<td>~6 by 2030</td>
<td>The Indian Navy plans to have six SSBNs in service. Each has 4 x SLBM tubes, which can deploy 12 x K-15 or 4 x K-4 missiles.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Nuclear Delivery Systems - Missiles</strong></th>
<th><strong>Nuclear Delivery Systems - Missiles</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td><strong>INDIA</strong></td>
</tr>
<tr>
<td>Short-range ballistic missile (SRBM): Range 1,000 km or less.</td>
<td>~60</td>
</tr>
<tr>
<td></td>
<td>240+ (est.)</td>
</tr>
<tr>
<td>Medium-range ballistic missile (MRBM): Range 1,000 to 3,500 km.</td>
<td>~100</td>
</tr>
<tr>
<td></td>
<td>Up to 77 (est.)</td>
</tr>
<tr>
<td>Intermediate-range ballistic missile (IRBM). Range 3,500 to 5,500 km.</td>
<td>0 (~50 by 2030)</td>
</tr>
<tr>
<td></td>
<td>Up to 17 (est.)</td>
</tr>
<tr>
<td>Intercontinental ballistic missile (ICBM): Range greater than 5,500 km.</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>41 (est.) (~60 by 2030)</td>
</tr>
<tr>
<td>Submarine-launched ballistic missile (SLBM).</td>
<td>0 (~24 by 2030)</td>
</tr>
<tr>
<td></td>
<td>48 (est.) (~72 by 2030)</td>
</tr>
</tbody>
</table>
The Maritime Capability Balance

Introduction

China’s strategic outlook and culture have traditionally been continental, its leaders largely preoccupied with threats to the nation’s land frontiers. But today China sees its maritime security environment as the more threatening. While China’s short-term anxieties about maritime security are heavily concentrated on the Western Pacific, its long-term naval focus will encompass the Indian Ocean sea lines of communication (SLOCs).\textsuperscript{152} India is acquiring naval capabilities specifically based on its concerns about China’s expanding strategic weight and reach. Much its naval modernization has been based on a strategy of securing India’s place as the principal maritime power in the Indian Ocean. Apart from the United States, China is the only other conceivable long-run contender for this role.\textsuperscript{153}

Basic Assessment

It is in sea lane protection where the Chinese and Indians are most likely to compete on the same seas. Since China’s emergence as a global economic actor, it has relied nearly exclusively on the United States as the guarantor of a safe and unrestricted maritime domain. Approximately 90 percent of China’s trade volume is conducted via maritime transport. Saudi Arabia has become China’s largest trade partner in the Middle East, and has become the largest provider of crude oil to China.\textsuperscript{154} This dependency has prompted greater attention to SLOC protection missions.\textsuperscript{155}

India sees this as the Chinese Navy set on the path to becoming a blue water force, with its interest in an aircraft carrier program, the nuclear submarines and the ballistic/cruise missile projects, and these are part of a strategy to gain a strategic toe-hold in the Indian Ocean Region (IOR).\textsuperscript{156} For its part, India has indicated that it is reluctant to allow any outside power to gain territories in the Indian Ocean basin or to police the region. India is developing the wherewithal to make good on its claim to preeminence in the region, with naval officials openly stating that India requires a blue-water navy to fulfill the missions set forth in Indian Maritime Doctrine.\textsuperscript{157}

Key Asymmetries

India leads in:

a. \textbf{Home waters advantage}. India has a home-waters advantage. While the bulk of Beijing’s naval power and attention will be focused in East Asia over the coming decades, the Indian Ocean will remain New Delhi’s primary sphere of maritime concern, permitting it to concentrate its assets within a single, area of operations.\textsuperscript{158}

b. \textbf{Aircraft Carrier Capability}. India has operated aircraft carriers since March 1961, when it commissioned the Majestic Class light aircraft carrier, INS Vikrant. It has extensive experience in their operations, underway replenishment and the employment of aircraft carrier aviation assets as part of naval task forces.\textsuperscript{159}
c. **Western Interaction.** Over the past decade, India has started exercising more frequently with Western naval forces, including the United States and Australia.

China leads in:

a. **Sea Denial Capability.** The PLAN, aware that it is not yet the predominant naval power in the western Pacific, has developed and demonstrated sea-denial and anti-access capabilities. This however has primarily been aimed at the US.

b. **Size.** The PLAN is a significantly larger force than the Indian Navy. The balance of ships is as shown below:

c. **Anti Ship Ballistic Missile Capability.** This would be the only type of its kind in service anywhere. Likely targets would be aircraft carriers or large naval task forces.

d. **Underwater Warfare.** Submarines constitute an important aspect of China’s continuing sea-denial strategy, and it operates a large (and growing fleet of submarines).

e. **Shipbuilding Industry.** China operates a vibrant and globally competitive shipbuilding industry.\(^{160}\)

f. **Marines.** China possesses a significant Marine force that could at least pose a dilemma to Indian defense planners, especially for outer possessions such as the Andaman and Nicobar Islands.

**Trends**

**Aircraft Carrier Capability.** Both nations have accepted the requirement for a fleet of aircraft carriers, with both settling on an initial fleet of three each. Interestingly, they have followed almost identical paths to this conclusion, with the Indians and Chinese basing their likely 2030 fleets on one ex-Russian carrier\(^ {161} \) and two indigenous carriers.

**Indigenous Capacity Development.** Both nations have developed indigenous naval construction capabilities, with the capacity to design (albeit with foreign assistance as present) of conventional and nuclear vessels, including nuclear attack submarines and aircraft carriers.\(^ {162} \)

**Modern Vessels.** Both navies have recognized the importance of a modern fleet, and are also experimenting with stealthy ship hull forms.

**Underwater Warfare Capability.** While China has a significant edge in both the quantity of submarines now and likely in 2030, both nations have recognised the importance of a substantial submarine fleet, with both nations developing a mixed conventional / nuclear fleet.

**Expeditionary Capability.** Both navies have recognized the importance of an expeditionary capacity, and operating beyond their traditional home waters. Indian vessels have commenced sailing into Southeast Asian waters and beyond. China is focused on building a blue water fleet that is able to operate and be supported beyond the South China Sea and into the Indian Ocean.
<table>
<thead>
<tr>
<th>CLASS</th>
<th>QTY 2011/2030</th>
<th>QUALITATIVE JUDGMENT</th>
<th>QTY 2011/2030</th>
<th>QUALITATIVE JUDGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft Carriers</td>
<td>1 / 3</td>
<td>INS <em>Viraat</em> is planned for decommissioning once INS <em>Vikramaditya</em> and the indigenous CVs are commissioned.</td>
<td>0 / 3+</td>
<td>While the combination of the three Chinese CV are likely to have a larger complement of aircraft, the Chinese are not as advanced as the Indians in the operations of CV and task forces. By 2030, however, they will have achieved a minimum level of competency that will permit out of area operations.</td>
</tr>
<tr>
<td>Naval aircraft</td>
<td>~39 per CV</td>
<td>INS <em>Vikramaditya</em>: 24 fixed wing aircraft (Mig-29 / Tejas) and 10 helicopters. <em>Vikrant</em> class indigenous CV – 29 fixed wing, 10 helicopters.</td>
<td>~50 per CV</td>
<td>Varyag-class: 26 fixed wing aircraft (J-15) and 24 helicopters. Indigenous CV – 24-26 fixed wing, up to 24 helicopters.</td>
</tr>
<tr>
<td>Destroyers</td>
<td>10 / 18</td>
<td>The <em>Kolkata</em> class guided missile destroyer program will produce 10 vessels from 2012. They feature good anti-ship, anti-air capabilities and some land attack capacity.</td>
<td>26 / ~26</td>
<td>Many destroyer captains are also naval pilots.</td>
</tr>
<tr>
<td>Frigates</td>
<td>12 / 12+</td>
<td></td>
<td>53 / ~40</td>
<td>The in-service Han class are obsolescent and unlikely to be in service in 2030.</td>
</tr>
<tr>
<td>Attack Submarine (Nuclear)</td>
<td>1 / 6</td>
<td></td>
<td>5 / 6-12</td>
<td>The majority are designed for shallow regional waters and have short ranges. Thus, they are unlikely to be used in the Indian Ocean without significant improvement to logistics. The <em>Song</em> class boats are being sold to Pakistan, which may result in Chinese subs being able to be supported from Pakistani naval bases. Since the 1990s China has produced an average of two new conventional attack submarines annually, and has a demonstrated industrial capacity to produce at twice that rate, if required. China also possess a significant fleet of submarine 23 support vessels.</td>
</tr>
<tr>
<td>Attack Submarine (Conventional)</td>
<td>15 / 12</td>
<td>By 2025, India’s Kilo and U209s are likely to retire leaving a fleet of: - 2 Akula II improved - 6 U214 / S-80 / Marlin / Amur 1850 (Procurement under discussion) - 6 Scorpene</td>
<td>49 / ~60</td>
<td></td>
</tr>
<tr>
<td>Replenishment Vessels</td>
<td>3 / ~4</td>
<td></td>
<td>7 / ~8</td>
<td></td>
</tr>
</tbody>
</table>

*Legend:* In the ‘Quantity’ column, the first figure is the extant figure, the second is the currently known number either in building or planned to be built.

*Figure 10. The China – India Maritime Balance – A Quantitative View.*

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China-India in 2030: A Net Assessment
Strategic Implications

For India. Where India may see opportunities, and weaknesses in China:

a. Continue to build up its blue water navy, with emphasis on sea control capabilities such as aircraft carriers (and its accompanying naval aviation), ISR, logistics and underwater warfare capabilities.

b. Undertake preparations to contest strategic chokes points at entry to Indian Ocean region.

c. Develop an equivalent capability to the Chinese anti-ship ballistic missile, for sea denial in the Indian Ocean. This builds on its home waters advantage, given the expected range of these missile is theater level, not intercontinental.

d. Enhance its out of area capability.

e. Initiate and / or strengthen partnerships with Myanmar, and other Indian Ocean states.

f. Build better relationships with the US, Singapore, Indonesia and Australia to maintain currency with maritime warfare doctrine and tactics, and build a political constituency that may be useful in any crisis with China.
g. Enhance the naval shipbuilding industry, to remove endemic inefficiencies and quality issues.

For China. Where China may see opportunities, and weaknesses in India:

a. Diversify energy sources to reduce the reliance on Indian Ocean trade routes. In particular, new sources of oil in Latin America offer the potential for trans-Pacific shipment of oil and natural gas, although this may make these route vulnerable to US interdiction.

b. Enhance its String of pearls concept to enable the use of these ports for military replenishment in wartime.

c. Build better force projection capability with integral maritime air control and logistic support, to ensure the security of its SLOCs and prevent India from possessing the capacity to interfere with Chinese energy shipments.

d. Enhance its relationship with Pakistan, including improving Pakistan’s maritime capabilities to ensure that the Indian Navy must apply at least part of its capability to addressing the regional maritime threat.

e. Exploit the capacity and flexibility of its naval shipbuilding industry to rapidly produce large numbers of advanced destroyers, frigates and logistics vessels capable of operations in the Indian Ocean.

f. Enhance its Marine capability, to provide a significant threat to outer Indian possessions, such as the Andaman and Nicobar Islands. Not only would this allow the Chinese Navy more assured passage through the Six Degree Channel to and from the Malacca Strait, it would deny the use of any ISR capabilities from these Indian islands.
The Air-Land Capability Balance

Introduction

China and India, in the past decade, have improved the quality of their land and air forces. Given the shared border, and the likelihood that any conflict in this region is likely to be air-land in nature, this balance is an important part of the strategic competition.

Basic Assessment

For both China and India, their air and ground forces are primarily structured and focused for other contingencies. For China, its primary force structure determinant and focus is Taiwan and associated anti-access operations. For India, the primary force structure determinant and focus is Pakistan. This could change by 2030.

The move towards smaller, more expeditionary forces in China continues a long-running doctrinal and organizational shift in the army. Although the PLA’s large ground force has not experienced the same dramatic modernization as other branches of the PLA, it has steadily improved capabilities in certain areas. The PLAAF continues its conversion from a force for limited territorial defense to a more flexible and agile force able to operate off-shore in both offensive and defensive roles, using the U.S. and Russian air forces as models. Mission focus areas include: strike, air and missile defense, early warning and reconnaissance, and strategic mobility. The PLAAF also has a leading role in the “Joint Anti-Air Raid” campaign, which appears to form the basis for much of China’s planning for anti-access and area-denial operations.

Over the past decade, India has modernized its ground forces – in both equipment and doctrine. The most important innovation has been the implementation of the doctrine, colloquially known as Cold Start, in 1994. Based on the lessons of the 1999 Kargil War, and mobilization following the December 2001 attack on the Indian Parliament, Cold Start aims to provide the capacity to fight short, intense and limited wars and very short notice. But politically, there is little indication that the Indian government will abandon its strategic restraint for a more assertive policy such as Cold Start.

Materially, the Indian Army has made the most progress with programs for new tanks (Russian and indigenous), battlefield helicopters, command and control systems and soldier fighting systems. However, in the main, the doctrine and equipment for Cold Start are focused on deterring – and potentially fighting - Pakistan. In join doctrine, the Air Force has previously resisted efforts to better support ground operations with close air support, however there has been a slow growth in service to service cooperation.

Indian security officials are concerned by what they see as China’s recent assertiveness in the two countries’ long-standing border dispute, and by a change in policy towards India’s dispute with Pakistan over Kashmir, and they have reacted accordingly. They are also suspicious of China’s bolstered military presence in Tibet and of its involvement in infrastructure projects in South Asia with the potential for dual civil–military use. India
sees these as an attempt to contain and encircle it strategically, while China gains permanent access to the Indian Ocean for the first time through the Chinese-built port of Gwadar on Pakistan’s Baluchistan coast. In December 2009, the Times of India reported that the army was revising its doctrine to fight a two-front war with both Pakistan and China, quoting the then-army chief, General Deepak Kapoor, on the shape of the new doctrine.  

**Key Asymmetries**

India leads in:

- **Modern Fighter Aircraft.** While China has a slight edge in the number of modern fighter and fighter-ground attack aircraft (411 to 365), as a proportion of its overall fleet (28%) it lags behind India (58%).

- **Mountain Troops in Northern Areas.** Currently, of India’s 37 divisions, seven are committed to the border with China. India has nearly finished raising two new mountain divisions of 36,000 troops each. In November 2011, India announced plans to establish an additional two mountain divisions in its northern areas.  

China leads in:

- **Indigenous Armaments Design and Production.** China invests a larger amount of financial resources in its indigenous armaments industry, and appears to be significantly more efficient and effective. Cohen (2010) notes that the Indian Defence Research and Development Organization has not delivered a single major weapon system in the entirety of its existence. Corruption is also endemic corruption has compromised arms acquisition for decades.

- **Size.** The PLA and PLA Air Force are both significantly larger than their Indian equivalents. This is shown in Figure 12, on page 40.

**Trends**

**Development of Expeditionary Capability.** The Indian Air Force’s revised war doctrine envisages its transformation into an aerospace power capable of conducting full-spectrum operations and extending its strategic reach from the Persian Gulf to the Strait of Malacca. The PLAAF continues its conversion from a force for limited territorial defense to a more flexible and agile force able to operate off-shore in both offensive and defensive roles, using the U.S. and Russian air forces as models.

**Enhanced Indigenous Armaments Industry.** China’s ground force modernization includes production of new tanks, armored personnel carriers, and artillery pieces. There have been advances in almost every area of PLA ground forces with new production capacity to accommodate surge requests. India has developed a robust armaments industry but still imports a large proportion of its requirements. According to recent Indian Ministry of Defence plans, indigenous production should increase significantly by 2030.
## China-India in 2030: A Net Assessment

### Active Ground Forces

<table>
<thead>
<tr>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>1.1 million</td>
<td></td>
<td>China</td>
<td>1.6 million</td>
<td></td>
</tr>
</tbody>
</table>

### Armored Fighting Vehicles (AFV) and Artillery

<table>
<thead>
<tr>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td>China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanks</td>
<td>4110</td>
<td>The 320+ T-90S, 124 x Arjun, and 1,950 x T-72M are modern MBTs. 1500 new tanks to be purchased from 2015.</td>
<td>7050</td>
<td>Only the 1,500 x Type-96/Type-96A and the 450 x Type-98A/Type-99 could be considered modern MBTs.</td>
<td></td>
</tr>
<tr>
<td>AIFV</td>
<td>1455 (+)</td>
<td>To be replaced from 2020.</td>
<td>2390</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APC</td>
<td>331 (+)</td>
<td></td>
<td>2700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artillery</td>
<td>10758 (+)</td>
<td></td>
<td>12462 (+)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Aviation – Rotary Wing (RW) and Fixed Wing (FW) Transport

<table>
<thead>
<tr>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td>China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attack RW</td>
<td>20</td>
<td>Operated by Indian Air Force</td>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recon RW</td>
<td>222</td>
<td>To be replaced from 2017 with 187 new helo.</td>
<td>248</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport RW</td>
<td>200</td>
<td>Operated by Indian Air Force</td>
<td>20</td>
<td>Operated by PLA Air Force</td>
<td></td>
</tr>
<tr>
<td>Transport FW</td>
<td>217</td>
<td>Operated by Indian Air Force</td>
<td>336 (+)</td>
<td>Operated by PLA Air Force</td>
<td></td>
</tr>
</tbody>
</table>

### Fast Air and Bombers

<table>
<thead>
<tr>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
<th></th>
<th>QTY</th>
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<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td>China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bombers</td>
<td>0</td>
<td></td>
<td>~82</td>
<td>H6A/E/H/M</td>
<td></td>
</tr>
<tr>
<td>Fighter</td>
<td>112</td>
<td>Mig-29; Mig-21</td>
<td>986</td>
<td>J-7; J-8; J-11; Su-27</td>
<td></td>
</tr>
<tr>
<td>Fighter Ground Attack</td>
<td>517</td>
<td>Jaguar; Mig-21; Mig-27; Mirage 2000, Su-30</td>
<td>313</td>
<td>J-10; J-11B; JH-7; Su-30</td>
<td></td>
</tr>
<tr>
<td>Attack</td>
<td>0</td>
<td></td>
<td>120</td>
<td>Q-5</td>
<td></td>
</tr>
</tbody>
</table>
| Fighter / FGA 2030 projection | ~830         | 214 x FGFA
126 x MRCA
270 x Su-30 MKI
220 x Tejas LCA | ~1300 | Mix of J-10, J-11, Su-30 and smaller numbers of the J-20 stealth aircraft |

58% of the Indian fleet can be classified as modern 4th and 4.5th generation aircraft, with the remainder being older, less modern 3rd generation.

28% of the Chinese fast air fleet can be classified as modern 4th and 4.5th generation aircraft, with the remainder being older, less modern 2nd and 3rd generation aircraft.

### ISR and Support

<table>
<thead>
<tr>
<th></th>
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<th>QUALITATIVE JUDGMENT</th>
<th></th>
<th>QTY</th>
<th>QUALITATIVE JUDGMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td></td>
<td></td>
<td>China</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AEW&amp;C</td>
<td>2</td>
<td>Will increase in number by 2030 by at least 2</td>
<td>8</td>
<td>Will increase in number by 2030 by at least 2</td>
<td></td>
</tr>
<tr>
<td>EW</td>
<td>n/a</td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recce</td>
<td>n/a</td>
<td></td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refueling</td>
<td>6</td>
<td>Il-78. Will increase in number by 2030 by at least 2</td>
<td>10</td>
<td>H-6U. Will increase in number by 2030</td>
<td></td>
</tr>
<tr>
<td>UAVs</td>
<td>n/a</td>
<td></td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 12. The Air-Land Balance 2010 and 2030.176
Fifth Generation Aircraft Development. Both India and China have active programs to develop fifth generation fighter aircraft. The Indian Fifth Generation Fighter Aircraft (FGFA) is a joint Sukhoi/HAL program being developed by Russia and India. It is a derivative project from the Russian PAK FA. China is more advanced in its efforts. The Chengdu J-20 is reported to be a fifth-generation, stealthy fighter and made its first flight on 11 January 2011.177

Indigenous Aircraft Industry. China has developed and is producing several combat aircraft including the J-10, the J11 (a Su-27 copy with indigenous components), and the J17. China’s aviation industry is developing several types of transport and airborne early warning and control (AEW&C) aircraft.178 India, which has launched several indigenous aircraft programs, has stumbled in each of its programs. Efforts to build an advanced jet trainer and a light combat aircraft ended in failure because of an immature aerospace industry and high capability aspirations by the Indian Air Force.179

Smaller, more modern air forces. Nearly 28% of Chinese fighter aircraft are now 4th generation, as compared to approximately 2-3% in 2000.180 At the same time 58% of India fighter aircraft are now 4th generation. While the Indian Air Force has changed in absolute numbers of aircraft on slightly, the PLA Air Force has seen a significant decrease in numbers over the past 20 years (from an estimated 4800 fighters / FGA in 1990181, to approximately 620 at present).182 Over the period 1990-2011, both nations increased the number of flying hours flown by pilots by 20% in the case of India, to upwards of 100% for China. This trend is likely to continue.

Figure 13. Military Aircraft Trends 1990-2030.

Smaller, more professional ground forces. The move towards smaller, more mobile forces continues a long-running doctrinal and organizational shift in the army. In the late 1990s,
the PLA began disbanding dozens of heavy divisions and creating PLA brigade organisations.\textsuperscript{183} According to the PLA, this reorganization within the army is significantly improving operational flexibility.

Development of UAVs and UCAVs. Both China and India have invested in UAVs over the past decade. Both nations have indigenous research and development programs that are developing unmanned systems for ISR and for strike purposes.\textsuperscript{184}

**Implications**

For India.

a. Improve the indigenous defense industry so that it is able to develop and build modern jet aircraft.

b. Increase the number of combat support aircraft, such as air-to-air re-fuelers and airborne warning and control aircraft. For example the US Air Force operates a fleet of 476 tankers to support 2750 fighters and FGA, a ratio of approximately 1:5.5. To achieve this level of support, India would need approximately 150 re-fueling aircraft in 2030 to support the forecast fighter / FGA fleet of 830 aircraft.

c. Increase funding for the development of a 5th generation aircraft, either indigenously or in partnership with other nation.

d. Continue to develop air-land cooperation doctrine and tactics.

For China.

a. Review the quantity of light forces trained for mountain warfare.

b. Increase the number of combat support aircraft, such as air-to-air re-fuelers and airborne warning and control aircraft. The US Air Force operates a fleet of 476 tankers to support 2750 fighters and FGA, a ratio of approximately 1:5.5. To achieve this level of support, China would need approximately 220 re-fueling aircraft in 2030 to support the forecast fighter / FGA fleet of 1200 aircraft.

c. Continue to develop air-land cooperation doctrine and tactics.
Phase 3: Scenarios

Introduction to the Scenarios. Employing the long-term trends from Phases One and Two, plausible India-China scenarios along a spectrum from peaceful co-existence to conventional war have been generated to examine how the balance could evolve. This will develop a better understanding of how each nation perceives the other within the balance, and prevent against mirror-imaging. The methodology of Schwartz (1991) is employed in the production of scenarios.

The main purpose of these scenarios is not prediction, but as Weitz (2011) describes, *stretching the mind*. It does not seek to make probabilistic judgments about the likelihood of specific developments contained in the scenarios. Instead, the aim here is to prompt decision makers to:

a. Identify a more complete range of plausible futures.
b. Understand the long-term implications of current trends and events in the India-China competition.
c. Reveal and challenge unspoken assumptions about the competition and its impacts.
d. Develop policies to prevent and manage adverse developments and exploit future opportunities.

It should be noted that:

a. It is not possible to cover all possible scenarios. Indeed, according to Schwartz, most people can only deal with 2-3 scenarios at one time. Therefore this assessment uses three scenarios.
b. Examination of these scenarios should highlight issues that phases 1 and 2 have not identified.
c. Examination of these scenarios should also identify areas for further investigation on our part, including where contingency plans and specific policies may be required to prevent or ameliorate the effects of the assessed scenarios.

Scenario Drivers. In 2030, the influence of India and China will be significant in the global economy, politics, and security environment. Each country’s role on the world stage will also be affected by its economic progress and by the competition that develops between them. The drivers that increasingly will define the strategic environment of 2030 are coming becoming apparent. These include:

a. China and India will both be significantly more powerful militarily by 2030.
b. Highly lethal and accurate weaponry - including weapons of mass destruction (WMD) and ballistic missiles - will empower China and India, to pursue strategies of coercion, intimidation, and denial.

c. New geopolitical alliances and relationships - from Japan and Taiwan in Northeast Asia, to Israel in the Middle East, and to the United States globally - will present both threats and opportunities to Indian and Chinese interests.

e. Competition for increasingly vital resources - especially energy and water - will see India and China develop diplomatic, economic, and perhaps military strategies to guard their access and threaten that of their adversaries.

Critical Uncertainties. A critical uncertainty is an uncertainty that is key to the India-China completion, and our scenarios.

a. New Energy. Whether an energy transition away from oil and gas—supported by improved energy storage, bio-fuels, and clean coal—is completed during the 2025 time frame.\(^{190}\) Implication: If a transition does occur, it has the potential to ameliorate tensions over assured energy supplies.

b. Democracy’s March. Whether advances toward democracy occur in China.\(^{191}\) Implication: A growing Chinese middle class increases the potential for political liberalization but also potentially greater nationalism in China.

c. International System. Whether global powers work with multilateral institutions to adapt their structure and performance to the transformed geopolitical landscape.\(^{192}\) Implication: The emerging global powers of India and China show ambivalence toward global institutions like the UN and IMF, but this could change as they become bigger players. Traditional alliances will weaken, especially those between the US and Asian / Oceania nations.

Scenarios. Three scenarios will be employed:


**Scenario 1 – Strategic Competition in 2030**

*This scenario sees competition for influence in the Indian Ocean and Africa and an enhancement of Chinese forces along their String of Pearls in the Indian Ocean. India sees this situation as China seeking additional influence in South Asia, Africa and SE Asia. China sees this situation as their search for assurance of access to Mid East & African resources through Myanmar and Malacca Straits.*

An intense trade rivalry is playing out in the Indian Ocean Region between China and India. Chinese is hinting that all of Southeast Asia - including Vietnam, Cambodia, Thailand, Malaysia, Indonesia and the Philippines - belong in its sphere of influence. India has claimed everything from Myanmar to East Africa as its trade sphere of influence.

Economically, China had the world's largest GDP in 2030, the United States being the second largest. Its population of 1.39 billion is more prosperous than at any time in their modern history, but matching European or U.S. living standards is still unrealized. For propaganda purposes they have overbuilt the eastern seaboard, pretending to be at a level equal to the United States. But the Chinese hinterland, where 70 percent of the population lives, remains ravaged by pollution, floods and poverty.

India's economy has grown over the last two decades. It had remained service-oriented, along with the production of high-margin, high-value industrial goods. Indian exports are one-third of China's, but overall margins are higher, neutralizing some of China's advantage in size. India and China now compete for the lion's share of markets in Asia and Africa. The Chinese are aggressive marketers and in turn India discarded its traditional approach of peace and neutrality to confront China commercially. India now competes to become the world’s assembly hall. China, which had developed its IT sector, now competes with India for provision of software services and products globally.

China's strategic positioning in Pakistan now becomes useful, as did the port it had built in Pakistan's southern city of Gwadar. The Pakistanis, always looking for an opportunity to humiliate India, were ready to work more closely with China.

China's military has kept pace with its economic progress. The country spends nearly US$500 billion per year on defense and is able to produce world class equipment. India’s army, air force and navy re half the size of China's, but advanced weaponry is available via Israel, Europe and the United States. India spends around one half of what China spends on defense. On the Indo-China border the two armies were about equal.

At the G-12 meeting of 2030, the Indian prime minister and Chinese president agree that India and China would not compete or step on each other's toes to get oil and gas. A summit between the two leaders was planned for Singapore in the coming year. Trade and border disputes could be discussed at the summit. A U.S. proposal to refer the border demarcation issue to the International Court of Justice was worth considering. Trade between India and China was booming again and it was fully balanced. The Chinese balance their sales to India by buying Indian goods and services for the same amount.
Hostilities are not beneficial to either side. Issues were still simmering, but efforts to resolve them were underway. 196

**Implications**

a. While economic cooperation is growing between China and India, it is likely by 2030 that there will be significant economic competition, especially as India industrializes and becomes a greater source of a cheap labor pool for the world’s corporations.

b. While mutual trade is increasing, and is forecast to continue out past 2030, this does not neutralize the military competition.

c. The China- India competition will involve political interactions beyond South Asia, as both seek to increase their global standing and assure access to energy and food resources.

d. For India. India’s improving economy will have a major impact on its aspirations to be a global power. It views itself as an emerging economic power.

e. China’s opposition to India’s aspirations and its rivalry in south Asia will affect the tone of the relationship in 2030 – as it already does.

f. Given China’s propensity to maintain a trade balance in its own favor, there is potential for China to gain a hold over India in the economic relationship. This is a trap that India should guard against. 197

g. China has already secured areas for energy exploration and development in Central America, Africa, Southeast Asia and Latin America. India lags behind significantly and will need to compete vigorously to assure itself of sufficient energy supplies through the 21st century.

h. For China. China will be keen to exploit India’s vast market, whose existing middle class of 350 million is likely to double sometime after 2030. Other than China, there will be no comparable market on earth this large.
This scenario features a high seas confrontation between Indian and Chinese maritime forces in the Indian Ocean. India sees this situation as Chinese threat to Indian primacy in Indian Ocean. China sees this situation as their effort to assure Chinese access to Middle East and African resources through Myanmar and Malacca Straits.

An intense trade rivalry is playing out in the Indian Ocean Region between China and India. Chinese is hinting that all of Southeast Asia - including Vietnam, Cambodia, Thailand, Malaysia, Indonesia and the Philippines - belong in its sphere of influence. India has claimed everything from Myanmar to East Africa as its trade sphere of influence.

Unwilling to spend their diminished resources in the West, Middle Easterners have turned to India and China to meet their commercial and military needs. Competition over this new source of income led to enhanced competition between India and China.

China was unhappy about a trade agreement recently concluded between India and Indonesia, which discriminated against Chinese goods and services. Rich in cash due to oil exports, and a growing manufacturing export industry, the Indonesians preferred Indian goods. China had expressed its displeasure by sending its aircraft carrier group around Indonesia into the Bay of Bengal - a reminder to India to stay out of China's sphere of influence.

The message was understood by the Indians, who prepared their two aircraft carrier battle groups to counter the Chinese. The advantage lay with India, with the PLA Navy far from its home ports. The Chinese withdrew their naval fleet.

Changing tack, China arranged a joint military exercise with Pakistan near the Indian post of Daulet Beg Oldi in Kashmir. This provocation resulted in India further upgrading roads and logistic infrastructure along its northern border. The Chinese understood the potential impacts of these Indian counter-moves and called off their exercise with Pakistan.

Assured energy supplies remained a friction point. India had built a huge system to pump gas from Myanmar to India. China had done the same. Myanmar, thinking it could play one against the other and extract more money from both, had sold overlapping contracts. Myanmar's ability to produce the contracted quantities depended upon the timely operation of new gas fields along the Myanmar coast, which India was building. The project was delayed by inclement weather. Unmindful, Myanmar agreed to provide the Chinese government its contracted amount, leaving India at a disadvantage.

India demanded its share. Soon, it deployed its navy to the offshore gas fields to divert gas to India. China responded by entering the Bay of Bengal with a huge naval flotilla. In late 2030, the Chinese sank a patrolling Indian naval vessel. India protested strongly and ordered all Chinese vessels out of Myanmar ports. Two days later India attacked a Chinese naval listening post off the Myanmar coast. The Chinese garrison resists, but eventually surrendered. Realizing the explosive nature of the situation, the U.N. Security Council met.
China-India in 2030: A Net Assessment

in New York. The Myanmar government was advised to institute a policy of rationing its gas exports. This solution was unacceptable to both China and Myanmar.

But war would seriously damage seaborne commerce through the Indian Ocean and the Straits of Malacca. This would not only impact China but the rest of the world. Seeking to interpose itself between the protagonists, the US President ordered two U.S. naval carrier battle groups into the area. This was the circuit breaker. China ordered its carrier group to return home. The Indian carrier force returned to its home port minus one ship. 198

Implications and Insights for India

a. Consider a closer security relationship with Japan, the US, Indonesia, Malaysia, Singapore and Australia for Indian Ocean – and choke points – security in the event of a belligerent China.

b. Potential for the development of an Indian anti-access capability to put at risk Chinese maritime capability – or that of the US and other nations – in the Indian Ocean Region.

c. Work with regional nations to ensure that Chinese naval vessels are unable to use their ports for warlike purposes, such as re-arming.

d. Ensure space based assets have coverage of the Indian Ocean for assured navigation and communications, while also maintaining situational awareness and targeting data on hostile Chinese maritime capability.

e. Ensure Indian maritime force structure allows for an overmatch of capability than the Chinese are able to project into the Indian Ocean.

Implications and Insights for China

a. Continue to develop alternative sources of energy that do not utilize sea trade routes through the Indian Ocean, and ensure land energy transportation routes are also supported.

b. Enhance relationships with Myanmar, Sri Lanka and Pakistan to assure access to their ports, in the long term, for naval vessels.

c. Develop a next generation anti-access ballistic missile – and potentially long range bombers - with the capacity to reach into the Indian Ocean from China.

d. Develop additional capacity to replenish maritime task forces on the high seas.

e. Ensure space based assets have coverage of the Indian Ocean for assured navigation and communications, while also maintaining situational awareness and targeting data on Indian maritime capability.
**Scenario 3 – Border Conflict**

*This scenario features a land border confrontation in a limited conventional conflict over Arunachal Pradesh. India sees this situation as the return to Indian sovereignty of traditional Indian province; countering Chinese aggression. China sees this situation as the retention of sovereignty of traditional Chinese province; countering Indian aggression.*

The winter of 2029-2030 was a time of preparation for both the Indian and the Chinese armies in the Himalayan Mountains. The Chinese had a longstanding claim in the eastern Himalayan region, where they had staged a lightning strike in 1962 and then withdrawn. At the same time in the west China had captured extensive territory in Kashmir's Aksai Chin Plateau, which they had held ever since.

India felt even more threatened by China’s accelerated logistical capability in Tibet through new roads, railways, the damming of rivers flowing downstream into India, and large transfers of Han population reducing Tibetans to a minority. Also alarming to India is China’s overall buildup of military and missile forces in Tibet and Xinjiang. Moreover, since 2025 China has been pressuring its border claims on northeastern India beyond Tawang, to the entire territory of India’s Arunachal Pradesh.

There was also a new breed of intelligent but confrontation-minded politicians in Beijing. They were still smarting over the humiliating withdrawal of their naval fleet from the Bay of Bengal in the fall of 2030. They wished to continue the fight in the Himalayas. China had been preparing for this for 20 years in Tibet, with the completion of a rail network, additional air bases, new military depots and an improved road network all the way to the India-China border.

The Indians had not been idle. They had the advantage of close access to their railways, military infrastructure and industrial network. This could prove decisive against China if Tibet's long road and rail links to eastern China could be severed, or at least significantly interdicted. In addition, India's major supply air bases were only 300 miles away, while China's were much further off, except for tactical air bases.

In the spring of 2030, the Chinese shot down an Indian unmanned aerial vehicle in the Ladakh region of Kashmir. Two days later the Chinese fired several missiles at the Chusul airfield where the UAV had originated. The Indian response was to wipe out China's defense infrastructure in the southeastern Ladakh area through air and missile attacks, and force the withdrawal of China's forward units. This allowed the Indians to recapture the area, which was captured by the Chinese in 1962. The famous Chinese Aksai Chin road linking Tibet to Xinjiang also passed through this region.

A vigorous advance by the Indian army into this area was supported by an Indian air force attack. The Indian army's forward units recaptured the Pangong Lake area. Indian losses in the air and on the ground were heavy, but they had forced the Chinese line back by 15 kilometers. Then India forces halted on order from Dehli, and waited for China's response.
The Chinese had been busy on both the diplomatic and the military fronts. Their diplomats were busy trying to persuade Pakistan to open up a second front in Kashmir. In the meantime China prepared to attack an important Indian air base, which was supporting the AWACS radar planes in the Indian state of Punjab. Concurrently, the United States intervened diplomatically to prevent Pakistan from becoming involved.

One week after the Indians seized the Pangong Lake area, a massive Chinese response was launched. An armada of aircraft from Tibetan airfields began an attack on the air and military base of Ambala. The air battles that followed resulted in heavy losses for both sides. Indian Air Force and short range missile forces concentrated on the destruction of choke points in Tibet's long road and rail links to eastern China. This severely impacted on the Chinese capacity to logistically support its forces.

Where the Chinese did make some progress was in massive cyber attacks against India. Using a complex mix of denial of service, Trojan and worms, the Chinese were able to significantly slow down Indian C2 networks. But the most damage came from their attacks on Indian civilian communications hubs that severed much of its satellite and terrestrial communications capacity with the outside world.

With mounting losses – in personnel and commerce - the initial enthusiasm on both sides for the conflict was rapidly declining. An unofficial truce came into effect, and the search for a negotiated solution began. India made it clear that it would not withdraw its troops from the recaptured territory in the Aksai Chin Plateau. China made it clear that if a diplomatic solution failed it would pursue the war to its conclusion. India began to mate its nuclear warheads with land based missiles and placed its sea-based strategic deterrent in its ballistic missile submarines on the highest level of readiness. Chinese land and sea missile forces had all along been in a state of readiness for a nuclear strike. The United States made it clear to China and India that should they or Pakistan move to activate their long-range nuclear-capable missiles, the United States would intervene and use its hypersonic and cyber strike forces, and nuclear attack submarines to neutralize their strategic forces.

An emissary of the new Indian prime minister flew to Beijing. The Chinese supreme leader refused to meet him, but a senior Communist Party official in charge of Indian affairs met him. India offered to withdraw from the recaptured territory in Aksai Chin provided China did not occupy it. Chinese officials, while initially keen to reject this proposal outright, were keen to end a high intensity conflict which had significantly impacted their economy, and threatened to degenerate into nuclear conflict. It agreed to an Armistice, and the establishment of a demilitarized zone within the area of hostilities.

Implications and Insights for India

a. Ensure Indian air and land force structure allows for an overmatch of capability than the Chinese are able to project into the border area.
b. Ensure space based assets have coverage of border region for assured navigation and communications, while also maintaining situational awareness and targeting data on hostile Chinese air-land capability. This is vital given the Chinese propensity for surprise attacks.

c. Continue developing land logistics infrastructure including transport, basing, airfields and stockpiles, in the border region to both support operations and partly act as a deterrent to Chinese action.

d. Ensure an appropriate level of capacity to interdict Chinese logistic infrastructure that would be required to support Chinese air-land capabilities in any border conflict. This might include air combat capability and short and medium range ballistic missiles.

e. Because of the high potential for an Indian conventional overmatch in this scenario, the Chinese may consider last resort use of nuclear weapons, notwithstanding their No First Use policy. Therefore, India may pursue only limited objectives.

f. Develop a significantly enhanced offensive and defensive cyber capability.

g. Develop extra-regional alliances that might be employed to pressure China in the event of such a confrontation.

**Implications and Insights for China**

a. Enhance the strategic relationship Pakistan to be able to cooperate with them in any land conflict with India, and pose a strategic dilemma for India’s deployment of air-land capabilities.

b. Enhance logistic capacity to support operations in the border region, including roads, railways, supply depots and airfields for both combat and transport aircraft.

c. Deployment of a form of ballistic missile defense system may be a priority for Chinese planners.

d. Given the high potential for an Indian conventional overmatch in this scenario, the Chinese may consider last resort use of nuclear weapons, notwithstanding their No First Use policy.
Phase 4: Implications

This final section is an overall assessment of India-China competition. It describes where there are strategic asymmetries, and environmental opportunities for both India and China – *as seen from their point of view* - and where they might seek to improve the situation in their favor. Finally, this section will describe potential impacts on third party states (such as the U.S.) or alliance systems, as well as issues that require further examination.

Based on the analysis contained in this net assessment, principal implications of the India-China competition in 2030 for *India and China* include:

a. The potential for new Asian political, economic and security institutions that challenge extant international organizations is high, given that the existing situation underpins Western global geopolitical preferences. India will need to ensure that it is prominent in these new organizations to prevent dominance by China.

b. On the economic front, China will be keen to exploit India’s vast market, whose existing middle class of 350 million is likely to double sometime after 2030. Other than China, there will be no comparable market on earth this large. Given China’s propensity to maintain a trade balance in its own favor, there is potential for China to gain a hold over India in the economic relationship. This is a trap that India should guard against.200

c. In the energy competition, China has already secured areas for exploration and development in Central America, Africa, Southeast Asia and Latin America. India lags behind significantly in this regard. India will need to compete vigorously with China to assure itself of sufficient energy supplies through the 21st century.

d. Concerns about assuring future access to energy supplies also are fostering increased naval competition. Despite the growing number of pipeline projects, China will remain dependent on sea transfers of energy from suppliers in the Middle East. This raises concerns about the future of maritime security from the Persian Gulf to East and Southeast Asia.

d. While both nations face demographic challenges, in education, social welfare and other spheres, neither will experience issues gaining sufficient numbers of people for its armed forces by 2030.

e. Indian geography places it astride the key sea lanes of communication that are vital for the shipment of Chinese energy resources. This strategic advantage is likely to be addressed through diversification of energy suppliers and routes (using both land and sea) as well as further improvements in the capacity of the PLA Navy to deploy away from its home areas and conducted sustained maritime security (and if needs be, combat) operations.
f. While mutual trade is increasing, and is forecast to continue out past 2030, this has not neutralized the military competition. China and India are yet to reach agreement on their land border dispute. Both nations continue to modernize their military organizations, with at least part of the rationale (although not the primary one for either) being the need to balance each other in South and Southeast Asia.

g. The magnitude of the Chinese economy will ensure an overwhelming superiority in her favor over India in economic and military realms. However, beyond 2030, the Indian economy will start to rapidly close the gap as its population increases, and its economic growth rate accelerates and outstrips that of China.

h. While there is a strong case for cooperation in regional security, distrust is likely to continue inhibiting the translation of this security interdependence into effective and practical cooperative measures.

i. While a nuclear war is not a likely scenario, it does remain within the realms of possibility. Additionally, the environment is a nuclear triangle of India-China-Pakistan - there is no historical precedent for the creation of a stable deterrence regime in such an environment.

j. In a regional conflict at sea, and on the border, India is likely to be able to generate local superiority with conventional forces.

k. In any conflict, China will use its advanced cyber and counter-space capabilities.

l. By 2030, China and India will possess C4ISR, space-based and cyber capabilities that will match US capacities at least quantitatively, if not qualitatively.

m. Despite the presence of nuclear weapons on the sub-continent and on the high seas, a localized conflict between China and India – either on their shared border or on the high seas – remains a possibility by 2030.

n. Both nations have modernized their doctrine and the conduct of joint operations. China’s military has been working for several years to develop the capability to conduct integrated joint operations (IJO), a concept the PRC believes essential to modern warfare. The Indians are somewhat further behind in this regards, with their Integrated Defence Staff being a more recent innovation.

o. The will have developed a range of space-based capabilities, launch capacity, counter-space capabilities and cyber capabilities. The Indians, also recognizing the importance of space-based and cyber capabilities have also developed an indigenous capacity, but this is more limited than China’s.
Based on the analysis contained in this net assessment, implications for the US of the India-China competition:

a. Given the economic, social, and military differences between the US, China and India, it is unlikely that all three powers will be able to sustain highly cooperative relations and form a concert of powers.\(^{201}\) There will be differences in geopolitical outlooks, which at times will be significant.

b. There will be acute competition in political and military spheres between China and the US. This will likely be China’s primary focus in the coming decades. As such, India may look for opportunities exploit China’s focus on the US competition.

c. The China-India competition will involve political interactions beyond South Asia, as both seek to increase their global standing and assure access to energy and food resources.

d. The history of China-India relations, the difference in economic growth rates and the likelihood that they will have a competitive rather than cooperative relationship implies India will increasingly look to the US and Sino-India and US-China competition deepens over time.

e. Idealist and realist traditions are likely to make India the more desirable object of US geopolitical attention.\(^{202}\) However, this may not mean that in 2030 India is likely to be a partner of the US, and aligned against China.

f. The US must regard China and India as rising powers, and treat India on a par with China.\(^{203}\)

g. The US has a large interest in gaining access to the massive domestic markets of India and China, which by 2030, will be larger combined than the US market. Any attempts by either nation to restrict access or impose tariffs will lead to tension.

h. At times, the US and India will find common ground against China. This is most likely to be the case where there are shared values (such as democracy and human rights), or where Chinese expansion policies are directed at excluding US and/or Indian influence.

i. There are a limited number of scenarios where the US and China may find common ground against India. This is particularly the case if India becomes belligerent towards Pakistan.

j. There are a range of issues where the US, India and China will find common ground, including transnational challenges of terrorism, promoting open trade and commerce and maintaining the stability of key energy producing regions such as the Persian Gulf.
Key Uncertainties

Based on the data and analysis contained in this assessment of the India-China competition, some key uncertainties remain. A summation of the assessed key uncertainties are as follows:

a. One China? China has in the past fragmented between the more affluent coastal regions and the poorer inland regions. If China is unable to boost the income and affluence of those who live in inland areas, these tensions may arise, forcing more expenditure on internal security.

b. Liberalized China. Citizens in other industrialized Asian nations, such as South Korea and Taiwan, have achieved a greater say in the governance and economic policies of their nations. Singapore, however, has remained a virtual one party state throughout its existence. While the Communist Party is likely to retain political power in China while economic conditions satisfy the requirements of the majority of the populace, any significant economic shock may change this situation.

c. Faster Indian Economic Growth. The current Chinese economic growth rate was not predicted by most economists and strategists 20 years ago. If India’s economic growth rate outstrips current predictions, GDP growth and investment in more modern military systems may occur.

d. Economic Growth. The degree to which China can sustain its current economic growth rate is uncertain. All industrializing nations initially display significant growth rates when after several decades, slows to permanently lower levels. Most experts have predicted a slowing growth rate, albeit one that is still very good (5-8% through 2030), and the impact of this on the domestic economic, domestic stability and the capacity of China to fund its ongoing military modernization is unknown. India too will face challenges of slowing economic growth, however this is likely to occur beyond 2050.

e. India – Pakistan. Notwithstanding their competition with China, the stability of Pakistan – and China’s security relationship with Pakistan – is currently central to India’s security calculus and is likely to remain so. Any deterioration or breakdown of the Pakistani state will have significant implications for India – in mass movement of refugees, security of nuclear weapons and regional security in general.

f. New Energy. Whether an energy transition away from oil and gas—supported by improved energy storage, bio-fuels, and clean coal—is completed during the 2025 time frame. If a transition does occur, it has the potential to mitigate tensions over assured energy supplies.

g. Democracy’s March. Whether advances toward democracy occur in China.
h. **International System.** Whether global powers work with multilateral institutions to adapt their structure and performance to the transformed geopolitical landscape.\(^{208}\)

i. **New Rising Stars.** Brazil, Russia, Mexico, Indonesia and Turkey are rising economies. Combined with India and China, it is likely that their combined economies will be up to 50% larger than the G7 by 2050. While not a central aspect of this net assessment, these nations will have a growing impact on the global economy, and the competition between India and China. The degree is unknown.

j. **Interactions.** A key unknown is how these uncertainties will interact over the coming decades. None represent stand alone scenarios; each is possible in a global polity and economy that may features elements of all of them. The degree of interaction is unknown and the impact will be clearer over the coming decades.

**Risks**

Though the last forty years have been relatively calm compared to the previous forty (Great Depression World War II, and the Korean War), they also included the fall of the Berlin Wall, China’s emergence onto the world scene, and three major financial crises. While we cannot know what shocks await us over the next forty years, it is certain that some will occur. At least three classes of risk could introduce major discontinuities and undermine these projections.

**Geopolitical Breakdown.** The next two decades are likely to see one of history’s greatest shifts in economic and military power.\(^{209}\) This transition is unlikely to be smooth. Even if major disputes over territory or regional influence are resolved peacefully, economic relations between India and China – and with the US - could be undermined by trade disputes, major economic crises, and differences over dealing with climate change and other issues related to the global commons. Maintaining the cohesion of the international community is crucial to its continuation.\(^{210}\) The functioning of international institutions - the G20/G8, World Bank, IMF, and the UN – may need to be re-examined.

**Financial Crisis and Depression.** The world economy’s crisis in 2008 should be enough to motivate countries to improve regulatory mechanisms and macroeconomic policies, particularly given the world’s deep financial integration and the rapidity with which the shock spread. But the capacity of countries to turn the lessons of the 2008 financial crisis into effective reforms is suspect for multiple reasons, including the financial industry’s powerful vested interest against reform, ideological differences about the appropriate role of regulation, and the difficulties of internationally coordinated action.\(^{211}\)

**Climate Change.** Climate change may compromise global growth through effects on health outcomes, agricultural yields, involuntary migration, and the destruction of infrastructure. According to the Stern Review, as extreme climate events grow increasingly common and temperatures rise 2–3 degrees Celsius by 2099—the most likely climate change scenario—the equivalent of a 5 percent reduction in per capita consumption, now and forever, will hit the global economy, with reductions as high as 20 percent possible.
Developing countries will bear the brunt of these effects, but developed countries will be hurt as well, especially if temperatures rise more than the expected 2–3 degrees Celsius.\textsuperscript{212} While the global economy will inevitably suffer from the climate change that is already occurring, the timing and extent of climate change’s most severe effects remains difficult to pinpoint—though most projections suggest that it will take several decades before the economic effects become severe.\textsuperscript{213}

As with the uncertainties examined in the previous section, these risks are likely to all co-exist to some extent. Therefore, there will be interaction. The degree of interaction, and impact, is unknown.

**Areas for further examination**

Other areas that require further study include the following:

a. Despite the magnitude of China’s lead over India in economic and military fields by 2030, is it likely that India may overtake China at some point beyond 2030?

b. What impact will the potential growth of Asian economic, political and security institutions have on existing international organizations and the global and regional security environment?

c. The role of alliances in South and East Asia in 2030, including the potential for new alliance arrangements with any of the Big Three, and who primary US allies in the region are likely to be in 2030.

d. But what if climate change, which may be subject to large and rapid discontinuities, were to occur sooner?

e. If the US pursues an open policy of competition with China, will this make China an enemy of the US?

f. The true level of research and development funding for the Chinese military remains a key uncertainty.

g. What will be the impact of other rising economic powers such as Brazil, Turkey, Mexico, Russia and Indonesia have on this competition?

h. The impact of continued development in high technology such as IT, bio and nano technology on the competition. Whether it will result in the *Singularity* - the hypothetical future emergence of greater-than-human intelligence through technological means, resulting in explosive super intelligence as postulated by Ray Kurzweil - remains to be seen. However, this might be a productive area for further study in the future.
CONCLUSION

By 2030, the global economy is likely to have regained its momentum, and the outlines of a new geopolitical order will be much clearer. China is likely to assumed additional global responsibilities. India, while not yet a global player of the magnitude of China, is likely to still be learning to balance domestic and regional responsibilities. There will be tensions in the China-India relationship, and as the scenarios in this assessment have demonstrated, potential for conflict. Neither country is now, or will be in 2030, entirely comfortable with the rise of the other.214

There are already short and medium term stresses in the India-China relationship.215 This will have an impact on U.S. enduring security interests216, as well as those of every nation in the Indo-Pacific regions. India’s improving economy has had a major impact on its aspirations to be a global power. It views itself as an emerging economic power, that will soon become the world’s most populous nation. China’s opposition to India’s aspirations and its rivalry in south Asia will affect the tone of the relationship in 2030 – as it already does. While economic cooperation is growing between these two giants, it is likely by 2030 that there will be significant economic competition, especially as India industrializes and becomes a greater source of a cheap labor pool for the world’s corporations.

China sees itself as the rightful preeminent power in Asia and India as its major medium- to long-term competitor for this position. In the view of many Chinese strategists, India possesses an ambitious, belligerent, and expansionist strategic culture. Of course there are less extreme views of India, but few if any of China’s strategic thinkers seem to hold warm or positive views of India for China’s future. China does not figure prominently as a classical enemy of India, but a sense of Indian rivalry with China has emerged in recent decades.

Holsag (2010) has noted that commerce and conquest are not mutually exclusive. Growing commerce and trade, leading to larger economic growth, has actually led to an enhanced India-China competition. It is unlikely than a large measure of economic interdependence between China and India in 2030 will replace traditional approaches to military deterrence and competition for influence in Asia – and beyond.217

This net assessment of India and China has provided insights into how India and China see themselves in direct competition with each other, how they might implement a competitive strategy against the other, and ultimately, the impact this will have on the rest of us. Progress for both nations over the next two decades – outside of the economic realm – will at times seem slow. Things can go wrong. But, as this assessment set out to do, the dimensions of the competition as well as potential risks and critical unknowns may now be better understood. This is critical as we undertake our strategic planning for our own strategic competition with China over the coming decades, and potentially, for competition with India in the second half of the century.
End Notes

5 The issue of choosing the right measures, especially for problems which are unique and being encountered for the first time, is examined in detail in Roche, James and Barry Watts, “Choosing Analytic Measures,” *The Journal of Strategic Studies* 14, no. 2 (June 1991), pp. 194-196.
8 Whether it will result in the Singularity - the hypothetical future emergence of greater-than-human intelligence through technological means, resulting in explosive super intelligence - as postulated by Ray Kurzweil, remains to be seen. However, this might be a productive area for further study in the future. Morris discusses the potential implications of the Singularity on East-West competition in Morris, Ian. *Why the West Rules – for Now: The Patterns of History and what they Reveal about the Future.* (New York: Farrar, Straus and Giroux, 2010), 592-598.
14 Colin Gray has examined the concept of strategic culture at length. In particular, he argues that understanding strategic culture may provide an improved capacity for understanding enduring policy motivations and make predictions, as well as understand the meaning of events in the assessment of others. Gray, Colin. “Comparative Strategic Culture” *Parameters* (Winter 1984):28. Gray also examines this concept in depth in chapter 5 of his book *Modern Strategy* (1999). Michael Evans defines strategic culture as the complex accretion of ideas and habits of thought about war in his paper *The Tyranny of Dissonance: Australian Strategic Culture and Way of War 1901-2005* (Canberra: Land Warfare Studies Center, 2005),9.
15 This will also assume divergence – as well as lack of clarity - in current and future political objectives, as well as economic and military strategies of each.


35. Johnson, Kenneth. *China’s Strategic Culture: A Perspective for the United States*. (Carlisle, Strategic Studies Institute, 2009), 11-12.


37. Johnson, Kenneth. *China’s Strategic Culture: A Perspective for the United States*. (Carlisle, Strategic Studies Institute, 2009), 4-6.


Flowing from this is research and development, which provides insights into known or forecast areas of interest that may provide insights into tactical, operational or strategic asymmetries in terms of equipment, organizations or doctrines and concepts.


Murray and Millet, 6.

Murray and Millet, 5.


O’Neill, Jim and Anna Stupnytska. The Long-Term Outlook for the BRICs and N-11 Post Crisis. (Goldman Sachs Global Economics, Commodities and Strategy Research, December 2009), 22.

China’s projected growth is 7.9% annually from 2010-2020, and 5.7% annually from 2021-2030. India’s projected growth is 6.5% annually from 2010-2020, and 6.4% annually from 2021-2030. O’Neill, Jim and Anna Stupnytska. The Long-Term Outlook for the BRICs and N-11 Post Crisis. (Goldman Sachs Global Economics, Commodities and Strategy Research, December 2009), 21.


O’Neill, Jim and Anna Stupnytska. The Long-Term Outlook for the BRICs and N-11 Post Crisis. (Goldman Sachs Global Economics, Commodities and Strategy Research, December 2009), 22.


Btu stands for British thermal unit, which is the traditional unit of energy, and is equal to about 1055 joules.


China-India in 2030: A Net Assessment


84 U.S. Census Bureau International Data Base.

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100 See Defence Research & Development Organisation (DRDO), source: http://drdo.gov.in/drdo/English/index.jsp?page=policies.jsp


India’s Maritime Strategy, 41.


In the case of the Indians, it is the former Russian carrier, Admiral Gorshkov which is due for delivery in 2012 after significant delays in time, and increased costs. It is also currently building the first of two 40000 tonne indigenous aircraft carriers at the Cochin Shipyard. The Chinese have commenced sea trials with the ex-Russian carrier Varyag. While it has announced the construction of two additional carriers, which are expected to be have a displacement of around 50-60000 tonnes and be launched in 2015, few other details are available.

India’s Maritime Strategy, 115.


The Indian Air Force Medium Multi-Role Combat Aircraft (MMRCA) Competition, also known as the MRCA tender, is an ongoing competition to supply 126 multi-role combat aircraft to the Indian Air Force
On 27 April 2011, the IAF shortlisted two of the six competing fighter jets—Eurofighter Typhoon and Dassault Rafale. The winner is be announced in mid-November 2011.


Despite differences with India on boundary and territorial issues, the 2010 Chinese Defense White paper only mentioned India in one paragraph, noting that China is working to “advance Sino-Indian military relations”. Chinese Government, China’s National Defense in 2010, March 2011.

These enduring interests of security, prosperity and international order are explained at length in the May 2010 United States National Security Strategy, p. 17-47.

China-India in 2030: A Net Assessment