

Hudson Institute

India and the Global Economy

A collection of essays presented at the
Hudson Institute-Observer Research
Foundation Roundtable on “India’s
Economic Engagements with the World,”
New Delhi, India, March 25-26, 2014

Edited by Husain Haqqani

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Introduction: India's Reform Agenda

Husain Haqqani

India, the world's largest democracy, has yet to realize its full potential as a leading global economy. The rapid economic growth that India has witnessed since the mid-1990s was ushered in through much-needed reforms. After being criticized by economists for low growth, India has finally earned a place among the world's leading emerging marketsⁱ. Further reform could lead India to further success among the BRICS – Brazil, Russia, India, China, and South Africa –and beyond.

The Indian economy today is more integrated and more dependent on the global economy than ever before. The country has come a long way from decades of stalled economic growth, exchange rate fluctuations, a severely negative balance of payments, and intermittent crises. An insulated and largely socialist economy was liberalized, rescuing the country from the brink of default and initiating a period of sustained economic growth.

Given the criticality of its external engagements, India needs to renew its commitment to reforms and better exploit the benefits of global integration. A number of sectors are still governed by rules and norms of the past that need to be liberalized, rationalized and strengthened to allow for resilient and sustainable growth. Some sectors offer immediate benefits and need to be prioritized while others need long-term and far-sighted reforms.

The election of a new government, led by Prime Minister Narendra Modi and his Bharatiya Janata Party (BJP), presents an opportunity to advance India's agenda of reform. Mr. Modi has a demonstrated commitment to free market ideals. His election reflects the Indian people's embrace of an open, modern economy that allows individuals to realize their potential unencumbered by an over-weaning State.

After independence in 1947, Indian policy makers preferred a heavily insulated, self-reliant economy, with a major focus on poverty reduction. India tried to achieve progress through state-directed industrialization and followed a socialist economic model. The focus was on import substitution and limited international trade. As a result, the Indian economy cycled through low productivity and slow growth, especially in comparison to its East Asian neighbors.

The reforms that began in the 1990s catalyzed unprecedented growth rates that were driven by a large and young workforce and a growing consumption class. The rise of the Indian middle class to over 250 million and decline in poverty levels from 37 per cent to 22 per cent over the last decade is an outcome of these reforms and their attendant growth.

To spur economic growth, India increased focus on exports, non-factor and labor services. This translated into increased capital inflows and foreign direct investment (FDI). Foreign investment in India increased from a meagre \$132 million in 1991 to a peak of \$43 billion in 2008. The country was lauded internationally for its reduction and rationalization of tariffs and removal of non-tariff barriers. The average tariff on consumer goods was reduced from 153 percent in 1990 to 25 percent in 1997.

These reforms led to deeper integration of the Indian economy with the global economy. The share of merchandise trade has risen since 1991 and a dramatic transformation of services trade has occurred. India emerged as one of the most attractive destinations for FDI, as well as an important source of FDI outflows. The trade structure changed in terms of product composition and destinations and the economy became more diversified. But much of the export growth benefited from expansion in world trade and enhanced competitiveness. There is still a lot of potential for diversification in the economy and a number of opportunities are yet to be fully exploited.

The opening up of the Indian economy in the early to mid-nineties ushered in a decade where 8-10 percent GDP growth rates became the norm. As India's economy flourished, investors, policymakers, and Indian citizens began to believe that such high rates of growth would be the standard. But the stalling of reforms resulted in slowing down this momentum. During the last few years of the Manmohan Singh government, India's growth rate hovered around the 4.5 percent level. Inflation reached a peak of 10 percent, and the current account deficit mushroomed to almost 4.5 percent of GDP.

At a time when the government should have liberalized the markets for labor, energy, and land, India's policymakers became complacent. Coupled with a global financial crisis that began in 2008, India's economy began stagnating and the Indian miracle seemed a thing of the past. The election of the Modi government has rekindled hope for a new round of economic reforms that would revive economic growth.

Anticipating the change, the Hudson Institute's India and Globalization Initiative held a conference with the Observer Research Foundation in New Delhi on 'India's Global Engagements' a few weeks before the Indian election of 2014. The purpose of the conference was to make a significant contribution to the ongoing debate about economic reforms in India. Scholars from India and the United States deliberated on policy ideas

that could lead to further opening the Indian market and integrating it with the global economy.

India can achieve rapid economic growth via innovation by opening up its economy to foreign technologies. India must strengthen its intellectual property (IP) rights regulations and protect foreign investors that are exporting new technologies to India. Greater protection for foreign technologies will not only encourage growth and innovation, but will also bring in vital foreign direct investment. Chapter 1 in this volume discusses the challenges India faces and the policies that can be implemented to enhance innovation in the Indian economy.

Spending on healthcare is only about 1 percent of GDP in India, making it one of the lowest spenders on healthcare in the world. A number of issues plague India's healthcare sector, ranging from a lack of infrastructure and financing to a dearth of health workers across the country. Chapter 2 highlights the problems faced by India's healthcare sector and argues that a well-rounded set of policies with participation from all stakeholders is needed to address the challenge.

While India has emerged as a hub for IT outsourcing, it has lagged behind in exporting value-added manufactured goods. India has been unable to increase its share of technology-intensive manufactured goods. With wages rising and productivity falling in China, India has a great opportunity to attract FDI in its manufacturing sector. Chapter 3 argues that implementing a cohesive set of reforms that seek to encourage investment in the manufacturing sector will go a long way in kick-starting India's stagnating economy.

Sturdy capital markets form the backbone of any modern economy, especially one seeking to achieve high rates of development. India will require over \$500 billion just for funding its infrastructure needs in the next five years, making capital markets reform a critical component of the reform agenda. Lack of liquidity, transparency, and the excessive footprint of the government in capital markets are a few problems plaguing this sector. Chapter 4 puts forth a number of solutions to liberalize this sector and develop broad and deep capital markets capable of feeding India's growth.

With India seeking to modernize its armed forces and diversify arms acquisitions, opportunities for enhanced US-India defense ties will arise. The speed with which the two countries collaborate will largely depend on how reforms are introduced in India's defense sector. Chapters 5 and 6 discuss the opportunities for cooperation between the United States and India and the need for streamlining licensing processes, improving foreign and private participation, and political leadership on both sides.

As the economy grows, India's energy needs continue to multiply as well. The energy sector has largely been dominated by monopolies and the state, resulting in a lack of market-based mechanisms in the sector. This has led to governance issues, inefficiencies, and a lack of strong competition by private companies. Chapter 7 puts forth policy prescriptions to enhance competition and efficiency in India's energy sector and maintains that market-based reforms successful in other sectors can alleviate energy problems faced by the economy.

India is undergoing a youth bulge, and with 65 percent of the population under the age of 35, investments in human capital are vital for sustained economic growth. With demand for skilled labor set to improve dramatically in the next decade, it is vital to improve the skillset of the workforce. Chapter 8 of this volume puts forth a framework to bridge the skills gap in India where the state and the private sector work together to impart training to boost the capabilities of citizens entering the workforce in the coming years.

The first set of reforms implemented in the early 1990s marked India's arrival on the global economic map and made India a key destination for international investors and companies. India has made significant progress in the last two decades and is now counted amongst the world's leading emerging markets. This growth has led to a rise in India's global standing and has radically improved the country's socio-economic indicators. However, this growth has also raised expectations of people within and outside the Indian economy. The burgeoning middle class expects more growth from the economy and is keen to see even more improvement in the country.

Over the last few years concern has grown about the Indian economy and a myriad of issues have emerged. Prime Minister Narendra Modi has promised to deliver economic growth by improving governance and passing a bold set of reforms. It was this promise that brought Mr. Modi to power with an overwhelming majority in Parliament.

This volume consists of detailed analyses of issues plaguing the Indian economy and highlights areas that should concern India's policymakers. Papers written independently by several scholars set forth a holistic reform agenda. We at the Hudson Institute hope that this would serve as a roadmap for bringing the Indian economy back on track.

1

Innovation, Intellectual Property Rights, and the Modernization of India's Economy

Robert J. Shapiro

Innovation through the application of knowledge and new ideas has always been a vital force in economic development. The natural resources available today in India, the United States or anywhere else—the arable land, usable energy sources, minerals, animal and vegetable life, and so forth have been there virtually forever. Only successive waves of intellectual and practical innovation enable us to use those resources productively. So, while all of the natural elements required to create an advanced supercomputer or to treat an infection have existed for untold centuries, it took generations of ideas, building one upon another, to turn them into the technologies and medical treatments that can change a society's economic and human prospects.

Since the 1950s, researchers starting with Nobel laureate Robert Solow have established that the development and adoption of economic innovations are the *most* powerful factors determining a nation's underlying growth and productivity. In the United States, an estimated 30 to 40 percent of the gains in productivity and growth achieved in the 20th century can be traced to economic innovations in their various forms.¹ They encompass the development of not only new technologies, new materials and processes, but also new ways of financing, marketing and distributing goods and services, and new ways of managing a workplace and organizing a business. By comparison, improvements in education and skills account for 20 to 25 percent of productivity gains, and increases in the capital stock explain another 10 to 15 percent.

¹ Solow (1956): Solow (1957): Denison (1962).

New technologies and ways of doing business often are developed by firms in the world's advanced economies, but their transfers to developing nations have been key factors in the rapid modernization of such countries as the Asian Tigers and China. From 1960 to 2000, economic output and *per capita* incomes grew more than three times faster in South Korea, with relatively few natural resources, than in Brazil, a country with abundant natural resources.² Much of the difference can be traced to Korea's relative openness to technological and other innovations developed elsewhere and brought to Korea through imports, foreign direct investments (FDI) and licensing agreements, as well as to Korea's very strong commitment to educational opportunities that prepared workers to adapt to new technologies and ways of doing business.³

In this regard, Paul Romer, a leading expert on economic growth, has written,

The knowledge needed to provide citizens of the poorest countries with a vastly improved standard of living already exists in the advanced countries. If a poor nation invests in education and does not destroy the incentives for its citizens to acquire ideas from the rest of the world, it can rapidly take advantage of the publicly available part of the worldwide stock of knowledge. If, in addition, it offers incentives for privately held-ideas to be put to use within its borders (for example, by protecting foreign patents, copyrights and licenses, and by permitting direct investment by foreign firms), its citizens can soon work in state-of-the-art productive activities.⁴

Thus, all nations have an interest in promoting innovation wherever it occurs, because most of the benefits are enjoyed by those who use them. The benefits to workers and firms around the world from using the Windows operating system, for example, far exceed Microsoft's profits, and HIV medications provide much greater benefits to those who use them and their societies in productive lives prolonged or saved, than the profits earned by the firms that develop and patent them. As two analysts put it recently, "most of income above subsistence is made possible by international diffusion of knowledge."⁵

The development of innovations and their transfers to developing nations both depend on protections for the intellectual property (IP) embodied in most innovations. The World Bank has noted that since 1980, the world's greatest economic gains have been achieved by developing nations that both have protected IP rights and have aggressively opened their economies to foreign technologies and business methods. The relationship

² World Bank (2005).

³ *Op. cit.*

⁴ Romer (1993).

⁵ Klenow and Rodriguez-Clare (2004).

between innovation and IP rights is well-established in modern economics. Part of the explanation lies in how most people respond to economic incentives. While a few souls are true altruists, most people will expend the effort and other resources to develop something that provides economic benefits to others, only if doing so also benefits them. As corporations have come to dominate the development of innovations, the prospect of future gains as an essential incentive has become necessary as a fiduciary matter, and dispositive. Moreover, the very nature of ideas makes the prospect of earning those future returns dependent on legal rights and protections. The ideas that animate economic innovations are what economists call “non-rival goods,” which means that unlike equipment or real estate, an idea can be both used by more than one person at a time and easily duplicated. Because an idea cannot be physically possessed like land or equipment, its use by those who develop it does not preclude others from using it at the same time. Thus, the returns from innovation cannot be secure without legal protections for the ideas animating them.

Innovation, IP Rights and Economic Modernization

It is commonly asked, whether developing countries are better off if they respect the intellectual property rights of foreign-based companies, or if they ignore them. Many economists have explored this question, and a clear consensus has emerged that the costs to a developing nation of ignoring the IP rights of foreign companies significantly exceed the benefits. One major study, for example, examined data from 95 countries from 1960 to 1988 and found that IP rights had a significant effect on growth in all cases, with the greatest effects occurring in the high-income countries where the innovations were developed and low-income countries where strong patent protections encouraged the importation and inward FDI of innovations.⁶ These results were confirmed by another study conducted in 2004 which examined 80 countries over four time periods covering 1975 to 1994.⁷ The researchers found that strong IP protections stimulated even greater growth in countries with low *per capita* incomes, principally by encouraging FDI and imports from advanced countries, than in countries with high *per capita* incomes.⁸

Whether these technology transfers occur through exports or FDI usually depends on the product and the market, with IP rights playing a role in both cases. The existence of strong IP rights in a developing country encourages innovators to export their new technologies to that country, by protecting the developer from local imitations and increasing the size of the exporter’s market. Several studies have found that countries

⁶ Gould and Gruben (1996). Thompson and Rushing (1996) found these effects only when a country had achieved a certain level of per-capita GDP.

⁷ Falvey *et. al. op. cit.*.

⁸ *Ibid.*

with relatively stronger IP regimes attract relatively more imports.⁹ FDI is likely to replace exports as the mode of transfer when the products are R&D-intensive and the market is large, the costs of conducting the trade and transporting the goods are high, and the costs of establishing new plants are low.¹⁰ Thus, FDI of technologies that are both complex and easily copied increases as IP rights are strengthened. The result, researchers have also found, is that the quality of technologies transferred to a developing country rises as the country strengthens its IP rights.¹¹

Researchers also have established by how much technology transfers to a developing nation increase when it strengthens patent rights,¹² with every one-percent increase in the degree of patent protection in a developing country expanding the stock of U.S. investment in that country by 0.45 percent.¹³ Other studies have demonstrated that countries with weak IP rights receive relatively less FDI, and the investments they do attract are technologically less sophisticated.¹⁴ In this regard, a survey of 100 U.S.-based multinational firms found significant reluctance to do business in India, Brazil, Argentina and Indonesia, all countries cited by the Office of the U.S. Trade Representative for failing to protect the IP rights of American companies.¹⁵ More than 80 percent of the pharmaceutical companies included in the survey reported that they would not conduct joint ventures or transfer or license their technologies in India, despite the country's huge potential market – higher percentages than those found for Argentina (62 percent), Brazil (69 percent), or Indonesia (73 percent).

Researchers also have found that countries that do not aggressively respect IP rights have a more difficult time achieving economic growth through technology transfers. One recent study looked at how IP reforms in 16 countries affected technology transfers by U.S. multinationals to their foreign affiliates.¹⁶ The research showed that royalty payments to parent companies for the use or sale of technologies transferred to affiliates increased at times of the reforms, as did R&D by affiliates.¹⁷ They concluded that “U.S. multinationals respond to changes in IPR (IP rights) regimes abroad by increasing technology transfers to reforming countries.”¹⁸ These dynamics also are evident in

⁹ Maskus and Penubarti (TK- JIE Vol 39); Smith (1999).

¹⁰ Maskus (2000).

¹¹ Vishwasrao (1994).

¹² Taylor (2004).

¹³ Maskus (1994), cited in Maskus, “Intellectual Property Rights and Foreign Direct Investment,” *op. cit.*

¹⁴ Lee and Mansfield (1996).

¹⁵ Mansfield, cited in Maskus, *op. cit.*

¹⁶ Branstetter, Fisman and Foley (July 2005).

¹⁷ The countries include Argentina, Brazil, China, Indonesia, Japan, South Korea, Mexico, the Philippines, Spain, Taiwan, Thailand, and Turkey.

¹⁸ Branstetter, *et. al.*, *op. cit.*, p. 26

findings by the World Bank that over the same period, the share of global trade comprised of knowledge-intensive or high technology products rose sharply.¹⁹

In a study issued in January 2014, my colleague Dr. Aparna Mathur and I measured the link between IP rights and FDI flows across many nations for the years 2008-2012. We used the Ginarte-Park (G-P) index of patent rights, a measure developed by staff from the World Bank and American University that rates countries on five measures of patent protection: 1) the breadth of coverage; 2) acceptance and compliance with international treaties; 3) the duration of patents; 4) enforcement mechanisms; and 5) limitations or restrictions. Our analysis found a strong correlation between a nation's measure on the G-P index and its total FDI inflows over those years. (Figure 1, below) Controlling for GDP, we found that each unit increase in the index – equal to one standard deviation, or roughly the difference between IP rights in Turkey and the United States – is associated with a 28.7 percent increase in FDI flows. Each point in the figure represents a country based on its index value and FDI inflows.



Figure 1. Protection of IP Rights and Inward FDI Flows, 2008-2012, By Nation

All of these findings suggest a clear causal chain and virtuous circle. Countries that respect IP rights encourage foreign multinationals (MNC) to transfer state-of-the-art technologies and business methods to those countries. Once that country's businesses and citizens become familiar with the new technologies and methods, domestic firms adopt them and, in many cases, develop their own intellectual property. These

¹⁹ Fink and Primo Braga (1999).

²⁰ Park (2001). UNCTAD (2013).

developments lead to higher growth by domestic firms, which in turn make the country a more attractive locale for further investment by foreign MNCs.

Other Factors in FDI and Growth

While the evidence is strong that FDI supported by IP protections promote growth and development through the introduction of valuable innovations, there is less agreement about the magnitude of these effects.²¹ One reason is that a number of factors in addition to IP rights influence FDI flow and the degree to which they contribute to broader economic gains. One study found that the innovations introduced through FDI promote stronger economic growth in countries with developed financial markets as well as IP rights, and another analysis found that the growth effects of FDI-sponsored innovations are associated with trade openness, including IP rights.²² More generally, the effectiveness of foreign innovations in boosting growth appears to be higher in countries with more open economies.²³ In addition, the ability of a developing nation to apply the new technologies and business methods introduced through FDI in ways that enhance growth, especially through spillovers, depends on factors such as the supply of educated workers who can make effective use of innovations.²⁴ There is also considerable debate about the impact of foreign innovations on native companies. Most economists, however, would agree with the analyst who wrote, "One of the greatest benefits of FDI is the injection of new technologies and competition that leads to the exit of inefficient enterprises and the raising of efficiency in others."²⁵

Scholars have found econometric evidence of positive spillovers from the innovations introduced through FDI in countries as disparate as Mexico,²⁶ Uruguay,²⁷ and Indonesia.²⁸ Similarly, one recent study applied econometric analysis across the provinces of China to test whether FDI innovations contributed to higher productivity growth in those provinces that received the greatest FDI.²⁹ The researchers found that areas with the most FDI not only had higher income gains,³⁰ but also that much of China's export growth in the 1990s was attributable to the innovations brought in through FDI.³¹ Another study found that the capital investment, technologies and management know-how brought by FDI into Malaysia were important factors in that

²¹ Blomstrom, Globerman, and Kokko (2000)

²² Alfaro, Chandra, Kalemli-Ozcan, and Sayek (2000); and Balasubramanyam, Salisu, and Sapsford (1996)

²³ Usha and Weinholt (2000).

²⁴ Sanjaya Lall (2000).

²⁵ Lall (2000).

²⁶ Blomstrom (1986); Kokko (1994).

²⁷ Blomstrom, Kokko and Zejan (1994).

²⁸ Sjöholm (1999).

²⁹ Graham and Wada (2001).

³⁰ *Ibid.*

³¹ *Ibid.*

country's growth gains over the years from 1970 to 2005: Every one percent increase in FDI was associated with a 0.05 percent increase in the nation's growth and national income.³² And two studies of FDI and innovation in African countries found that those places with macroeconomic and political stability, policy credibility, and relatively open economies attracted FDI, which in turn contributed to higher growth.³³

These effects are also evident in studies of FDI across world regions. An analysis of the effects of innovations introduced through FDI on growth in 25 Central and Eastern European and former Soviet Union economies from 1991 to 2000, for example, found a significant positive effect on growth in each country.³⁴ Another study of FDI and growth across 12 Asian economies from 1987 to 1997 found that FDI in manufacturing industries had a strong, positive effect on growth in the host economies.³⁵ Other studies have found that the link between FDI and growth in some places is stronger in service sectors than in manufacturing, and that the impact differs across manufacturing industries.³⁶ As one scholar concluded, "At present, the consensus view seems to be that there is a positive association between FDI inflows and growth provided receiving countries have reached a minimum level of educational, technological and/or infrastructure development."³⁷ This view is also held by the OECD, which reviewed 14 studies and found that developing countries have to achieve a certain level of education and infrastructure to capture the potential benefits linked to FDI and its innovations,³⁸ and that when this happen, there is "a strong relationship between FDI and growth."³⁹

The Case of India

We now turn to India. First, we will review the country's current approach to innovation. Following that analysis, we examine the impact of IP rights on innovation and FDI in India, and the economic implications for that country's economy. In that analysis, we focus particularly on IP rights, innovation and FDI in one of India's leading sectors, pharmaceuticals and drugs.

India's Current Innovation Strategy

While India's IP and other policies, as we will see, dampen the use of FDI to introduce technological and organizational innovations, the Indian government has sponsored a

³² Wai-MunHar, Teo and Yee (2008).

³³ Anyanwu (1998) Obwona (2001).

³⁴ Kinoshita and Campos (2002).

³⁵ Wang (2001).

³⁶ Nunnekamp and Spatz (2003).

³⁷ Iihan Ozturk (2007).

³⁸ *Ibid.*

³⁹ *Ibid.*

series of efforts to encourage indigenous innovation. By most measures, however, this strategy has not been very successful. For example, an economy's commitment to research and development (R&D) is generally considered one of the most important factors in indigenous innovation. In this regard, UNESCO reports that in 2007, India invested just 0.76 percent of its GDP in R&D, much less not only than advanced countries like the United States, but also the smallest share by far of the four BRIC countries. (Figure 2, below) More recent data, although less reliable, suggest that while India may now devote as much as 0.9 percent of GDP to R&D, but share remains significantly smaller than China (1.8 percent), Brazil (1.2 percent) or Russia (1.1 percent).⁴⁰

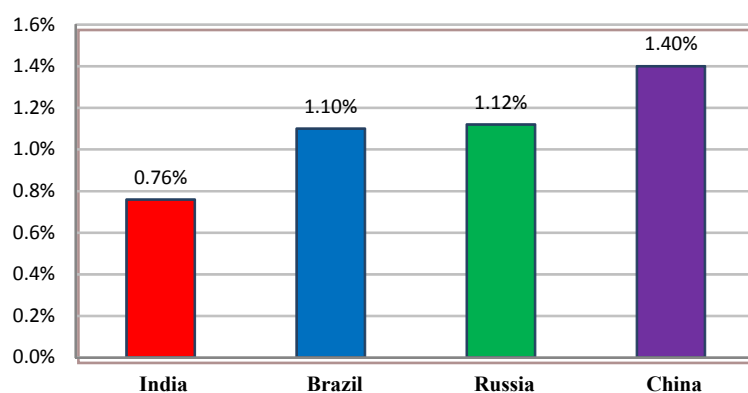


Figure 2. R&D Spending as a Percentage of GDP, 2007

Moreover, the Indian government rather than India's private companies dominate these R&D activities, as it does in many other efforts to stimulate domestic innovation. The government accounted for 62 percent of all R&D investments in 2007, while businesses accounted for just 34 percent – compared to China, where 19 percent of R&D investments came from the government and 72 percent from businesses. These low levels of private R&D in India persist despite large government incentives for businesses to undertake those investments: Indian biotech and manufacturing firms can claim a 200 percent deduction on in-house R&D expenditures, while other Indian firms can claim a 100 percent deduction on R&D expenses, and deductions of between 125 percent and 200 percent on R&D outsourced to research associations, national laboratory, or universities.

Furthermore, most Indian government R&D spending is channeled through a maze of government agencies as grants and subsidies. At the top of this government pyramid to promote innovation are the Planning Commission, the Ministry of Science and Technology (MST), and the Science Advisory Council to the Prime Minister. Under the

⁴⁰ World Bank (2014).

MST, the Departments of Science and Technology, Scientific & Industrial Research, Atomic Energy, Space, Biotechnology, and Ocean Development all distribute public R&D funds. Most notably, the Department of Scientific & Industrial Research is responsible for promoting indigenous innovation and overseeing the Council of Scientific and Industrial Research, which in turn oversees 40 national R&D laboratories. Significant additional R&D activities are pursued or managed by the Defense Research & Development Organization under the Ministry of Defense, the Indian Council of Agricultural Research under the Ministry of Agriculture, and the Indian Council of Medical Research under the Ministry of Health & Family Welfare. According to the Office of Adviser to the Prime Minister, the innovation initiatives that flow through this maze of public entities are “fragmented, supervised by different government agencies and operate on a limited scale and have a limited impact.”⁴¹ A review by the World Bank concurs, finding that despite all of the government’s incentives for innovative activity, the government’s dominant role and the private sector’s limited involvement leave India’s innovation system “bureaucratic and rigid.”⁴²

India’s low private, homegrown R&D spending also reflects, in part, weaknesses in the country’s higher education system in this area. UNESCO data show that India’s universities and colleges account for just 4.4 percent of the country’s R&D spending compared to 8 percent in China and more than 15 percent in the United States. Moreover, while India maintains 40 Central Universities, 251 state universities, numerous private universities and colleges, and 40 “Institutions of National Importance,”⁴³ a recent report from the European Commission found that, “quality and excellence in knowledge production [in India] is by and large applicable to [only] 25% of the universities, mostly [the] central universities and institutions of repute.”⁴⁴

Another prerequisite for strong innovative activity is access by innovators and entrepreneurs to financing, especially early-stage funding. Here as in R&D, the Indian government dominates while the private market lags. Most venture capital (VC) in India still comes from state-owned financial institutions– including the Industrial Finance Corporation of India, the Industrial Development Bank of India, the Industrial Credit and Investment Corporation of India, and the Small Industries Development Bank of India – or from funds formed by other public institutions such as the World Bank.⁴⁵ The central government, therefore, remains the major force in Indian VC through loans and grants, targeted mainly to software, pharmaceutical and biotech companies. One of the

⁴¹ Office of Adviser to the Prime Minister Public Information Infrastructure & Innovations (March 2011).

⁴² Dutz (2007).

⁴³ Ministry of Human Resource Development, Government of India (www.mhrd.gov.in).

⁴⁴ Krishna (2012). According to Dutz (2007), 30 institutions are responsible for awarding 65 percent of science PhDs in India, while 20 institutions are responsible for awarding 80 percent of engineering PhDs.

⁴⁵ For example, ICICI Venture was founded in 1989 as a joint venture of the Indian government and the World Bank, and Gujarat Venture Finance also was founded by the World Bank.

first important private VC funds, the India Venture Fund, was launched in 2000; and while the VC industry has grown over the last decade, Indian startups still have limited access to finance. In this regard, the Indian VC industry also remains heavily weighted towards later-stage “growth funding.” In 2012, 87 percent of VC deals involved companies already generating revenues, and few of the remaining deals entailed early-stage or angel financing.⁴⁶ All told, VC investments in India in 2010-2012 averaged less than \$1.4 billion per-year.

This view of India's current problems with innovation is also consistent with the findings of the Global Innovation Index (2012) issued by Cornell University, INSEAD and the World Intellectual Property Organization. In that report, Yagnaswami Sundara Rajan of the Indian Space Research Organization identified five major factors hindering innovation in India: 1) government bureaucracy; 2) substandard infrastructure; 3) weak university-industry linkages; 4) low R&D expenditures; and 5) the lack of innovation among small and medium-sized enterprises (SMEs).

In recent years, Indian leaders have acknowledged many of these weaknesses and called for changes to boost R&D investment, particularly from the private sector, from under 1 percent of GDP to 2 percent, increase the autonomy of Indian universities, promote more collaboration between universities and industry, and improve IP rights. Yet, these efforts generally maintain the government's dominant role. In 2010, for example, the government established the National Innovation Council (NIC) to promote more effective collaboration between government agencies, research institutions, industry, and academia. The NIC also houses a \$1 billion “Inclusive Innovation Fund” to invest in small and medium-sized startups in education, healthcare and agriculture, based on seed capital from the government and additional investments from private and public sector enterprises and banks.

One potentially promising aspect of India's current innovation ecosystem are the R&D centers established mainly by western multinationals (MNCs) with government support. Since 1990, the government has established and supported Software Technology Parks (STPs) with associated tax incentives, special subsidies, and other government preferences to promote foreign investment in India's software industry. In the last decade, more than 250 foreign-based MNCs have established R&D facilities in India; and the Indian consultancy Zinnov estimates that there are 1,031 such foreign R&D centers concentrated mainly in and around Bangalore, Hyderabad, Chennai, Mumbai/Pune, and Delhi. The main attractions are low labor costs and India's potentially large market. Nonetheless, the majority of this foreign R&D involves

⁴⁶ Ernst & Young (2013).

software and variations on innovations developed by MNCs in their home countries.⁴⁷ The results are evident in the patent data: Of 43,663 patent applications filed in 2012-2013, 78 percent came from foreign applicants, the vast majority for inventions developed elsewhere, while only 22 percent from Indian innovators.

These foreign R&D centers do introduce advanced technologies, research methods and personnel from the United States and other highly-developed economies into India's economy. As noted earlier, collaboration by western MNCs is a hallmark of the unusually rapid and successful modernization process seen in China and some other developing countries. However, these dynamics depend on large-scale FDI, which in turn depends upon a country's respect for the IP rights of companies providing the FDI. Therefore, we will next examine in detail India's recent and current IP regime, analyze its impact on FDI and R&D in India, and estimate the potential gains in FDI and R&D if India improved its IP regime. In this analysis, we often focus on the pharmaceutical sector.

IP Rights, FDI and Innovation in India

IP rights in India have passed through several stages. Before India gained independence in 1947, the country followed British IP laws. In this period, most Indian patents for drugs and other advanced products were granted to foreign firms, and foreign firms dominated India's pharmaceutical industry with limited participation by native Indian firms.⁴⁸ This regime continued until 1970, when the government drastically revised the IP laws as part of a new program to promote domestic manufacturing. By U.S. and British standards, these moves sharply narrowed IP rights. Focusing on the impact on the IP-intensive pharmaceutical sector, the Indian Patent Act of 1970 ended the patenting of pharmaceutical products and permitted patents only for the processes used to produce the products. Further, a firm could patent only one process for producing a particular pharmaceutical product, so no firm could achieve an effective monopoly for a particular treatment. The new law also limited the term of patent protection for a pharmaceutical process to the lesser of five years from the patent grant or seven years from the initial filing of the patent application. The Act also introduced broad "compulsory licensing" provisions, under which a patent was deemed to be a "license of right" three years after its grant. From that time until the patent expired, anyone could use the patented process by paying a royalty. These new rules effectively ended patenting for foreign pharmaceutical products in India and created the conditions for a thriving industry in generic production of those products.

⁴⁷ Mrinalini, Nath and Sandhya (2013).

⁴⁸ Mueller (2007).

This patenting regime continued until 1995, when India became a founding member of the World Trade Organization (WTO) and accepted the rules of the WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS). In practice, India's patent protections for pharmaceutical products continued to be much more limited than those guaranteed in the United States and other OECD nations. Under the terms of its WTO membership, India was granted a 10-year transition period to implement the pharmaceutical patent protections stipulated under TRIPS.⁴⁹ During this period, India agreed to provide a "mailbox facility" for applicants to file patent applications, provide those applicants filing dates, and extend exclusive marketing rights for certain mailbox applications filed during the transition period.⁵⁰ India enacted the Patents Acts of 1999 to comply with these requirements.

In 2002, India amended the 1999 patent law to provide a 20-year term of protection for pharmaceutical patents, as mandated by TRIPS, starting at the end of the transition period in 2005. In that year, however, India enacted new restrictions on IP rights, including provisions providing for the compulsory licensing of patented pharmaceuticals. Under these provisions, Indian pharmaceutical producers can apply for a license to produce the patented treatment of another company three years after the patent is granted, when the "reasonable requirements of the public" regarding the treatment have not been satisfied, or the treatment is not available at a reasonable price, or it is not "produced" in India.⁵¹ Further, derivatives of known substances are non-patentable unless the applicant can show that a derivative is much more efficacious than an original substance.⁵²

These provisions account for much of India's current low ranking on indexes of IP rights. The Ginarte-Park (G-P) Index, as noted earlier, ranks India well behind many other developing nations in the enforcement of patent rights. The most recent edition of the index ranks India 42nd in the world with a score of 3.76 out of 5.00, tied with Ecuador and El Salvador and behind other developing countries such as Ukraine and Turkey. Similarly, the International Property Rights Index (IPRI) created by the Property Rights Alliance (PRA) ranks India 57th in the world, well below the scores of other developing countries such as Chile, Malaysia, Uruguay, Rwanda, Panama and Brazil.⁵³ India's IP regime also has been evaluated by the Global Intellectual Property Right Center (GIPRC) of the U.S. Chamber of Commerce. The Center issued a study in 2012 analyzing IP rights in 11 countries, covering the United States, the United Kingdom, Australia, Canada, India and six other developing nations.⁵⁴ India's score of

⁴⁹ TRIPS, Article 65.4.

⁵⁰ TRIPS, Arts. 70.8(a) and 70.9.

⁵¹ India Patents Act 2005, 84.

⁵² India Patents Act 2005, 3(d).⁵³ IPRI, (2013).

⁵³ IPRI, (2013).

⁵⁴ U.S. Chamber of Commerce (2012).

6.24 lagged well behind the other 10 countries, including Mexico, Chile, Malaysia, Russia, Brazil and China as well as the four advanced nations. Finally, the World Economic Forum (WEF) issues an “Index of Intellectual Property Protection” based on surveys of business leaders in 144 countries about IP rights in their nations. The views of Indian business leaders are consistent with the results of the other indexes: In the most recent WEF survey of Asian economies, India’s score lagged behind not only such countries as Taiwan, Japan, Hong Kong and Singapore, but also Malaysia, Korea, China and Indonesia.

One reason is that Indian authorities have continued to adopt additional exceptions and qualifying provisions to India’s compliance with TRIPS. For example, the United States, the European Union (EU) and western pharmaceutical firms interpret TRIPS as requiring certain years of “data exclusivity.” Under this requirement, data submitted by a patent applicant and accepted by the patent authority cannot be used to approve a generic form of the treatment for a specified period — five years in the United States and 10 years in the EU. India does not provide for such data exclusivity.

Unsurprisingly, foreign pharmaceutical producers view India as an unfriendly environment for their IP and FDI. A survey by Ernst & Young and the *Economist Magazine* found that 62 percent of multinational pharmaceutical companies consider threats to their intellectual property the most serious risk associated with doing business in India.⁵⁵ Similarly, a PricewaterhouseCoopers study reported that 60 percent of multinationals operating in Asia cited the lack of IP protections as the most important reason to consider leaving the region, and more than 50 percent cited unfair competition from generic brands in violation of IP rights as a major deterrent to FDI there.⁵⁶ The ultimate result is a significant barrier to India’s access to important innovations developed elsewhere in pharmaceuticals and other IP-intensive areas.

The Impact of India’s IP regime on FDI inflows

Since FDI is a major channel for the introduction of pharmaceutical innovations in India and other developing nations, we would expect to see FDI to India in the pharmaceutical area respond strongly to India’s movements, at different times, to strengthen or attenuate IP rights. For several years before India joined the WTO, 1991-to-1995, FDI inflows in drugs and pharmaceuticals averaged just \$17.2 million per-year and totaled just \$68.7 million, with \$50.5 million of that occurring in 1993-1994. With India’s entry into the WTO in 1995, FDI in this area increased sharply: From 1995 to 2005, those FDI inflows averaged \$73.7 million annually, a more than four-fold increase compared to 1991-1995. Furthermore, in the seven years since India formally adopted the TRIPS

⁵⁵ Shared Expertise Forums (2005).

⁵⁶ PriceWaterhouse Coopers (2007).

requirements, from 2006 to 2013, FDI in this area has averaged \$1,220.2 million annually and totaled \$9,762.0 million. These large increases clearly have coincided with the expansion and extension of IP rights and protections in India.

Since 2005, however, foreign pharmaceutical developers have become increasingly uncertain about the extent of India's commitment to the TRIPS rules. While it is difficult to precisely estimate the impact of this uncertainty on FDI flows, FDI in this sector appears to move up and down with foreign investors' concerns about a series of Indian patent rulings against foreign pharmaceutical companies and India's general compliance with WTO-TRIPS. For example, these foreign investments in India jumped more than 11-fold in 2008-2009, but then fell even more sharply in 2009-2010 and remained depressed in 2010-2011, as the Indian Pharmaceutical Alliance and its members challenged 81 patents granted by India's patent office. Similarly, large increases in FDI in 2011-2012 were followed by a steep drop in 2012-2013, when the Indian government recommended compulsory licensing for a number of patents held by foreign companies.⁵⁷

The Impact of Stronger IP Protections on Pharmaceutical FDI to India

To illustrate how India could benefit from adopting a stricter IP rights and protections, and thereby attract more FDI transfers of innovative technologies, products, processes and business methods, we will estimate the magnitude of the additional FDI that should follow if India reformed its IP regime. First, we use historical data for 1991 to 2003 to construct a lower bound on the rate of growth of future FDI, focused again on pharmaceuticals: Over that period, pharmaceutical FDI to India grew at an average annual rate of 22 percent. Next, we construct an upper bound using the G-P index of patent rights described earlier.⁵⁸ India's G-P score has improved sharply since 1960, when it scored 1.03 out of 5.00, to its score of 3.76 today, with most of the improvements occurring since India signed on to WTO in 1995. We will use the G-P index to estimate FDI flows into India's pharmaceutical sector if its IP regime were equivalent to, for example, China or the United States. We start by calculating that India could raise its G-P score to the level of China or the United States, if it upgraded its IP regime by 12 percent and 30 percent, respectively: Moving from a score of 3.76 to 4.21(China) or 4.88 (U.S.) represents a 12 percent or 30 percent change in the index. Next, we need to establish the relationship between a country's G-P score and its FDI flows. As it happens, the OECD studied that precise relationship and found that a one percent change in a country's IP rights measured by the G-P Index was associated with a 2.8 percent increase in its FDI flows. Applying this finding, a 12 percent improvement in India's G-P index score should lead to a 33 percent increase in IP rights-sensitive FDI,

⁵⁷ Unnikrishnan (2010).

⁵⁸ Park (2008).

and a 30 percent improvement should produce an 83 percent increase in this FDI. In short, India could substantially increase its FDI flows patented product industries, from pharmaceuticals to computers and medical equipment, by upgrading its IP regime to the level of China or, optimally, to the level of the United States.

We adopt these annual growth rates of 33 percent and 83 percent as the range of future FDI flows if India upgraded its IP regime to the level of China or the United States. Applying this analysis to the pharmaceutical industry, we estimate that compared to its current path, India could increase FDI in this industry into its pharmaceutical sector over the next five years by more than \$2.5 billion or 15.2 percent by adopting an IP regime equivalent to China, and it could expand this FDI by \$72.0 billion, or more than four-fold, by applying the strict IP rights of the United States. (Table 1, below)

Years	Current Growth 28.9% annual growth	Moderate Improvement: 33% annual growth	Strong Improvement: 83% annual growth
2014-15	\$1,867	\$1,987	\$3,762
2015-16	\$2,406	\$2,643	\$6,885
2016-17	\$3,102	\$3,515	\$12,600
2017-18	\$3,998	\$4,675	\$23,058
2018-19	\$5,153	\$6,218	\$42,195
Total	\$16,526	\$19,038	\$88,500

Table 1: Estimated FDI in Drugs and Pharmaceuticals to India with Current IP Rights, and with Moderate to Strong Improvements in those Rights (\$ millions)

Pharmaceutical R&D and FDI in India

One of the driving forces of innovation in every country is its commitment to research and development (R&D). As noted earlier, India invests a much smaller share of GDP in R&D than not only advanced countries such as the United States, but also the other BRIC countries of China, Brazil and Russia. (Figure 2, above) One reason is that multinational companies are more likely to undertake such R&D in developing countries where they already have substantial FDI; and, as we have established, India's IP regime and record have dampened FDI there. Turning to pharmaceuticals, Dr. Mathur and I analyzed data on pharmaceutical FDI to India and pharmaceutical R&D: We found a correlation between R&D investments and FDI by foreign pharmaceutical firms in India of 0.50, and that increases in pharmaceutical FDI to India were followed, on average, by increases in R&D investments there with an elasticity of 0.44 with respect to FDI.

By applying these results to our earlier estimates of FDI to India under an IP regime equivalent to China or the U.S, we find that if India adopted an IP regime as strict as

China's, and pharmaceutical FDI grew 33 percent annually, pharmaceutical R&D in India should grow 13 percent per-year. If India's IP enforcement were as strict as the United States, and pharmaceutical FDI grew 83 percent annually, related R&D investments would grow 33 percent per-year. Upgrading India's IP protections to the level of China, therefore, should increase pharmaceutical R&D in India by foreign firms by an estimated \$481 million over the next five years, to almost \$4.2 billion over that half decade. (Table 2, below) Similarly, providing IP protections at the level of the United States should expand that pharmaceutical R&D in India by more than \$1.8 billion over that period, to a total of some \$7.3 billion over the five years. In short, strict IP rights could make India a major center in the developing world for pharmaceutical R&D.

Year	FDI under China's IP Regime	FDI under the U.S. IP Regime	R&D under China's IP Regime	R&D under the U.S. IP Regime	Increase in R&D under China's IP Regime	Increase in R&D under U.S. IP Regime
2014-15	\$1,494.2	\$2,055.9	\$645.4	\$759.6	\$74.3	\$188.5
2015-16	\$1,987.3	\$3,762.4	\$729.3	\$1,010.3	\$83.9	\$250.7
2016-17	\$2,643.1	\$6,885.1	\$824.1	\$1,343.6	\$94.8	\$333.4
2017-18	\$3,515.3	\$12,599.8	\$931.2	\$1,787.1	\$107.1	\$443.4
2018-19	\$4,675.4	\$23,057.5	\$1,052.3	\$2,376.8	\$121.1	\$589.7
Total	\$14,315.3	\$48,360.7	\$4,182.3	\$7,277.4	\$481.2	\$1,805.7

Table 2: Projected FDI and R&D by Foreign Drug Producers in India, 2014-2019, If India Upgraded its IP Protections to the Level of China or the United States (\$ millions)

Greater R&D by foreign firms in India would benefit Indian pharmaceutical companies. According to a 2013 report by the Standing Committee on Commerce to the Indian parliament, few Indian drug producers focus on developing new chemical entities, and their breakthroughs are rare. Innovation by Indian pharmaceutical companies has been limited largely to process chemistry and reverse engineering capabilities, and domestic firms intent on developing new products usually depend on foreign pharmaceutical producers. For example, some Indian drug firms use an “out-licensing” strategy in which they take the lead in the pre-clinical stages of development and hand off the rest to a foreign company that gains the right to market the compound in other markets.⁵⁹ An increase in R&D investments by foreign pharmaceutical companies operating in India could support more of such joint development projects and expand the innovative activities of Indian drug companies.

⁵⁹ Abrol *et al* (July 2011).

Conclusion

India and other developing nations properly seek ways to accelerate their economic modernization and the gains in GDP, productivity and personal incomes that accompany it. Researchers have found that the single, most powerful factor affecting the pace of a nation's modernization, growth and income progress is its access to and effective use of economic innovations, from new technologies and processes, and new ways of financing, marketing and distributing goods and services, to new ways of organizing a business and managing a workplace. Since a substantial majority of these innovations are developed in advanced economies, their adoption and use in developing countries depends upon those countries' ability to attract them through foreign direct investments and imports. Research has further shown that FDI involving the most advanced technologies and business methods is very sensitive to IP protections for the innovations embodied in them. As a result, we find that India's prospects for modernization and growth, and its indigenous capacity for economic innovation, would be measurably enhanced if the Indian government adopted strict intellectual property protections for foreign and domestic innovators.

2

Healthcare in India: Challenges and Opportunities

Dr. Kristina M. Lybecker

India is the second most populous nation in the world and now possesses the world's third largest economy. Increasingly that which impacts India impacts the world, and the policies India implements now have global consequences. It is now incumbent upon India to renew its commitments to sustainable reforms and join the world community as an equal partner in globalization. The disarray that pervades the healthcare sector distorts its potential for delivering both health and welfare gains. India must prioritize healthcare, for there are few goals, perhaps none, more important than the health and well-being of its citizens.

India currently spends only slightly more than one percent of GDP on health, one of the lowest proportions in the world. Despite promised increases to 2.5 percent by 2017, the challenges of improving health will require far more than additional funding. There is a significant tension between India's aspirations and the challenges on-the-ground, in terms of infrastructure, universal health coverage, and patient access to medicines and health outcomes. For example, India is in the grips of the twin epidemics of continuing/emerging infectious diseases as well as chronic degenerative/non-communicable diseases. The infectious diseases stem from poor implementation of the public health programs, and the emergence of chronic and non-communicable diseases may be traced to the demographic transition that accompanies increases in life expectancy.

The key challenges for Indian healthcare include:

- Low public expenditures on healthcare and health services, growing at a pace that lags GDP
- Lack of sustainable financing
- High out-of-pocket payments by private sector users

- Bridging the transition from fighting infectious diseases to reducing the burdens of chronic and non-communicable diseases
- Poor performance and health indicators that continue to lag peer nations
- An inadequate and underutilized health workforce, especially in areas of deprivation, intensified by low wages and weak regulatory infrastructure
- Failure to ensure a reliable good-quality supply of even the most basic essential medicines
- Inadequate sanitation, clean water, and health infrastructure
- Extensive dependence on vertically organized, single condition, programs

Admittedly, there is tremendous interdependence among many of these challenges and each exacerbates the impact of the next. Given that an examination of all of these factors is beyond the scope of this work, this study limits its focus to five issues: investment in healthcare by the government, health infrastructure, universal health coverage, sustainable financing mechanisms, and pharmaceutical innovation and access. The next section describes India's demographics and the country's health profile. This is followed by an analysis of the five key issues listed above. Finally, the paper outlines the most critical healthcare opportunities facing India and their consequences.

Demographic Description and Health Profile

India occupies a little over two percent of the earth's land surface and claims almost 20 percent of the global population, accounting for 75 percent of the population of South Asia. The population is predominantly young, with two thirds of the India population aged 35 years or less. India accounts for between five and six percent of global GDP (gross domestic product), in purchasing power adjusted terms. However, the country is also characterized by tremendous disparities in wealth, with more than 41 percent of the population surviving on less than US\$1.25 per day in 2009 (Lobo, et al., 2011). Notably, India has close to 50 billionaires whose collective wealth represents on the order of ten percent of India's total earnings, in addition to nearly 100 million citizens with standards of living equivalent to those of affluent western nations, and finally more than 400 million citizens living in extreme poverty (Gill and Taylor 2013, p.3). Recent economic growth has significantly changed the demographic and economic makeup of the nation as the population transitions from rural subsistence living to more urbanized and affluent lifestyles.

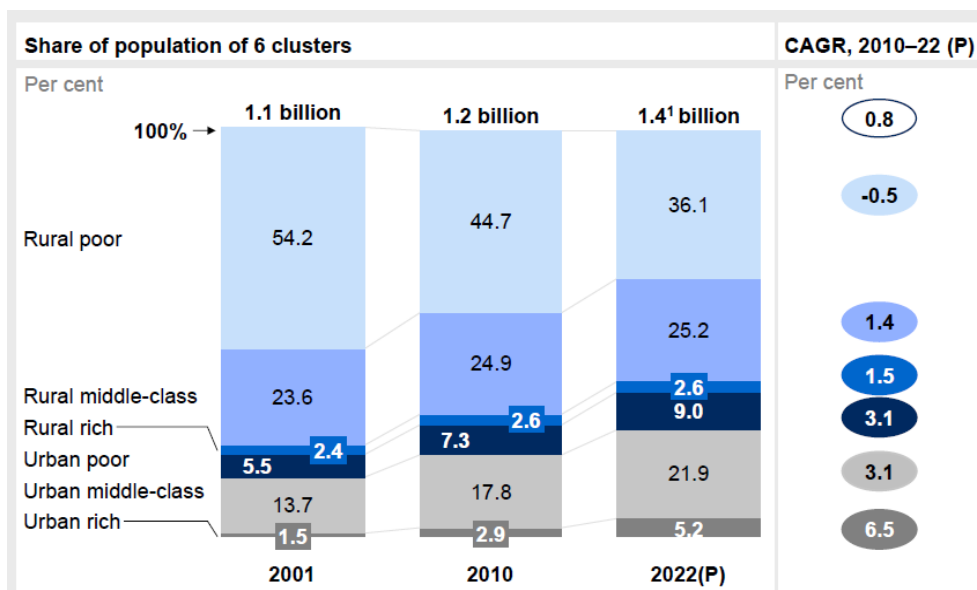


Figure 1: Population Cluster Sizes are Changing Steadily
Gudwani, et al., 2012, p.20

India’s protracted demographic transition has important consequences for the national health profile. The country faces a dual epidemic of infectious diseases alongside widespread chronic degenerative and non-communicable diseases. The prevalence of infectious diseases may be traced to the poor implementation of public health programs and a lack of sanitation, while the growing burden of non-communicable diseases (NCDs) is related to the demographic transition and increasing life expectancy.

In addition, although effective primary care is essential in chronic disease prevention and management it remains in short supply in India. Moreover, outpatient care and medicine coverage is critical in driving improved adherence to treatment for chronic illness, prevention of disease progression, and reduction of unnecessary hospitalizations and resulting expense. Again, these are resources that are scarce and difficult to come by in India. Table 1, on the following page, describes the big picture, providing a snapshot of India’s national health profile.

Admittedly, national statistics fail to shed much light on the subtleties of healthcare in India and what the true challenges are. The growing prevalence of non-communicable diseases is certainly among them. The World Health Organization recently estimated that non-communicable diseases account for 53 percent of all deaths in India.

India Health Profile ~ Selected Indicators (2011)

* Data refers to 2010

		Country	Regional average	Global average	
General	Total population (thousands)	1,241,492	---	---	
	Population living in urban areas (%)	31	34	52	
	Gross national income per capital (PPP int. \$)	3,590	3,747	11,536	
	Total fertility rate (per woman)	2.5	2.4	2.4	
	Life expectancy at birth for both sexes (years)	65	67	70	
Mortality and Burden of Disease	Life expectancy at age 60 for both sexes (years)	17	17	20	
	Under-five mortality rate for both sexes (per 1000 live births)	61	55	51	
	Adult mortality rate (probability of dying between 15 and 60 years per 1000)	Male	247	230	190
		Female	159	155	129
	Maternal mortality ratio* (per 100,000 live births)	200	200	210	
	Prevalence of tuberculosis (per 100,000 population)	249	271	170	
	Incidence of malaria* (per 100,000 population)	1,973	1,773	4,082	

Table 1: India's Health Profile

WHO, 2013

Moreover, pediatric malnutrition is a key risk factor for 22.4% of India's disease burden (World Bank 2005). The prevalence of underweight children exceeds 40 percent in India (Lobo, et al., 2011). Notably, while most child nutrition programs focus on older children, it is within the '0-36' months age group where we find the window of opportunity to establish the foundation for good health, after which many of the deficiencies are set for life. (Ernst & Young 2012, p.7) In addition to malnutrition, Figure 2 identifies the proportional mortality for Indians of all ages.

India bears this non-communicable disease burden at tremendous cost. According to Patel, et al., (2011), non-communicable conditions, mental health conditions, infectious diseases and injuries cost Indian society approximately 300 million Disability Adjusted Life Years (DALYs) annually, which equates to a welfare loss of close to 25 percent of the nation's productive potential. Specifically, this amounts to losses of 12.5 percent of GDP due to non-communicable diseases and an additional 12.5 percent of GDP due to

infections and other acute/external causes. Gill and Taylor (2013) assume a present gross national product of a little under US \$2 trillion, which means that the cost of non-communicable diseases approaches \$250 billion a year at exchange rate values or \$500 billion when expressed in purchasing power parity (PPP).

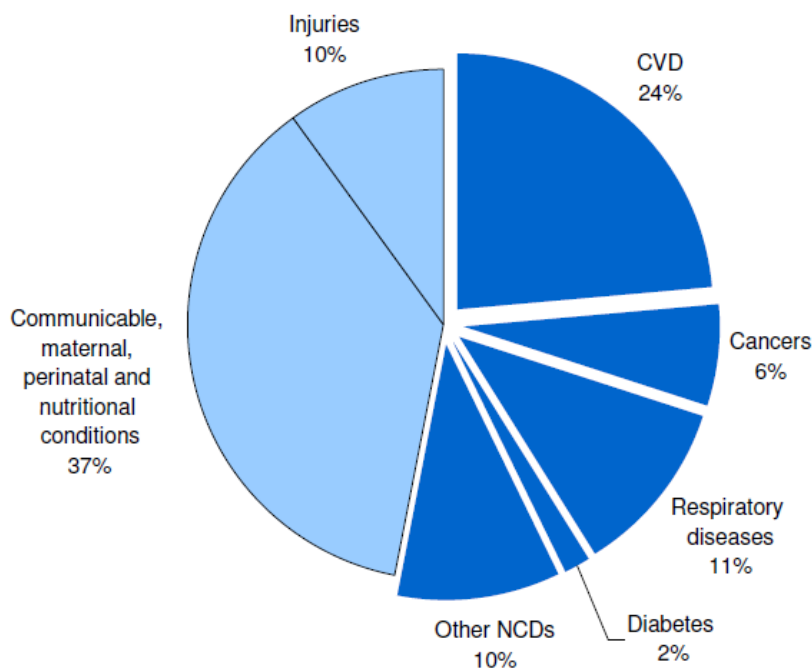


Figure 2: Proportional Mortality (Percent of Total Deaths, All Ages)
WHO, 2013

Closer examination of India's health profile reveals the nation is plagued by great inequity in health conditions and healthcare access across states and demographic segments of the population. Both the magnitude of the inequity and its upward trajectory are alarming. The majority of the nation's disease burden rests in rural India, which accounts for not only 70 percent of communicable disease cases but also 50-70 percent of non-communicable disease cases.

In contrast, the urban rich access health services at a rate that is double that of the rural poor and 50 percent greater than national average (Gudwani, et al., 2012, p.20). This inequity is starkly evident in Figure 3.

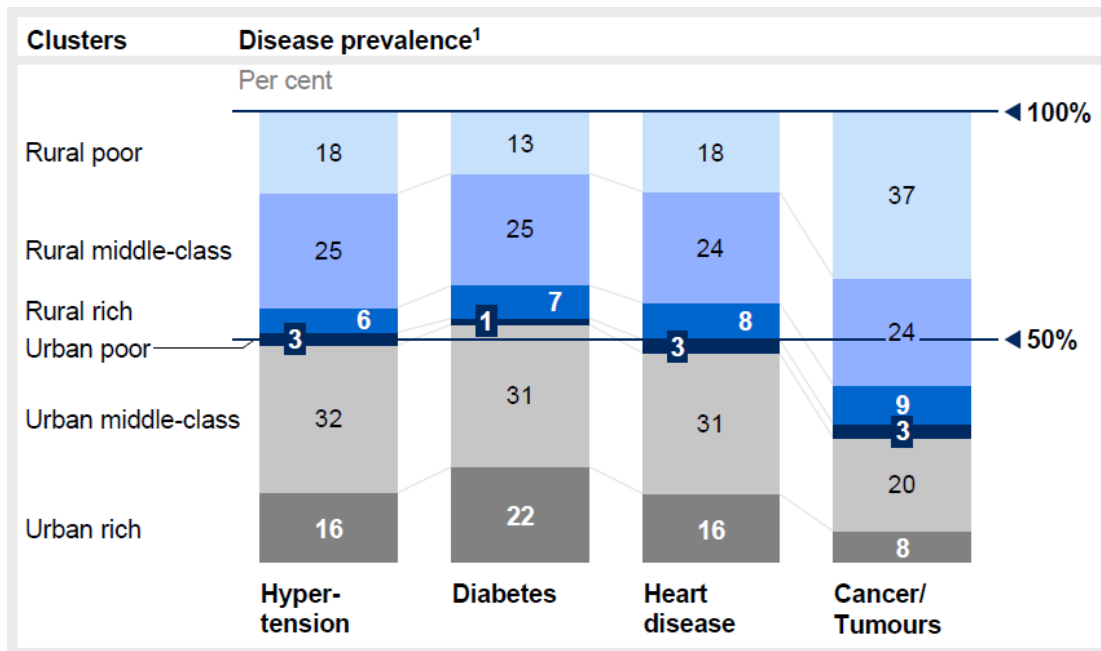


Figure 3: Rural India accounts for 50-70% of non-communicable diseases (cases per 1,000 population)

(Gudwani, et al., 2012, p.21)

Finally, two additional points are worth making, which markedly complicate the health profile of India. First, India accounts for a significant share of the global neglected tropical disease burden, as shown in Table 2 below. Not surprisingly, this burden too is primarily borne by the rural poor. India accounts for more than 40 percent of the world's leprosy cases and more than half of the near 250,000 new cases detected annually (Lobo, et al. 2011, p.5).

Second, any description of India's health profile understates the severity of the nation's problems due to a lack of treatment. A sizeable population remains untreated. "Nearly 12%–15% of reported ailments are estimated to remain untreated due to the cost of treatment being unaffordable. This number could be much higher in real time, as sensitivity to ailments is a function of the ability to avail health care. This is illustrated by the number of persons reporting ailments being 4 to 5 times higher in states such as Kerala with per capita GDP being 4 times that of Bihar, assuming that per capita GDP is considered as an indicator of households' propensity to pay." (Ernst & Young 2012, p.4)

Overall, India faces significant challenges due to the dual epidemiological burden of infectious and non-communicable diseases and the great inequity in health and healthcare across states and demographic segments of the population. The high burden of disease is due to a lack of environmental sanitation and safe drinking water, poor

living conditions, malnutrition, poverty, and limited access to preventive and curative health services. While death rates have declined, birth rates continue to be high, placing additional stress on an already over-burdened healthcare structure. The combination of these factors present health policymakers with a monumental task, as well as a number of tangible, achievable opportunities.

Disease	Number of Cases in India (Percentage of Global Disease Burden)
Ascariasis	140 million (17%)
Trichuriasis	73 million (12%)
Hookworm infection	71 million (12%)
Lymphatic filariasis	< 6 million (5%)
Trachoma	1 million (1-2%)
Visceral Leishmaniasis	Not determined
Leprosy	87,190 registered cases (41%)
Rabies	20,000 cases/deaths (36%)
Japanese Encephalitis	1,500-4,000 incidence
Dengue	Not determined

Table 2: The Major Neglected Tropical Diseases in India, ranked by prevalence
(Lobo, et al. (2011), p.3)

Issues and Challenges

To date, the Federal Government's commitment to providing support for health services development and sustainable financing has been limited. This may be traced to not only the complexity and physical scale of the tasks involved, but also to the "social distance between elites in Delhi and the leadership of national programs and institutes located in or near other major cities and the equally important but far less advantaged people working to provide local services." (Gill and Taylor 2013, p.6) Admittedly, the list of challenges is rather daunting.

The key challenges include:

- Low public expenditures on healthcare and health services, growing at a pace that lags GDP
- Lack of sustainable financing
- High out-of-pocket payments by private sector users
- Bridging the transition from fighting infectious diseases to reducing the burdens of chronic and non-communicable diseases
- Poor performance and health indicators that continue to lag peer nations
- Corruption
- An inadequate and underutilized health workforce, especially in areas of deprivation, intensified by low wages and weak regulatory infrastructure

- Failure to ensure a reliable good-quality supply of even the most basic essential medicines
- Inadequate sanitation, clean water, and health infrastructure
- Extensive dependence on vertically organized, single condition, programs

Undeniably, there is tremendous interdependence among many of these challenges and each exacerbates the impact of the next. Given that an examination of all of these factors is beyond the scope of this work, this study limits its focus to five issues: investment in healthcare by the government, health infrastructure, universal health coverage, sustainable financing mechanisms, and pharmaceutical innovation and access. Following the description of each of these elements the most critical opportunities and their consequences are discussed.

Government Investment

India has one of the world's lowest levels of health spending, calculated as a percentage of GDP. Current estimates place Indian spending on publicly funded healthcare at approximately 1.2 percent of GDP, while total Indian spending is somewhat more than four percent of GDP (Gill and Taylor 2013, p.1). Cross-country evidence indicates that increased government spending on healthcare is associated with proportionally lower out-of-pocket (OOP) health spending by individuals. At present, approximately 70 percent of overall health spending in India is private out-of-pocket spending. Across nations that have achieved universal health systems with more than 80 percent coverage of the population, healthcare spending as a share of GDP is 5 to 12 percent, with exceptions such as Thailand (3.9% of GDP) and the Philippines (3.6% of GDP) (Ernst & Young 2012, p.4). Figure 4 illustrates the experience of several nations.

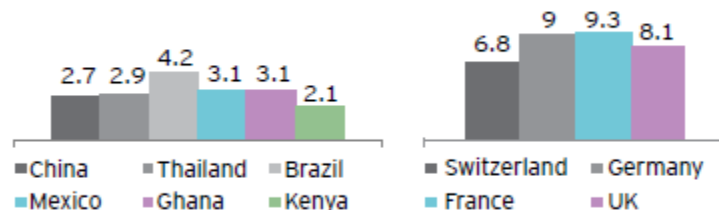


Figure 4: Public Health Expenditure as a Percentage of GDP
(World Bank Health Care Statistics, 2010)
(Ernst & Young 2012, p.32)

India's Prime Minister Manmohan Singh has pledged to raise the level of public health spending and encourage public support for health. According to the country's 12th Five Year Plan, the nation should increase public health spending from 1.2 percent of GDP to 2.5 percent by 2017, with a goal of reaching at least 3.0 percent by 2022. Notably, 2022

is also the Indian Government's target year for implementing universal health coverage in India. While it is difficult to argue that the promised increase in spending is important for improving the country's healthcare, it is not yet clear how the new funds will be spent. How the money is invested is critical to making the most of this opportunity.

Infrastructure

Evidence indicates that the current Indian system often fails to meet medically defined need and is ill-prepared to meet the requirements of communities characterized by increasing chronic/non-communicable disease burdens (Gill and Tylor 2013, p.2). Nowhere is this more apparent than in national health infrastructure. In terms of health infrastructure, India fails to measure up, even in comparison to other large developing nations. India has 0.7 beds per 1,000 population, relative to Brazil with 2.6 and China with 2.2 per 1,000 population. To put these figures in perspective, the World Health Organization Guidelines recommend 3.5 and the global average is 2.6 (Gudwani, et al., 2012, p.12). Underinvestment in healthcare infrastructure is not limited to physical resources, it also encompasses human resources. India had 1.7 trained allopathic (western science based as opposed to traditional) doctors and nurses per 1,000 population in the year 2000 compared to the WHO recommended guideline of 2.5 per 1,000 population (Gudwani, et al., 2012, p.12). Moreover, the limited resources that do exist are located almost exclusively within the private sector, which has 80 percent of all doctors, 26 percent of all nurses, 49 percent of the beds, 78 percent of ambulatory services and 60 percent of in-patient care (Dutta 2014).

Despite programs such as the National Rural Health Mission (NRHM), current estimates indicate that 50 percent of rural Indians have absolutely no access to modern healthcare services, 37 percent are chronically starved, and ten percent of all children die before their first birthday (Dutta 2014). By any measure, there remains a dearth of healthcare professionals in rural India. Unfortunately the situation is unlikely to be remedied any time soon. In terms of medical education, only 193 of India's 640 districts have medical colleges, which has a direct effect on the local community. Even among these institutes, 80 percent are located in South and West India, leaving a shortage of professionals in Central, Eastern and Northern India (Dutta 2014). In addition, as is depicted in Figure 5 below, close to half of the existing medical workforce does not practice in the formal health system.

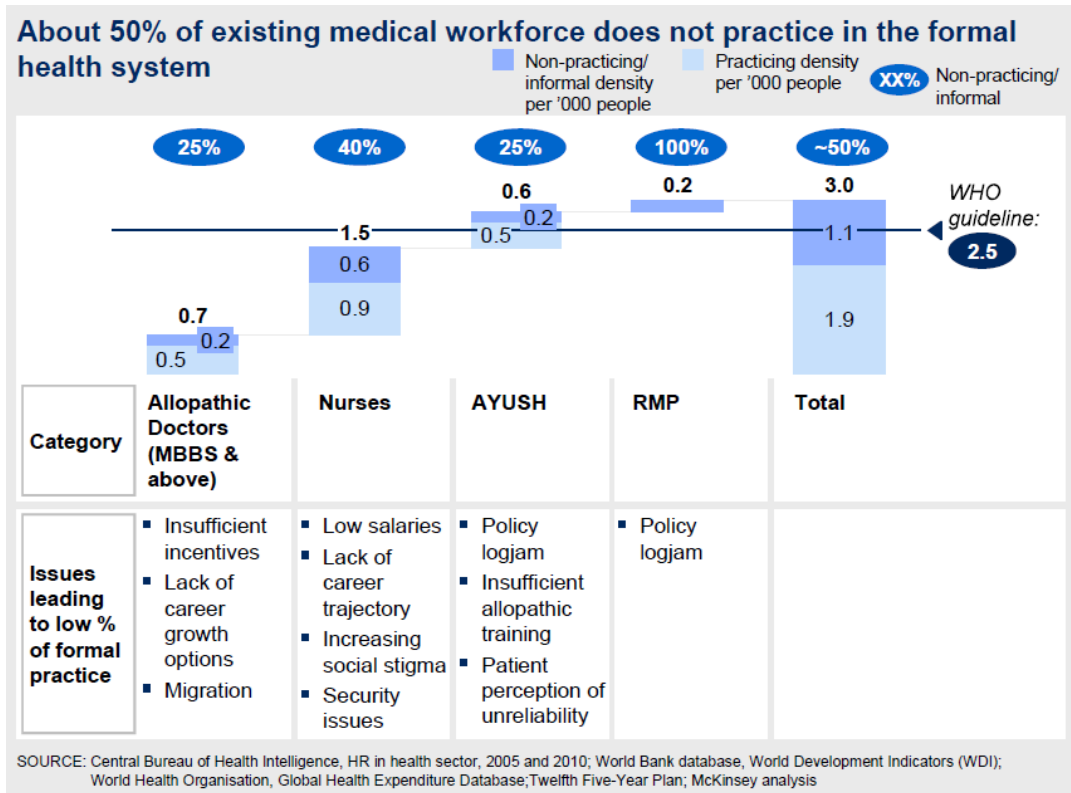


Figure 5: Distribution of Existing Medical Workforce
(Gudwani, et al., 2012, p.15)

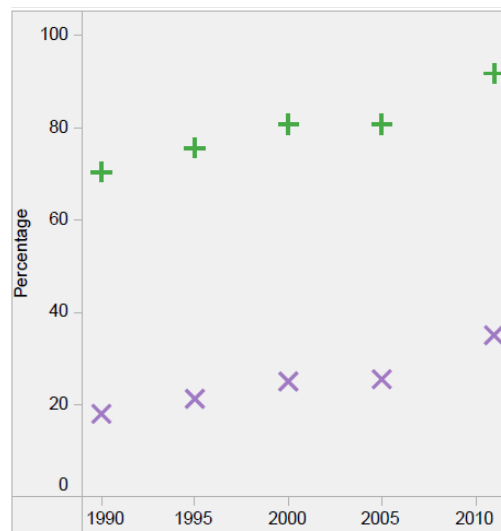


Figure 6: Population Using Improved Water and Sanitation
+ Improved drinking-water sources; x Improved sanitation facilities
(WHO, 2013)

Further worsening the lack of resources is the ineffective distribution of those that do exist. Although rural India bears more than 75 percent of the ailment burden, it merely has one-ninth of the total number of beds and one-fourth of the number of human resources for health (Ernst & Young 2012, p.4). These needs are further exacerbated by the lack of clean water and improved sanitation facilities, especially in rural regions. “Inadequate sanitation is estimated to cost India 6.4 percent of GDP, with health constituting nearly 72 percent of the composition of sanitation’s economic impact” (Ernst & Young 2012, p.7). In addition, the process to simply access the Primary Health Centers (PHCs) is very challenging for many Indians. Beyond the limited infrastructure to access Primary Health Centers, these facilities often suffer from a lack of trained physicians, low quality of care, and long wait times to receive treatment.

A recent study by John, et al. (2011) describes the challenges India faces, the enormous range and burden of infectious and non-communicable diseases, as well as the inadequacies of the existing public health infrastructure.

“Control of diseases and outbreaks is the responsibility of the central Ministry of Health, which lacks a formal public health department for this purpose. Tuberculosis, malaria, filariasis, visceral leishmaniasis, leprosy, HIV infection, and childhood cluster of vaccine preventable diseases are given priority for control through centrally managed vertical programs. Control of HIV infection and leprosy, but not of tuberculosis, seems to be on track. Early success of malaria control was not sustained, and visceral leishmaniasis prevalence has increased. Inadequate containment of the vector has resulted in recurrent outbreaks of dengue fever and re-emergence of Chikungunya virus disease and typhus fever. Other infectious diseases caused by faecally transmitted pathogens (enteric fevers, cholera, hepatitis A and E viruses) and zoonoses (rabies, leptospirosis, anthrax) are not in the process of being systematically controlled. Big gaps in the surveillance and response system for infectious diseases need to be addressed. Replication of the model of vertical single-disease control for all infectious diseases will not be efficient or viable.” (John, Dandona, Sharma & Kakkar, 2011, p.252)

The shared administrative responsibilities of the Federal and State governments must evolve and policymakers must establish a health policy that includes a broadened agenda for disease control (infectious, noninfectious and injuries), a functional public health infrastructure, and a commitment to both equity and quality in health care.

Universal Health Coverage and the Role of Private Insurance

The majority of Indians seek healthcare in private facilities today. In addition, as described above, most healthcare resources are located within the private sector. Currently, health insurance covers less than 25 percent of the population and out-of-pocket expenditures are approximately 67 percent, much higher than the measure of 44 percent for peer (Lower-Middle Income) countries (Gudwani, et al., 2012, p.13). Estimates show that 80 percent of outpatient treatment is provided in the private sector, which can be both unreliable and expensive for vulnerable users. Moreover, without widespread health insurance close to ten percent of Indian households devote in excess of ten percent of their total expenditure to obtaining health care annually. (Gill and Taylor 2013, p.20)

While comprehensive private health insurance coverage is not generally available, there are at least two major healthcare programs in India. First, the establishment of the National Rural Health Mission (NRHM) may be counted as one of the most important successes of the last decade. The NRHM has sought to decentralize planning, provide more accessible and affordable healthcare to the rural population, increase community involvement in decision making, and provide more flexible financing and allied grant arrangements. Despite slow implementation, the NRHM is now praised for significantly reducing the incidence of a range of infectious diseases. Given this success, the National Urban Health Mission (NUHM) is being launched to meet the health needs of the urban poor. (Gill and Taylor 2013, p.22)

Second, the Rashtriya Swasthya Bima Yojana (RSBY), launched in 2008, is a health insurance program which covers people below the poverty line. Early evidence suggests that RSBY has been somewhat effective in reducing out-of-pocket payments for tertiary care, although it is not clear whether this program improves population health. (NBR 2012, p.1) The scheme gives poor families access to almost 1000 public and over 3000 private hospitals. However, the program is available only to the poorest families, and is limited to covering the cost of serious episodes of illness normally needing hospital admission.

From a global perspective, India has both a high disease burden and very low spending on healthcare. In addition, the country is characterized by low levels of health insurance coverage and a history of disappointing health programs and policies. The combination of these factors points to the need for greater access to essential healthcare services and the importance of universal health coverage as a national priority. The challenges to implementing UHC include: high disease prevalence, issues of gender equality, an unregulated and fragmented healthcare delivery system, the dearth of adequate skilled human resources, vast social determinants of health, inadequate finances, a lack of

inter-sectoral coordination, and conflicting political interests (Singh 2013, p.70). Moreover, within a country the size of India it should not be assumed that policies and programs that are sustainable and demonstrably cost effective in one State or region will prove equally desirable or feasible in another. While the challenges are significant, so are the potential benefits. The Government's commitment to a program in which all citizens receive access to needed healthcare and medicines is a commendable starting point, but the devil is in the details and the details remain to be worked out.

Financing Mechanism

The potential for achieving Universal Health Coverage in India, or any improvements in the existing public healthcare system, is contingent upon finding a sustainable financing mechanism. Only with sustainable financing will treatment be within reach of the majority of the population. Amartya Sen has very correctly noted recently that “the current financial allocations are massively inadequate” (Dutta 2014). Currently, close to 80 percent of the urban population and 90 percent of the rural population are estimated to find the average cost of in-patient treatment to be almost half of their annual household expenditure. Moreover, experts estimate that three percent of India's population, nearly 39 million people, is forced into poverty each year because of health-related expenses (Ernst & Young 2012, p.4). Finally, due to healthcare costs a significant percentage of the population fails to seek treatment. Between 12 and 15 percent of reported ailments go untreated due to the high cost of care. “This number could be much higher in real time, as sensitivity to ailments is a function of the ability to avail health care. This is illustrated by the number of persons reporting ailments being 4 to 5 times higher in states such as Kerala with per capita GDP being 4 times that of Bihar, assuming that per capita GDP is considered as an indicator of households' propensity to pay.” (Ernst & Young 2012, p.4)

The challenge for India will be gaining political acceptance of and public support for transferring substantially more resources, collected through taxation, from the richest and healthiest to less advantaged and vulnerable individuals and communities. Although the Indian economy possesses the fiscal capacity to invest in health, expenditures have growth slower than the economy. (See Figure 7) In most cases, the political will needed to raise funding through national or state taxes is absent and the monies needed to increase transfer payments to sustain healthcare improvements have not materialized. Notably, “the size, plurality and diverse traditions of India may mean that it will continue to face special problems in this area as compared to those encountered in Western European countries at similar points in their development” (Gill and Taylor 2013, p.26). At a fundamental level, the Federal Government must assume responsibility for sustainable financing through budgetary outlays, private

investments, donations from multilateral institutions, and reasonable levels of out-of-pocket expenditures by individuals.

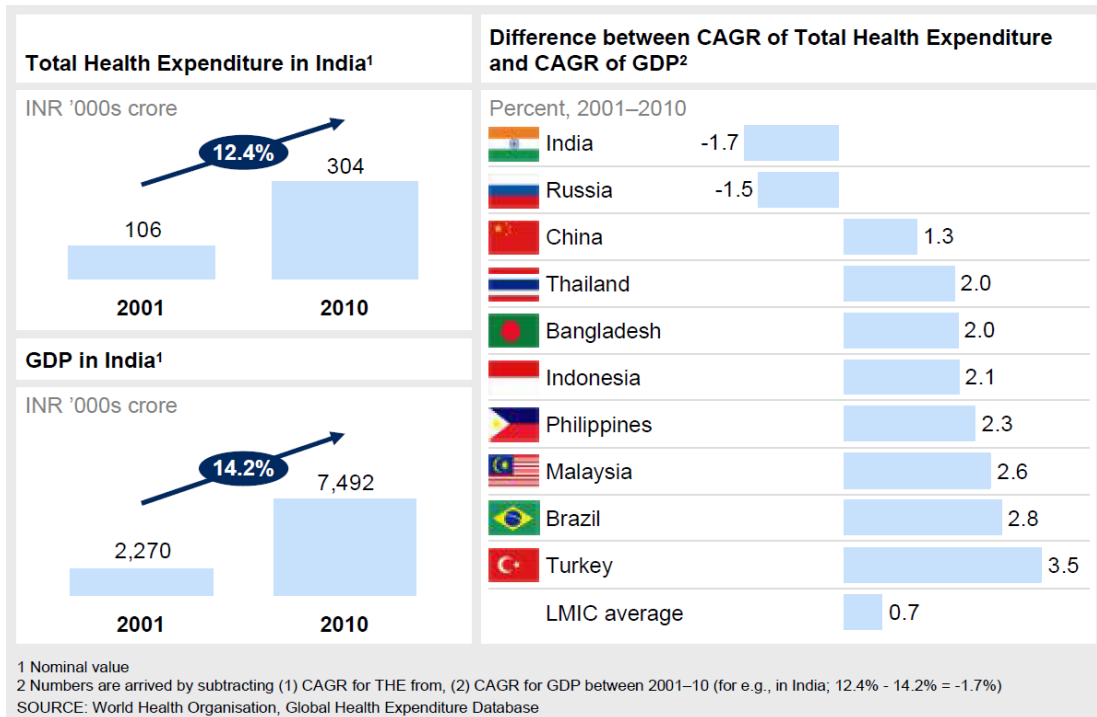


Figure 7: Indian Healthcare Expenditure has Grown Slower than the Economy, Unlike Most Peer Nations
 (Gudwani. p.15)

Realistically, the prerequisite political will and economic capacity for providing health care vary significantly across Indian states. In addition, States have differing income levels and risk profiles. Accordingly, “for effective financing and risk neutralization, there is a need to pool the funds at a national level and allocate them to states in alignment to their respective health risk needs irrespective of the contribution to funds raised.” (Ernst & Young 2012, p.6) To realize true gains, a collective commitment to invest in healthcare must be reached. Sustainable financing will most likely be achieved through a system of pooled financing through centrally collected taxes, perhaps through extensions of consumption taxes on items such as alcohol, tobacco, soft drinks and processed foods (Kumar, et al., 2011). In addition, it is critical that the value of healthcare services should be recognized by their users and some funding should be generated by their use. Copayments or nominal user fees have been shown to discourage overuse and incentivize cost-effective utilization, as well as contributing to national healthcare budgets.

Finally, as described by Gill and Taylor (2013), it is unlikely that a one-size-fit-all solution can be found for a nation as diverse as India. Rather, it may be counter-productive to advance a single “theoretically optimal national model.” From a more pragmatic perspective, it is likely that a flexible mix of public and private systems designed to enable sustainable funding and efficient health service provision is likely to emerge. Nevertheless, in the case of the poorest segments of the Indian population, those living below the poverty line, enhanced medicines and care provision may necessitate free-at-the-point-of-use supply. Again, “to be viable, such measures must be supported by resource transfers from richer community groups to their less advantaged peers. These may well need to be introduced via Federal action and sustained by federally supported mechanisms.” (Gill and Taylor 2013, p.8)

Pharmaceutical Innovation and Access

Given that drugs constitute nearly 70 percent of out-patient health expenditure, it is understandable that pharmaceutical prices (which may include taxes as well as professional and institutional fees) are of great concern to the Indian public. However, a recent study by Gill and Taylor (2013) concludes that spending on allopathic medicines (expressed in manufacturer’s prices) is unlikely to account for more than 20 percent of total health spending in India, which is in line with the spending of other nations. Gill and Taylor find that absolute pharmaceutical spending is low in India (see Figure 8), and on par with other BRIC (Brazil, Russia, India and China) nations when expressed as a percentage of GDP (see Figure 9). However, given that these payments frequently take the form of direct personal payments rather than insurance outlays, they are more visible and more deeply felt by patients and their families.

While India frequently touts its pharmaceutical industry as the “drugstore to the world”, domestic needs often go unmet. The industry’s low prices and largely good-quality generic products should allow for the provision of essential medicines and vaccines for all Indians. However “the existence of an often apparently dysfunctional private market for non-patented branded medicines, coupled with problems such as ‘stock outs’ and corruption affecting the public sector pharmaceutical supply chain, has meant that standards of treatment are not as high as could otherwise have been attained” (Gill and Taylor 2013, p.4).

Moreover, it is important to recognize that quality is also an issue. Even the largest Indian generics manufacturers are facing increasing scrutiny due to failed inspections, lack of compliance with good manufacturing practices, and other quality issues. In 2013, Ranbaxy pleaded guilty to criminal charges, including falsifying clinical data and knowingly distributing adulterated drugs in the United States (Bate, Thakus & Attaran, 2013). Further, earlier this year, the U.S. Food and Drug Administration banned

imports from some Indian generics manufacturers citing quality concerns. Finally, there is reason to believe that highly publicized controversies over the prices of cutting-edge patent protected medicines have diverted attention away from the much more important issue of ensuring a reliable supply of basic essential medicines for the wider population.

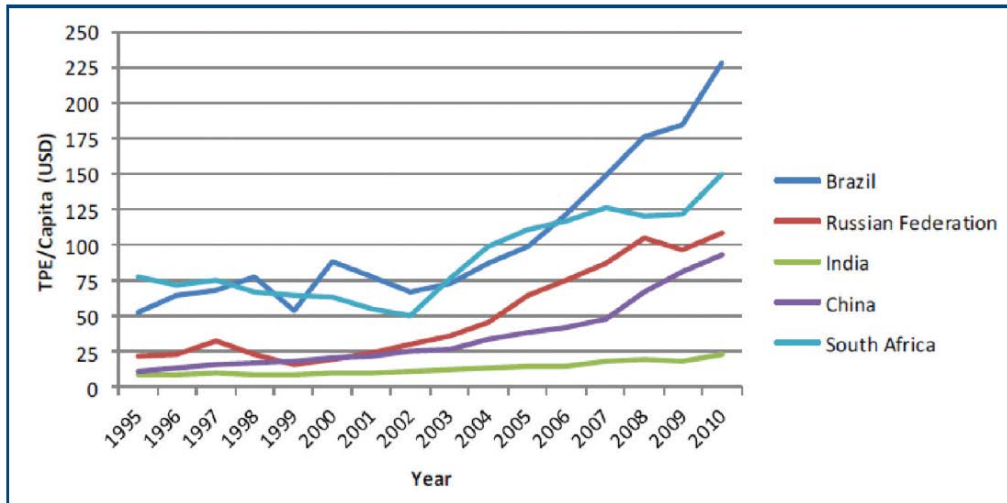


Figure 8: Total Pharmaceutical Expenditure in the BRIC Countries (per capita in US\$)
 (Gill and Taylor 2013, p.20; from WHO-EMP Department 2012)

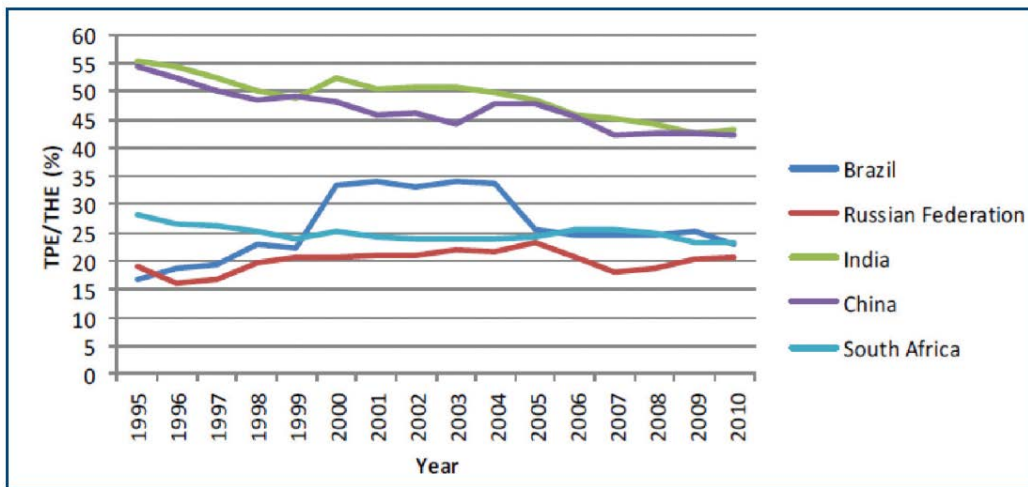


Figure 9: Total Recorded Pharmaceutical Spending as a Percentage of Total Recorded Health Spending
 (Gill and Taylor 2013, p.20; from WHO-EMP Department 2012)

India's inability to supply basic established treatments to the majority of its citizens is evident in the failure of the Jan Aushadhi initiative. Launched in 2008, it focused on the provision of unbranded, quality generic medicines to the public at low cost. The objective was to lower prices to 50 percent below the average market price of branded generic versions, with the hope that some may be supplied for as little as 10 percent of the branded products' average price (John, et al., 2011). The failure of the Jan Aushadhi scheme is likely due to a combination of factors. Some suggest that the initiative's true objective was to protect the interests of government-owned CPSU (Central Public Sector Undertaking) companies, such that only those medicines produced by these firms were generally available (Kotwani 2010; Gill and Taylor 2013). Others note that other domestic manufactures were uninterested in offering undifferentiated generic products at commodity or near commodity prices (Gopal 2011, Gill and Taylor 2013). Indeed, it appears that many domestic manufacturers are more focused on foreign markets than on meeting domestic needs. "I'm a great nationalist, an Indian first and last,' Dr. Hamied said. 'But companies like Cipla are looking to expand their businesses abroad and not in India.'" (Harris 2014, p.A1)

This experience also brings into sharp focus the fact that the most impoverished segments of the population are unable to purchase allopathic medicines at any price. Accordingly, to ensure access to essential medicines and control their prices, high quality generic production and mandated generic use will be crucial. This will then depend on reliable quality controls, regulatory effectiveness, and assured compliance to maintain product integrity (Ernst & Young 2012, p.9).

India's failure to supply her own populace with a reliable, quality supply of generic medicines is not solely due to high prices and pharmaceutical patents, but rather to a number of more complicated factors. An important component of pharmaceutical spending is comprised of the profession and institutional fees as well as taxes levied by the government. India has among the highest taxes on pharmaceutical products globally, which in part, contributes to the price of medicines and access challenges for its population. In addition, "demand for 'informal' payments is common in all Indian health service contexts, from childbirth support to conducting post mortems. It is typically the poorest people who are in relative terms hardest hit by such practices. Drug supply and procurement is a well-recognized example of an area in which there is evidence of corruption" (Gill and Taylor 2013, p.21). Finally, inappropriate purchasing and the diversion of products also contribute to the barriers to access to essential medicines.

Just as it is inaccurate to blame pharmaceutical patents for the population's lack of access to essential medicines, it is erroneous to think that India does not benefit from the global intellectual property rights architecture. Indian patients, as well as the global

community, have clearly benefited from existing pharmaceutical innovations and breakthrough therapies. Without patents and other forms of intellectual property rights, future investments in pharmaceutical innovation will evaporate and the forthcoming treatments that will enhance and extend life may not be discovered.

The November 2001 Doha Declaration on the TRIPS Agreement and Public Health enabled TRIPS' signatories to take measures for protection against 'public health emergencies.' These provisions included the ability to issue compulsory licenses for the production of patented medicines by third parties (Reichman, 2009). While the Doha Declaration has been widely embraced by developing countries and public health advocates, controversies remain as to how 'public health emergencies' should be defined and how international disputes over such issues may be resolved. "India's 2005 Patent Act can therefore be seen as both introducing extended product patent provisions and opening the way to the use of 'Doha flexibilities' in ways that, despite their undoubted popularity within India, some external authorities believe are inconsistent with the intent and global social purpose of the TRIPS agreement" (Gill and Taylor 2013, p. 29). These strategies, especially if widely adopted by other nations, may reduce incentives to invest in biopharmaceutical research and therefore impinge on global public health. At best they will slow the development of knowledge-based global health investments and at worst they will undermine the very underpinnings of the innovating pharmaceutical industry.

It is also worth recognizing that there is no evidence-based alternative to strong intellectual property rights and the associated temporary market exclusivity that they offer for incentivizing innovation (Jacob, 2013). This is especially true in the case of pharmaceutical innovation which is difficult, expensive, and risky. Accordingly, it is critical to reach a compromise that allows for the establishment of both a thriving global innovative pharmaceutical industry as well as an equitable distribution system that fosters enhanced global health.

Further, India should recognize that it is in its own interest to institute strong intellectual property rights protection. India is currently the world's third largest pharmaceutical manufacturer by volume, but fails to rank in the top ten by value. While India's pharmaceutical exports are estimated to be worth US\$13-\$14 billion, Indian producers rely on imitation as the domestic industry does not yet have a record of fundamental pharmaceutical innovation. Currently, they invest very little in high risk biomedical research and development. Given the Indian pharmaceutical industry's lack of investment in innovation, it is not surprising that they are little concerned with defending the global public's interests in intellectual property protection. Accordingly, India dismisses the value of world standard intellectual property protection for innovative medicines. However, with time India may develop an innovative industry

and that may change. This is clearly of interest to domestic firms, such as Cipla as described by Dr. Hamied above. If the Indian pharmaceutical sector is to evolve into an innovative industry, strong, effectively enforced intellectual property standards are essential.

With continued growth of the Indian economy and rising incomes, patients will be better equipped to bear the costs of healthcare and innovative pharmaceuticals. In the interim, the equitable provision of innovative therapies in India may depend on the application of differential pricing strategies. Differential pricing amounts to adjusting prices to the purchasing power of different consumer groups, in effect charging lower prices to regions and/or communities in accordance with their ability to pay. However, to be operational, the implementation of differential pricing must be done in the context of more sustainable healthcare financing in India and within a functional delivery system. While some pharmaceutical manufacturers are able to employ differential pricing schemes in India, more widespread application is constrained by the absence of systemic healthcare infrastructure, inadequate financing and delivery deficiencies. In addition, the application of differential pricing will require increased international acceptance of the need for the differential pricing of innovative treatments. Simultaneously India must recognize the difficulty, expense and risk involved in biopharmaceutical innovation and the attendant need for strong intellectual property protection. These elements are critical for achieving differential pricing in a manner that both enhances access to medicines and preserves the incentives to invest in the development of breakthrough therapies. Ultimately, India, the global community and the pharmaceutical industry will all benefit from such a compromise.

Future Opportunities

While Indian healthcare is fraught with challenges, great potential for change also exists. It is critical that the nation seize upon existing opportunities and make health and healthcare national priorities. Admittedly this is no small undertaking and will require political will and public support for both its financing and implementation. Policymakers must be willing to experiment and creatively approach the task of discovering what is feasible and what is effective. Again, just as many of the challenges are interconnected, there is an undeniable interdependence among the opportunities described here.

This study considers five of India's most salient health challenges: investment in healthcare by the government, health infrastructure, universal health coverage, sustainable financing mechanisms, and pharmaceutical innovation and access. Each of the opportunities presented below addresses one, if not many, of these challenges. Improving health and healthcare in India requires a broad-based commitment to

making healthcare a national priority. The following goals deserve serious consideration in setting those priorities:

- Increased investment in healthcare infrastructure. Health should be perceived as an essential investment rather than solely as an expenditure. Such investment should prioritize sanitation, safe water, filling healthcare resource gaps and addressing the health workforce shortage.
- Commitment to preventative care and healthy lifestyles, including efforts to prevent non-communicable diseases and vaccination coverage for children.
- Adoption of a multi-stakeholder approach and a commitment to include all levels of participation in policy making and consensus building.
- Acknowledgement of the importance of improving the provision of good quality, free to the consumer, generic medicines via the public health system, while simultaneously embracing policies that enhance both universal access to essential medicines and incentivize increased investment in biomedical research and development.
- Recognition of women as potentially powerful agents of change in improving Indian health and healthcare.

Infrastructure

The importance of an adequate healthcare infrastructure cannot be overestimated since it is the backbone of healthcare delivery. Importantly, India should prioritize judicious use of scarce resources, focusing on efficiency, especially through better utilization of existing resources. Beyond investments in infrastructure, contributing factors that inhibit its effectiveness must also be addressed. For example, the “public Indian healthcare system is plagued by high staff absence, low effort by providers, and limited use by potential beneficiaries who prefer private alternatives” (Banerjee, Glennester & Duflo, 2008). This is “exacerbated by factors such as low wages and/or weak regulatory infrastructures. India provides a clear example of an environment in which undesirable behaviors have become widespread in the health sector, along with the rest of the economy. Effective reform needs to be systematic and based on a humane understanding of the causes of institutionalized corruption and the individually and collectively damaging behaviors to which it leads.” (Gill and Taylor 2013, p.21)

Prevention of Non-Communicable Diseases and Promotion of a Healthy Lifestyle

These two strategies present the greatest potential for improving health in India. They should also prove to be the most cost-effective. Promotion of healthy lifestyle choices is a low-cost intervention with the prospect for tremendous gains. As described by

Pokharel, et al. (n.d.), “components of healthy life style: abstinence from tobacco use; regular physical exercise; balanced nutritious diet rich in vegetables and fruits, and low in fats and refined sugar; avoidance of pre and extramarital sex; yoga and meditation; avoidance of alcohol and substance abuse.”

Beyond healthy lifestyle choices, policymakers should invest in childhood vaccines and the prevention and early stage management of non-communicable diseases. India must improve its vaccination coverage for children, which is widely recognized as one of the most cost-effective health interventions available. In a 2012 report by the National Bureau of Asian Research, Dr. Victoria Fan, a research fellow at the Center for Global Development, notes that as many as a third or more of the country’s children still do not receive the full set of immunizations. Such commitments have the potential to greatly reduce the disease burden and associated cost. Non-communicable diseases “represent an important high-volume and high-value opportunity. These accounted for nearly 53 percent of mortality in 2009-10. Average bill size for NCD hospitalization was nearly 50 percent higher than the remaining in 2004-05.” (Gudwani, et al., 2012, p.28) Unfortunately, current estimates are not encouraging and without change the costs will remain high. Over the next two decades the losses due to chronic non-communicable disease (\$250 billion annually) are presently projected to remain constant, while the infectious disease burden (currently at \$250 billion annually) should halve. (Gill and Taylor 2013, p.14)

Multi-Stakeholder Approach

A collaborative multi-stakeholder approach will be critical to addressing the fundamental challenges India faces, with the government working hand-in-hand with the private sector, non-governmental organizations (NGOs), civil society, and other entities. Healthcare reform is undeniably a lengthy, continuous, flexible process and therefore requires great creativity and experimentation to determine what is both feasible and effective. There are a vast number of policy variables and program tools that can be adjusted, incorporated, or eliminated. Solutions obviously vary across countries, regions and populations. “India will thus need to experiment with different tools for reforming its healthcare system, including how the central government pays state governments and the incentives on those payments, as well as how state governments can improve the delivery of healthcare services through changing payment systems, improving regulation and accreditation of facilities, increasing autonomy in public facilities, and using demand-side incentives such as cash transfers or insurance to stimulate the supply of services” (NBR 2013, p.4). Existing programs, NRHM and RSBY, are already complex entities and healthcare reform will only complicate implementation and evaluation. In combination with all other stakeholders and federal authorities, state governments will need to determine what works for each region and population. Only

through the cooperation of all concerned entities can reform balance the interests of all players and ensure that the needs of all are being addressed.

In this case, there is much that India can learn from the experience of other countries. Recent success in Bangladesh may provide some important lessons.

“Bangladesh, the eighth most populous country in the world with about 153 million people, has recently been applauded as an exceptional health performer. . . [evidence shows] that Bangladesh has achieved substantial health advances, but the country’s success cannot be captured simplistically because health in Bangladesh has the paradox of steep and sustained reductions in birth rate and mortality alongside continued burdens of morbidity. Exceptional performance might be attributed to a pluralistic health system that has many stakeholders pursuing women centered, gender-equity-oriented, highly focused health programs . . . Government and non-governmental organizations have pioneered many innovations that have been scaled up nationally. . . Bangladesh offers lessons such as how gender equity can improve health outcomes, how health innovations can be scaled up, and how direct health interventions can partly overcome socioeconomic constraints.” (Chowdhury, et al. 2013, p.1734)

Das and Horton (2013) note that the government created an environment for pluralistic reform, allowing many participants in the health sector, including nongovernmental organizations and the private sector, to flourish. Although this multiplicity of health actors could have produced confusion, deeper examination demonstrates that the pluralism had positive effects and the inherent flexibility in the experimentation in service delivery led to rapid health improvements. As noted above, India is unlikely to find one universally optimal model. However, in the search for what works locally, the experience of Bangladesh may be informative and allow India to avoid some of the pitfalls inevitable in the quest for healthcare reform.

Differential Pricing to Enhance Access and Support Pharmaceutical Innovation

Access to medicines and the pricing of pharmaceutical therapies are at the forefront of the debate over healthcare in India. Despite the public mania surrounding lowering the prices of drugs, in reality this can have little impact on overall healthcare costs and outcomes given the dysfunctional nature of healthcare markets and health service environments. As noted above, spending on allopathic medicines is likely less than 20 percent of total Indian health spending, in line with the average for BRIC nations

(Brazil, Russia, India and China) as a percentage of GDP. Granting that this still constitutes close to 70 percent of out-patient expenditure, it points to the need for increased generic prescribing, free public provision programs, and differential pricing.

India's policy positions on innovation and intellectual property exacerbate the challenges in an already difficult health landscape, complicating the ability of the global pharmaceutical industry to deliver innovative treatments to patients who need them most. Recently-adopted Indian policies are limiting intellectual property protection for pharmaceutical products which is inconsistent with long-term Indian health considerations as well as the objectives of global public health. Such restrictions work against enhancing universal access to essential medicines and incentivizing greater investment in biomedical research. Strong effective intellectual property right protections are critical to enhancing global health and continued development of breakthrough therapies, and therefore must be embraced and enforced in India.

Women as Agents of Change

The status of women in India is undeniably dismal. Dutta vividly makes this point, contrasting the status of women in India in 1990 to that of Indian women today.

“Amartya Sen wrote an essay in 1990 arguing that 100 million women are missing in Asia thanks to female feticide, infanticide and inadequate nutrition and the situation is no better almost 25 years later, at least in India. According to a poll by Thomson Reuters, India is the worst place for women among G20 nations. Female feticide, unequal rights, dowry killings, poor maternal health and lack of sexual education are just some of the reasons for the same. 12 million girls were aborted in the last decade in India while, 45% women marry before they turn 18 and a mother dies every ten minutes in India.” (Dutta, 2014)

This description is particularly disturbing given the tremendous potential women possess to act as agents of change in the healthcare setting. The experience of Bangladesh presents a striking example to follow. In a recent series of articles on Bangladesh,⁶⁰ *The Lancet* attributes the country's success to efforts to draw on government entities and non-governmental organizations (NGOs) that emphasized the role of women in delivering action on family planning, immunization, oral rehydration therapy, tuberculosis and vitamin A supplementation (Tran, 2013). The successes are significant, especially for the eighth most populous country in the world still facing tremendous poverty and malnutrition. As described by Das and Horton (2013), by

⁶⁰ “Bangladesh: Innovation for Universal Health Coverage,” available at: <http://www.thelancet.com/series/Bangladesh>

deploying community health workers, Bangladesh has achieved high tuberculosis treatment coverage and greater than 90% cure rates. South Africa has already copied this model for treatment of HIV, as well as tuberculosis. Bangladesh has pioneered pro-poor and pro-women development programs that together have resulted in extensive gains in coverage of key health interventions, together with improvements in gender equity. India could learn a great deal from the Bangladeshi experience and successes, placing women on the frontlines of healthcare reform.

Conclusion

Some researchers have gone so far as to describe tweaks to the healthcare system as “putting a Band-Aid on a corpse” (Banerjee, et al., 2008), and not without reason. For decades health and healthcare have been neglected, seen as an expenditure rather than an investment. As the world’s largest democracy, India is at a turning point and the direction India chooses will have an immediate impact on the global community. It is now incumbent upon India to renew its commitments to sustainable reforms and join the world community as an equal partner in globalization. The disarray that pervades the healthcare sector masks its potential for improving the health and well-being of a majority of the Indian population. The tremendous potential for health and welfare gains makes this sector a prime candidate for prioritization and reform.

There is a clear tension between India’s aspirations and the real challenges it faces in the healthcare sector. An exhaustive consideration of all aspects in need of reform is clearly beyond the scope of this work, so the focus of this study was much narrower. Accordingly, the analysis was limited to five issues: investment in healthcare by the government, health infrastructure, universal health coverage, sustainable financing mechanisms, and pharmaceutical innovation and access. Following an examination of India’s demographics and the country’s health profile, the importance and weaknesses of each of these five areas were explored. The study then outlined the most critical healthcare opportunities facing India and their consequences. The challenge is clear, but tremendous gains are within reach. As India embraces globalization, there is nothing more essential than ensuring the health of its citizens, in both rural and urban settings. For India to capitalize on the opportunities available and meaningfully improve the health of its people, it will need to intervene creatively, experiment, critically evaluate what works on-the-ground, and adopt a collaborative multi-stakeholder approach.

3

Reforms and Global Economic Integration of the Indian Economy: Challenges and Future Directions

Nagesh Kumar

After achieving an impressive growth trajectory of about 9 percent during 2003-08 and weathering the first bout of the global financial crisis rather well, the Indian economy entered a period of slow down since 2011 and the growth rate has deteriorated steadily over the past three years with an estimated rate of growth in 2013-14 at a rate of 4.9 % that is only about half of previously achieved rate. The continuing difficulties in the global economy have certainly impacted the Indian economy but that explains only part of the reason. The domestic factors especially the slackening industrial growth perhaps explain the growth deceleration more than the external factors.

India is also known for an impressive turnaround of the external sector from a foreign exchange crisis faced in 1991, to a current account surplus during 2001-04 and the buildup of large foreign exchange reserves of about USD 300 billion. Today, however the economy has once again entered a period of balance of payment stress as the global financial crisis has exposed the structural weaknesses of the Indian economy.

Besides the deceleration of the growth rate, balance of payment challenges, there is another one that needs to be grappled with is the challenge of job creation which is becoming a serious one with every passing day in the context of jobless growth witnessed in recent years against the background of youth bulge that the country is facing that could turn the demographic dividend into a demographic nightmare if not harnessed properly through productive job creation.

Against that backdrop, this paper reviews the emerging patterns in trade and investments and makes a case for a structural change in favor of the manufacturing sector for driving future growth of India that could not only be faster and more sustainable but also create more jobs and would have taken care of current account challenges by substituting manufactured imports. It concludes with a few policy lessons to build a manufacturing driven future for India and implications for an India-US partnership.

Reforms and Globalization

A major liberalization of trade and investment regimes has taken place since 1991 as a part of the package of reforms undertaken to deepen integration of the Indian economy with the world economy as a whole. Peak tariff rates came down from 150 percent in the early 1990s to just 10 percent by 2007. The quantitative restrictions on imports were phased out and the bulk of the tariff lines (over 70%) have been bound under WTO. Most sectors of the economy are today open to foreign direct investment (FDI) with up to 100 percent foreign ownership, although sectoral ownership limits apply in service sectors. Since 1992, foreign institutional investors (FIIs) have also been allowed to invest in India. The Indian rupee was made convertible in the current account and the capital account is being opened gradually, including a gradual liberalization of the regime governing outward FDI from India.

These economic reforms have led to industrial restructuring in the country with a focus on competitiveness and global economic integration. The growing economic integration of the Indian economy is reflected in various indicators including the rising share of trade in the economy. The structure and direction of trade have changed over time along with growing magnitudes. An important and more dynamic aspect of India's integration with the world economy is through the growing trade in services. India has emerged as a hub for outsourcing of IT software and other business services such as business process outsourcing (BPO). India is also attracting attention from major multinational enterprises (MNEs) around the world wishing to make India a hub for knowledge-based services to tap the availability of high-quality low-cost trained human resources as well as scientific and technological infrastructure. Another aspect of growing global integration is through FDI – both inward and outward. With a liberal FDI policy regime and a large and growing domestic market among other advantages, India is attracting increasing attention of MNEs even as Indian enterprises also develop global ambitions and are undertaking outward investments in increasing numbers and magnitudes.

Growth of Merchandise Trade

The reforms of the 1990s led to a rapid expansion of India's trade. The growth rates of India's exports and imports averaged over 10 percent during the 1990s but stepped up to an average of 22 percent in the past decade. Imports have generally grown at faster rates (24%) than exports (20%) as shown in Table 1. Rapid growth of trade is reflected in the rising share of trade in India's GDP. The share of merchandise trade in GDP has more than doubled between 2001-02 to 2011-12 from 21.2 to 43.8%. In fact, the global integration of the economy crosses 60 percent if trade in services is also included (Table 1).

	2001-02	2011-12	Avg. annual growth Rate (2001-2011)
Exports	43 827	304 624	20%
Share in GDP	9.4	16.8	
Imports	51 413	489 417	24%
Share in GDP	11.8	27.0	
Total trade	95 240	794 041	
Share in GDP	21.2	43.8	
Balance of trade	-7 586.6	-184 793.9	

Table 1: India's Merchandise Trade Growth Rates and Balance (Million US\$)

(Extracted from RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

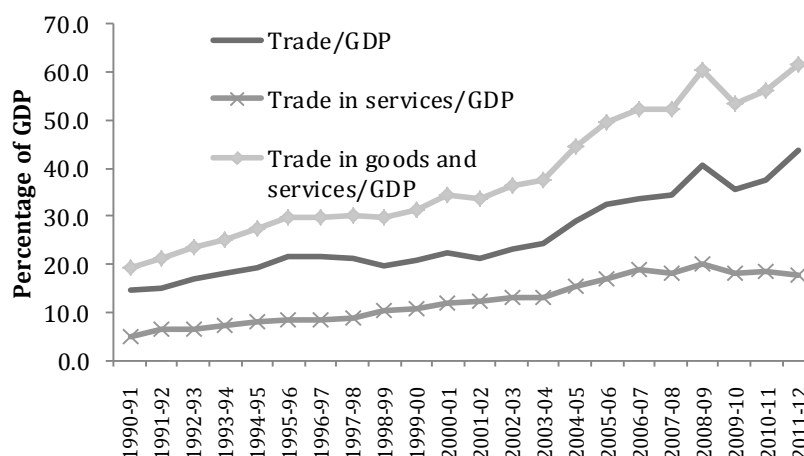


Figure 1: Growing importance of trade in the economy

(Author based on RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

The other noticeable trend is the widening deficit in balance of trade with imports growing at a faster rate than exports. The trade deficit has snowballed from USD\$ 5-6 billion a year in the beginning of the last decade to USD\$ 185 billion in 2011-12, which amounts to over 10 percent of GDP (Figure 1). The widening trade deficit has created balance of payment challenges for the economy even after taking care of a substantial surplus in the invisible or service trade, as observed later.

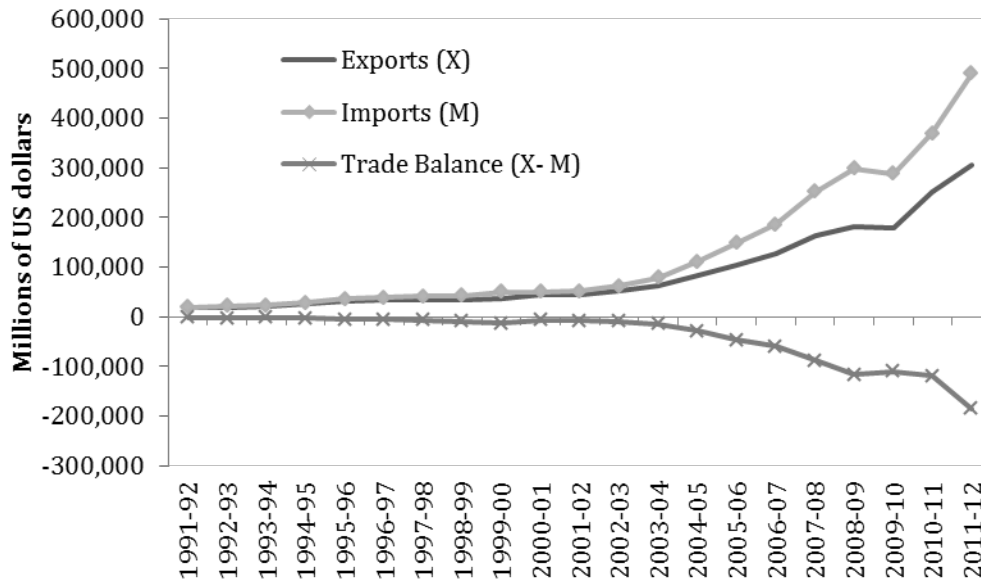


Figure 2: Trends in Balance of Trade, 1991-2012

(Author based on RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

Changing Structure of Trade

The export structure is expected to change with the level of development from one dominated by primary products to products with greater value-added. Diversification of export structure also makes the exporting country less vulnerable to external shocks compared to a country with a more concentrated export structure. Table 2 summarizes some important shifts in the patterns of India's export structure over 1995-2012. Firstly, as expected, the share of primary products including agricultural and mineral products has declined steadily from nearly a quarter of India's merchandise exports to just 15 percent over the 1995-2012 period. However, the declining share of India's manufactured exports is a matter of concern, with manufactures steadily decreasing from a peak of 77 percent of merchandise exports in 2000-01 to 60 percent in 2012. However, this decline can be seen as a statistical artifact due to the emergence of India as a petroleum refining hub. Exports of refined petroleum products rose from virtually nothing in 1995-96 to 18 percent of India's exports by 2012. If refined petroleum products are considered as value-added products like other manufactured and

processed products, then the share of manufactured goods in exports would be nearly 78 percent in 2011-12, which is roughly at the level of 2000-01.

Commodity / Year	1995-96	Share	2005-06	Share	2011-12	Share
I. Primary Products	7257	23	16377	16	45574	15
Agriculture and Allied Products	6082	19	10214	10	37421	12
Ores and Minerals	1175	4	6164	6	8153	3
II. Manufactured Goods	23747	75	72563	70	186784	60
Leather and Manufactures	1752	6	2698	3	4789	2
Chemicals and Related Products	3597	11	14770	14	37191	12
Engineering Goods	4391	14	21719	21	67093	22
Textile and Textile Products	8032	25	16402	16	27998	9
Gems and Jewelry	5275	17	15529	15	46901	15
Handicrafts (excluding Handmade Carpets)	434	1	462	0	234	0
Other Manufactured Goods	267	1	984	1	2580	1
III. Petroleum Products	454	1	11640	11	55604	18
IV. Others	337	1	2511	2	16662	5
TOTAL Exports	31795	100	103091	100	309624	100

Table 2: Structure of India's Exports from 1995 to 2012

(RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

There is also a slight reorganization of exports of manufactured products as the share of conventional products like textiles and clothing has come down from a 25 percent to just 9 percent since 1995-6 while leather products declined to 2 percent, which is only a third of what it was in 1995-6. Gems and Jewelry has also lost its importance slightly from a 17 percent share to 15 percent. At the same time, the share of engineering goods rose steadily from 14 percent to 22 percent of all merchandise exports. Among engineering goods, exports of transport equipment have risen very fast from less than a billion dollars in 1995 to nearly USD\$21 billion in 2011-12. Machinery and equipment has been another category that has risen in importance.

Chemicals and related products is another group of manufactured products that has improved its share in total merchandises exports even if only marginally from 11 to 12 percent. But among the chemicals and allied products, chemicals and pharmaceuticals group has gained the most. This is due to India's emergence as a major exporter of generic medicines in the world, accounting for a third of global pharmaceuticals exports by volume. A major supplier of cost effective generics to developing countries and multilateral organizations like the World Health Organization (WHO) for their health-care programs in developing countries, India is sometimes referred to as the pharmacy of the developing world. That success owes itself to another strategic intervention by the government in terms of the adoption of a patent law abolishing product patents for pharmaceuticals in 1970, which encouraged development of generics by Indian companies (Kumar 2003).

It is clear that India's export structure has over time moved from the export of primary and conventional products such as textiles and clothing, leather products and gems and jewelry towards products with greater value-added, such as transport equipment, generic pharmaceuticals and refined petroleum products. However, the share of technology-intensive products in India's exports is still very low compared to that of East Asian countries. Recent figures suggest that the share of high-technology exports in India's export basket was only 7.2 percent compared to 26.2 percent for East Asian countries (UN-ESCAP SSWA, 2012).

India has also not been able to make a mark in fast-growing high value-added segments of manufacturing such as electronic and telecom equipment (Kumar and Joseph 2007). In fact growing imports of electronic equipment and other hardware are straining India's trade balance, as observed below. India has also not been able to exploit the job-creating potential of exports and has been unable to develop highly labor-intensive export-oriented industries such as toys and electronic assembly, among others (RIS 2006).

India's import structure has also changed over the years, as summarized in Table 3. Firstly imports comprising crude oil, raw materials and certain food imports account for as much as 44 percent of total merchandise imports in 2011-12 compared to 39 percent in 1995-6. In particular, the share of petroleum, crude and products has risen rapidly from 21 percent to 32 percent over the same period. While consumption of petroleum and crude has risen in the country with growth of volumes, a part of the increase is due to rising fuel prices over the past decade. Considering that the demand of bulk imports that are mainly raw materials and foods is relatively price inelastic, in the context of rising trade deficit, one needs to pay attention to rising imports of capital goods and

others even though their overall share in total imports may have come down. Among the capital goods, major categories include machinery, except electrical accounting, for \$30 billion, electronic goods worth \$33 billion, transport equipment \$14 billion, and project imports \$8.7 billion in 2011-12. In particular, imports of electronic goods are expected to rise to \$400 billion by 2020 at current trends.⁶¹

Commodity / Year	1995-96	Share	2005-06	Share	2011-12	Share
I. Bulk Imports	14314	39%	61086	41%	214755	44%
Petroleum, Crude and Products	7526	21%	43963	29%	154906	32%
Bulk Consumption Goods	970	3%	2767	2%	11614	2%
Other Bulk Items	5819	16%	14356	10%	48234	10%
II. Non-Bulk Imports	22361	61%	88080	59%	274663	56%
Capital Goods	10330	28%	37666	25%	99365	20%
Mainly Export Related Items	5257	14%	18641	12%	54479	11%
Others	6773	18%	31772	21%	120819	25%
TOTAL Imports (million USD)	36675	100%	149166	100%	489417	100%

Table 3: Structure of India's Imports from 1995 to 2012

(Extracted from RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

The demise of India's fledgling electronic hardware industry is to be partly explained in terms of India's premature signing of the WTO's Information Technology Agreement 2000. It exposed Indian manufacturers to a direct competition with established rivals in the East Asian countries that have massive scales of production due to their links with multinational supply chains. It is in these categories of imports that an attempt needs to be made to pursue strategic import substitution to leverage the sizeable domestic markets to develop domestic supply capabilities that will also generate value-added products and jobs while helping to moderate the trade deficit (Aggarwal and Kumar 2012). Gold (other non-bulk) is yet another item, import of which is growing and were of the order of \$66 billion in 2011-12. While a part of the gold feeds into the gems and jewelry exports, a large part is for domestic consumption and investment by households.

⁶¹ http://www.thehindubusinessline.com/industry-and-economy/electronic-goods-import-up-30-to-rs-157-lakh-cr-in-201112/article4512418.ece?homepage=true&ref=wl_home

Expansion of well-rated exchange traded funds (ETFs) might help in curbing the demand by households especially for investment purposes.

Changing Geography of Trade

A major transformation has taken place in the direction of India's trade in terms of declining dependence on conventional trade partners like the European Union and the United States and diversification of trade in new and emerging markets. As Table 4 shows, the share of EU in India's trade in 2010 is less than half of what it was in 1990. Similarly North America's share has come down from 14 percent to just 8.3 percent over the same period. Japan's share in India's trade is now only a fourth of what it was in 1990. The trade structure is gradually diversifying in favor of emerging countries in Asia-Pacific region and beyond. The most impressive rise is that of China from a negligible share in 1990 to over 10 percent of India's trade by 2010, making China the single largest trade partner of India.

ASEAN's share in India's trade has also gone up from 5.7 percent to nearly 10 percent in 2009 before declining marginally to 9.2 percent in 2010. This explains the rising share of ASEAN+6 countries in India's trade from 17.70 to 26.6 percent between 1990 and 2010. These include China, Japan, Republic of Korea, Australia and New Zealand that are India's partners in the East Asia Summit formed in 2005. The shift in the geography of India's trade from the advanced economies of the west to the East Asian economies did not happen automatically but was a result of conscious and well thought out strategic policy pursued since 1992 called the Look East Policy, which will be examined later in the paper.

Another region rising in prominence as a trade partner is the Middle East with a share in India's trade nearly doubling between 1990 and 2010 to 18.9 percent, mainly on account of India's high dependence on the region for fuels. But trade with the Middle East is also increasing because of India's growing exports of manufactures, sometimes transshipped through the region to other countries like Pakistan. Shares of Africa and Latin America and the Caribbean have also risen very fast from rather low bases.

Reforms and Global Economic Integration of the Indian Economy

	<i>% share in</i>	1990	1995	2000	2005	2009	2010
North America	Imports	12.66	10.79	7.17	7.02	7.66	6.33
	Exports	16.14	18.49	23.25	18.21	12.07	11.50
	Trade	14.14	14.41	14.54	11.64	9.38	8.34
European Union	Imports	33.67	26.91	21.32	17.39	14.34	12.10
	Exports	28.87	27.62	24.38	22.43	21.14	18.64
	Trade	31.62	27.24	22.72	19.47	17.00	14.64
ASEAN	Imports	6.77	7.20	8.70	7.46	9.29	8.46
	Exports	4.27	7.77	6.45	10.10	10.51	10.32
	Trade	5.70	7.47	7.67	8.55	9.77	9.19
South Korea	Imports	1.36	2.08	1.96	3.07	3.05	2.83
	Exports	0.92	1.29	1.07	1.66	2.26	1.63
	Trade	1.17	1.71	1.56	2.49	2.74	2.37
Japan	Imports	7.51	6.48	4.00	2.76	2.48	2.36
	Exports	9.30	6.98	4.15	2.44	1.93	2.16
	Trade	8.27	6.71	4.07	2.62	2.26	2.28
China	Imports	0.13	2.35	2.88	7.10	11.19	11.78
	Exports	0.10	0.93	1.78	6.59	6.15	7.86
	Trade	0.12	1.68	2.37	6.89	9.22	10.26
Australia	Imports	3.15	2.74	2.12	3.34	4.17	3.44
	Exports	1.03	1.15	0.95	0.81	0.80	0.74
	Trade	2.25	1.99	1.58	2.29	2.85	2.39
ASEAN+6 subtotal	Imports	19.17	21.03	19.84	23.86	30.35	29.07
	Exports	15.73	18.30	14.55	21.73	21.79	22.80
	Trade	17.70	19.75	17.41	22.98	27.01	26.63
SAARC	Imports	0.46	0.60	0.94	0.94	0.59	0.59
	Exports	3.06	5.11	4.28	5.41	4.52	5.00
	Trade	1.57	2.72	2.47	2.78	2.13	2.30

Middle East	Imports	13.02	18.10	6.43	5.45	17.37	20.20
	Exports	4.99	6.72	8.75	11.49	16.30	16.85
	Trade	9.60	12.76	7.50	7.94	16.95	18.90
Africa	Imports	2.80	4.57	6.07	3.18	7.33	8.36
	Exports	1.84	4.38	4.50	5.97	6.79	7.10
	Trade	2.39	4.48	5.35	4.33	7.12	7.87
Latin America & Caribbean	Imports	2.12	1.48	1.53	1.80	3.34	3.88
	Exports	0.43	1.14	2.16	2.83	2.96	4.15
	Trade	1.40	1.32	1.82	2.22	3.19	3.98
World	Imports (million \$)	23991	34489	50336	139888	257665	350783
	Exports (million \$)	17813	30539	42627	98212	165186	222926
	Total trade (million \$)	41804	65028	92964	238100	422851	573709

Table 4: Changing direction of India's Trade 1990 to 2010(IMF, *Direction of Trade Statistics 2012*, www.imf.org)

Services in India's Trade

The emergence of the services sector as the most dynamic sector driving India's growth has been accompanied by its growing importance in trade. The share of trade in services in India's GDP has quadrupled from 3.3 percent to 14.3 percent between 1990 and 2010. Table 5 shows that unlike in goods trade, the growth rate of service exports has been higher than that of imports. There has been a striking transformation of India as a net exporter of services from being a net importer at the beginning of the decade. Exports of \$137 billion worth of services in 2011 left a surplus of \$12.5 billion after imports. Growth of trade in services in India has also been faster than in other countries, tripling India's share in global services trade. The transformation of India's services trade has attracted attention in a number of studies (see Chanda 2002, and Gordon and Gupta 2004, Verma 2008 and Raychaoudhuri and De 2012).

	2001	2011	Avg. Annual Growth Rate (2001-2011), %
Exports (in million USD)	17337	137149	23%
Share in global exports (%)	1.14	3.23	
Imports (in million USD)	20099	124566	20%
Share in global imports (%)	1.31	3.05	
Balance of services trade	-2762	12583	

Table 5: Services Trade Balance

(Based on UNCTAD, Online database, accessed 12/09/12)

To understand the dynamism of services trade, Table 6 shows the sectoral composition of exports of commercial services. The bulk of India's commercial services exports comprise those of computer, communications and other related services (or ICT services), which increased from 62.8% to 71.5% over 2000-2011 while commercial services exports of the country expanded from \$17 billion to \$137 billion. This primarily owes to the emergence of India as a hub for software development and other IT-enabled services, also referred to as business process outsourcing services (BPO). In these services India is recognized as the global leader. In the Global Services Location Index, by AT Kearney, a global consultancy organization, India is ranked first globally in 2011, a position it has consistently retained since the inception of the index in 2004.

Among the sources of its strength in the sector are people skills and their abundance given the large youthful workforce of the country. India's success in IT services has been attributed to, among other factors, a farsighted government policy to spot emerging opportunities and create high-end education and training facilities and computing infrastructure way back in late 1970s (Kumar 2001). In future, this strength in ICT services needs to be leveraged to build a strong electronic goods industry.

	2001	2011
Transport	12%	11%
Travel	19%	11%
Communications, computer and other services	65%	71*%
Insurance, financial and other business services	4%	6%

Table 6: Structure of Service Exports

*relates to 2010.

(Based on UNCTAD, Online database, accessed 27/09/12)

Current Account Balance

India faced a major balance of payments crisis in 1991 when the current account deficit crossed 3 percent of GDP and the government had to mortgage its gold reserves to borrow foreign exchange to stave off a liquidity crisis. However, subsequent reforms and structural adjustment led to a major turnaround of the external sector with India running current account surpluses during the 2001-02 to 2003-04 period. But since 2004-05 the current account situation has again turned adverse with widening deficits.

Despite significant surpluses in services trade, current account deficits have been widening due to a steadily worsening merchandise trade deficit. As Table 7 shows, the merchandise trade deficit of India widened steadily from 2.1 percent of GDP in 2002-03 to 10.2 percent in 2011-12, an unprecedented level in India's post-Independence history. One of the reasons for this widening is the faster growth rate of imports compared to that of exports especially during 2002-03 to 2008-09, as observed earlier.

The rising import intensity of the Indian economy in this period, besides trade liberalization, could be resulting from an appreciating exchange rate during the period as the rupee-dollar exchange rate touched a new high of Rs 38 to a dollar in 2008. In terms of the real effective exchange rate, the rupee appreciated by 8.6 percent over 2004-05 to 2007-08 as is evident from Table 8. By making imports cheaper in relative terms, this trend of appreciation pushed Indian corporations to outsource manufacturing of a number of their products to cheaper locations such as China in addition to affecting the competitiveness of India's exports.

Even though the current account deficit has crossed the 3 percent threshold in 2011-12 for the first time since 1991, the key difference in 2012 is that India has sizeable foreign exchange reserves. However, the reserves in terms of months of import coverage have steadily come down from 16 months in 2003-04 to 7 months by 2011-12.

This situation warrants immediate attention as it will not take much time for the import coverage offered by India's reserves to deplete further, especially in view of the rate at which imports are rising. Another disturbing trend is that the reserves are primarily made up of highly volatile short-term capital flows.

Year	Trade		Invisibles				Current Account			
	Exports/ GDP	Imports/ GDP	Trade balance/ GDP	Payments/ GDP	Receipts/ GDP	Net/ GDP	CAD/ GDP	Foreign Investment/ GDP	Import Cover of Reserves (in months)	
2000-01	9.9	12.6	-2.7	4.9	7.0	2.1	-0.6	1.5	8.8	
2001-02	9.4	11.8	-2.4	4.6	7.7	3.1	0.7	1.7	11.5	
2002-03	10.6	12.7	-2.1	4.9	8.3	3.4	1.2	1.2	14.2	
2003-04	11.0	13.3	-2.3	4.3	8.9	4.6	2.3	2.6	16.9	
2004-05	12.1	16.9	-4.8	5.5	9.9	4.4	-0.4	2.2	14.3	
2005-06	13.0	19.4	-6.4	5.9	11.1	5.2	-1.2	2.6	11.6	
2006-07	13.6	20.1	-6.5	6.6	12.1	5.5	-1.0	3.1	12.5	
2007-08	13.4	20.8	-7.4	5.9	12.0	6.1	-1.3	5.0	14.4	
2008-09	15.4	25.2	-9.8	6.2	13.7	7.5	-2.3	2.3	9.8	
2009-10	13.4	22.1	-8.7	6.1	12.0	5.9	-2.8	4.8	11.1	
2010-11	14.9	22.6	-7.7	6.7	11.8	5.0	-2.7	3.4	9.6	
2011-12	16.8	27.0	-10.2	5.8	11.9	6.0	-4.2	2.7	7.1	

Table 7: Current Account Balance Indicators, 2000-2012(Extracted from RBI's Handbook of Statistics on Indian Economy, 2012. www.rbi.org.in)

Year	REER	
	Export-based Weights	Trade-based Weights
(Base:1993-94 = 100)		
1997-98	103.07	100.77
1998-99	94.34	93.04
1999-00	95.28	95.99
2000-01	98.67	100.09
2001-02	98.59	100.86
2002-03	95.99	98.18
2003-04	99.07	99.56
2004-05	98.30	100.09
(Base:2004-05 = 100)		
2005-06	102.74	103.10
2006-07	101.05	101.29
2007-08	108.57	108.52
2008-09	97.77	97.80
2009-10	95.26	94.73
2010-11	103.52	102.34
2011-12	100.68	99.15

Table 8: Indices of Real Effective Exchange Rate (REER) of Indian Rupee

(36- Currency Bilateral Weights) (Financial Year - Annual Average)

(Extracted from RBI's *Handbook of Statistics on Indian Economy, 2012*. www.rbi.org.in)

Foreign Direct Investment Flows and their Quality

Besides the liberalization of trade, 1991 was also the time for substantial liberalization of the FDI policy regime for both inward as well as outward FDI. The key features of the FDI policy regime of India include up to 100 percent foreign ownership in most sectors except those due to sensitivities and security concerns such as arms and ammunition.

Sectoral caps also apply to services sectors, and to the full repatriation of capital and remittances of profits, dividends, technical fees and royalties.

FDI inflows to India have been growing since 1991 but the big break came in 2006 when annual inflows to the country nearly tripled in one year from \$ 7.6 billion to \$ 20 billion and increased from that level peaking to \$ 43 billion in 2008 before declining to \$ 24 billion in 2010 in the wake of the global financial crisis but recovering to \$31.5 billion in 2011 (Table 9). India's share in global FDI inflows nearly doubled over 2005-2006, and again between 2006-2009 before declining slightly (Figure 3A). The relative importance of the flows in relation to gross fixed investment has also risen from 2.9 percent in 2005 to 6.6 percent in 2006.

The share of FDI in gross fixed investments in India has been lower than for other developing countries but was catching up. In 2008 when FDI inflows peaked in India, this ratio at 10.1 percent was quite close to that for developing countries in Asia at 10.4 percent (Table 10). Afterwards it has declined in the wake of financial crisis indicating the potential for a rise in the future (Figure 3B)

	World	Developing economies	Developing Asia	India	Share of India in Developing Asia	Share of India in Developing World	Share of India in World
2001	827617	216865	115968	5478	4.72	2.53	0.66
2002	627975	173283	100083	5630	5.62	3.25	0.9
2003	586956	190125	123707	4321	3.49	2.27	0.74
2004	744329	291866	177983	5778	3.25	1.98	0.78
2005	980727	327248	218420	7622	3.49	2.33	0.78
2006	1463351	427163	290907	20328	6.99	4.76	1.39
2007	1975537	574311	349412	25506	7.3	4.44	1.29
2008	1790706	650017	380360	43406	11.41	6.68	2.42
2009	1197824	519225	315238	35596	11.29	6.86	2.97
2010	1309001	616661	384063	24159	6.29	3.92	1.85
2011	1524422	684399	423157	31554	7.46	4.61	2.07

Table 9: Inward foreign direct investment flows, annual, 2001-2011, million US\$

The recent rise in FDI inflows since 2006 reflects improving investment climate in India with the acceleration of growth rate since 2003, the rise of a sizeable middle class with purchasing power, and with the recognition of India's comparative advantage in

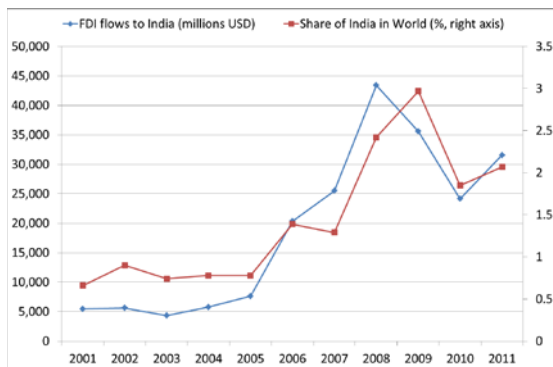
knowledge-based industries. This is not only evident from the rising magnitudes of FDI inflows but also from investor surveys conducted by global consultancy organizations.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
India	4.7	4.6	2.8	2.7	2.9	6.6	6.2	10.1	8.1	4.5
World	12.2	9.1	7.6	8.3	9.9	13.3	15.7	12.9	9.5	9.5
Developing economies	13.5	10.2	9.8	12.4	11.8	12.9	14.1	13.2	10.1	10.1
Developing Asia	10.3	8	8.4	9.9	10.4	11.7	11.5	10.4	7.9	8
South Asia	4.5	4.7	3	3.1	3.7	7.3	6.9	10.3	7.8	4.6

Table 10: FDI Inflows as a percent of Gross Fixed Capital Formation

(Extracted from UNCTAD online data base (2012), www.unctad.org)

A: India’s share in global inflows



B: Share of FDI in gross fixed capital formation in developing economies and India

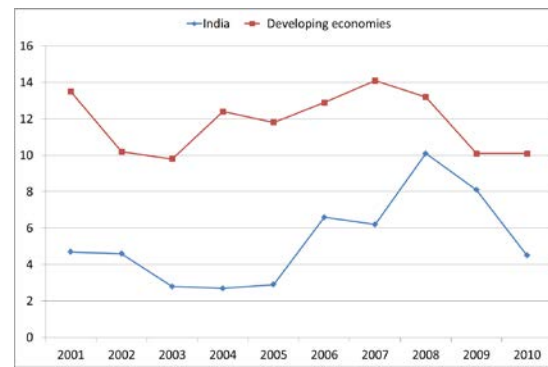


Figure 3: India’s attractiveness as a destination of FDI inflows

(Author’s calculations based on Table 9)

In the FDI Confidence Index published by AT Kearney, a global consultancy organization, covering 25 top destinations for FDI, India has moved up from 6th place in 2003 to 2nd in 2005 and stayed there before swapping the third rank with the United States in 2010. In 2012, it again regained the second position in the global rankings (AT Kearney 2012). Similar upgrading in India’s ranks has been reported by the surveys of investors conducted by the Japanese Bank of International Cooperation (JBIC) as well as in UNCTAD’s *World Prospects Survey 2012-2014*, where India is ranked as the third most preferred FDI location (UNCTAD 2012).

Recent reforms adopted by the country to allow FDI in multi-brand retail and civil aviation are also likely to help in realizing its potential for FDI inflows. This is in sharp contrast to the World Bank's studies on *Ease of Doing Business* based on perception surveys that tend to put India at a very poor rank of 132. It is clear therefore that foreign investors get attracted to a country by the potential of benefiting from its dynamism and are willing to put up with hardships rather than going to countries with easier business conditions but with poorer prospects of making profits. FDI inflows may also assist in manufacturing oriented structural transformation of the economy and technological upgrading of exports that India needs by bringing technologies and other resources working together with local entrepreneurs.

Quality of FDI inflows received by India has been found by quantitative studies to be mixed with some inflows having favorable externalities for the domestic investments and crowd-in domestic investments while others crowd them out (Kumar and Pradhan 2005). The bulk of inflows in the post-1991 phase have gone to non-manufacturing sectors and acquisition became an important mode of investment. In China, on the other hand, the bulk of FDI inflows have been directed by the government policy to manufacturing (of the export-oriented type) and very little has gone to services (Yongding 2006). Of the FDI in manufacturing in China, 11 percent has gone in electronics and telecommunication equipment helping it emerge as the leading producer and exporter of these products. A policy guiding FDI inflows to manufacturing has helped in China's emergence as a global factory. Therefore, FDI inflows in China have been directed to assist in industrial development of the industry that has made China a global factory generating in the process billions of dollars of output and exports and millions of jobs.

The Way forward for India: Manufacturing for Growth, Sustainable Balance of Payments and Jobs Creation

The foregoing analysis has shown that growth slowdown has primarily resulted from essentially stagnating and even shrinking manufacturing output in recent times. The rising imports of manufactured goods in the wake of trade liberalization and an appreciating rupee has resulted in a premature hollowing out of Indian industry, which led to a burgeoning deficit in trade in goods. Even after moderation by a healthy surplus in services trade, the result is a current account deficit reaching an unprecedented level of 4.8% in 2012-13. The Indian rupee came under pressure in 2013 and depreciated against the dollar by nearly 20%, one of the sharpest depreciations among the emerging markets currencies against the backdrop of tapering of the quantitative easing by the US

Fed.. Since then indeed CAD has been restrained as the government adopted measures to restrain gold imports and a depreciated rupee helped exports.

Maintaining a sustainable current account deficit poses an important challenge for policy makers and needs urgent attention. With widening merchandise trade deficits driving this trend, immediate attention needs to be paid to reviving export growth and exploiting the opportunities for import substitution. For reviving exports, whose growth rate in 2012 was negative, attention needs to be paid to strengthening their competitiveness by addressing exchange rate distortions. For an economy facing growing current account deficits, exchange rate appreciation can aggravate the situation further. Therefore, it is important to restrain volatile short-term capital flows. Export competitiveness needs to be strengthened by maintaining relative exchange rate stability with a slight tendency towards depreciation rather than appreciation. Besides that, policy distortions such as inverted duty structures need to be removed and flow of trade finance needs to be strengthened (see Kumar and Joseph 2007 for an inventory of policy support measures).

In a situation of such as the present slowdown of the global economy, a major expansion of exports can be challenging given an environment of excess capacities throughout the Asia-Pacific region, the growing threat of protectionism, and the temptation of dumping by those with deep pockets. In such circumstances, it also might be critical to look at new opportunities for strategic import substitution. As observed earlier, while large bulk imports of fuels and raw materials may be price inelastic, attention should be paid to very large and fast growing imports of electronics, non-electrical machinery, and defense equipment, among others that provide opportunities for strategic import substitution. An effort needs to be made to start domestic manufacture of these products leveraging India's large domestic market size and by targeting MNEs to set up local manufacturing facilities through creation of incentives for pioneering industries, as has been done in East Asian countries like Malaysia, besides incentives in public procurement like 'buy America' programs. These policies are part of industrial policies and infant industry protection that have been widely practiced in different developed and emerging economies (Kumar and Gallagher 2007). The strategic import substitution will also lead to a more balanced structural change by creating more manufacturing jobs (see Aggarwal and Kumar 2012). An ESCAP study analyzing opportunities for building productive capacities in South and South-West Asia using the product space maps also found opportunities for strategic import substitution in India (Freire 2012).

The revival of manufacturing sector can not only help in accelerating overall economic growth and a more sustainable balance of payments situation but also for generating productive jobs for the millions who join Indian work force every year. In the past the Indian economy has witnessed a declining employment elasticity of growth as the services-oriented structural transformation that it has gone through has yielded robust growth but few jobs. The inability of services to absorb millions of workers stuck in low productivity work in agriculture. This has led to an employment-output mismatch where agriculture contributing less than 18% of GDP sustains more than 55% of workforce while services sectors contributing 56% of GDP absorbs only about 25% of jobs. This mismatch largely explains slow progress in terms of poverty reduction in India (Aggarwal and Kumar 2012). Only revival of manufacturing can help in generating more productive jobs and lead to a more balanced pattern of employment across sectors and help in reducing poverty. Besides creating direct employment, manufacturing has the highest potential of creating indirect jobs because of its very high backward and forward linkages.

Fostering Manufacturing-led Growth

Revival of manufacturing has to be done through a set of strategic interventions that help to create a facilitating environment for entrepreneurship and giving them a level playing field vis-à-vis exporters from other countries. Industrial policy which covers the strategic interventions has seen a revival in recent times even in some advanced economies. The elements of industrial policy that may be relevant for contemporary Indian situation could include infrastructure support and help with land acquisition, facilitation of approvals through single window clearances, infant industry protection and pioneer industry programs, preferences in public procurement, direction of credit, among others. This large domestic market has already led to growing and sizeable imports in several products like electronic goods, non-electrical machinery and other equipment including defense equipment, among others. As argued earlier maintaining a competitive exchange rate is critical in an open economy environment of low tariff barriers for development of manufacturing. East Asian countries have extensively used exchange rate as a policy tool for building industrial capabilities. In the world of trade alliances, facilitating strategic access to markets through preferential trade agreements can be an important determinant of development of industry. Innovation is an important driver of modern manufacturing. Here Indian strengths in frugal engineering and software design could be harnessed for developing new, more efficient and resource saving products and processes for domestic and international markets.

Another important tool for developing competitive manufacturing capabilities is to leverage the large domestic market to attract FDI in manufacturing. The exporters of

manufactured goods to India could be pushed to set up manufacturing plants in India through facilitating a regime to serve not only the domestic market but also for global sourcing to take advantage of the abundant skilled and low cost labor and the large domestic market. Proactive targeting could be a useful tool for attracting the right kind of investments. The other lesson that comes from experiences of different countries is the role of performance requirements in improving the quality and development impact of FDI. India's emergence, for instance, as a competitive exporter of auto parts in recent times owes itself to a particular strategic intervention by the government in the form of an erstwhile performance requirement that required foreign-owned companies to balance imports by foreign exchange earnings (Kumar 2005).

Towards a New Phase in India-US partnership

The India-US partnership in a post-global financial crisis should be driven by a new mutuality of interests where India would be increasingly playing a role of global growth engine with its demographic dividend and helping to bridge the global skills deficit. A combination of US technological prowess and Indian skills and low cost work force could be a formidable one. This should drive new joint ventures for feeding Indian and global markets. The mutually beneficial outsourcing partnership evolved over the years by the US and Indian companies in the ICT sector can now be extended to other service sectors for win-win opportunities such as health care, education, accounting, advertising, and R&D, among others. The US needs to appreciate India's IPR regime which is fully compliant with the WTO's TRIPs Agreement and mounting bilateral pressure for strengthening India's IPR regime is counter-productive.

The US needs to bring down high peak tariffs on labor intensive goods that continue to be key export items in India's export basket. India needs to be assisted by US companies by sharing environmentally-sensitive technologies to pursue low carbon growth paths. An India-US partnership could also harness India's strengths in frugal engineering for developing products and processes for a resource and carbon constrained world. The US can also evolve triangular patterns of cooperation with other developing countries where Indian development experiences and solutions are more relevant and appropriate.

In other words it would mean routing some of US ODA to support South-South Cooperation between India and other developing countries. India and the US could also cooperate to conclude long-pending WTO's Doha Round with due attention paid to the development agenda that was the hallmark of this round, to reestablish the primacy of the multilateral trading system, among other areas of cooperation.

Concluding Remarks

The reforms pursued since 1991 have led to a much deeper integration of the Indian economy with the global economy in terms of a rising share of merchandise trade, an even more dramatic transformation of the services trade and the emergence of the country as one of the most attractive destinations for FDI, as well as an important source of FDI outflows. The trade structure has changed in terms of product composition and destinations. However, analysis suggests that much of the export growth benefited from expansion of world trade and enhanced competitiveness while potential of product diversification and market diversification remains to be fully exploited. Diversification into technology intensive higher value adding goods or labor-intensive goods could be helpful for sustaining growth of exports while also creating more industrial jobs.

Despite healthy trade surpluses earned by services as India emerged as a global hub for ICT outsourcing, the balance of payment situation has again entered into a period of stress due to a merchandise trade deficit. While India now has the comfort of sizeable foreign exchange reserves unlike in 1991, this is an important policy challenge needing an immediate response before the situation turns difficult. Export competitiveness needs to be strengthened through appropriate exchange rate management and opportunities for strategic import substitution need to be exploited by leveraging India's large domestic market size. To exploit these opportunities a number of policy measures that are normally grouped as industrial policy including infant industry protection, pioneer industry incentives, public procurement preferences and a special targeting of multinational enterprises to establish local manufacturing facilities, as employed extensively by the developed countries in the past and emerging countries in more recent times, may be fruitful. Revival of manufacturing to substitute these lumpy imports will not only help in addressing the current account deficits but also create jobs for skilled and unskilled workers helping in poverty reduction as well as accelerating the growth rate.

Finally, in the dramatically changed international context of the aftermath of global financial crisis, an India-US partnership should be driven by a new mutuality of interests and explore win-win collaborations beyond ICT outsourcing to cover other services and manufacturing, technology generation and transfer and better understanding of each other's position to conclude pending global negotiations.

4

Indian Capital Market Reforms

Chaitanya Pande

Capital markets in any country play a pivotal role in the growth of the economy and meeting the country's socio-economic goals. They are an important constituent of the financial system given their role in the financial intermediation process and capital formation of the country. The importance of capital markets cannot be underemphasized for a developing economy like India which needs significant amount of capital, for the development of strong infrastructure. It is estimated that India will need over USD 500Bn over the next five years just to fund its infrastructure needs. Given the quantum of savings, the need to mobilize savings into productive channels and the opportunity for financial intermediation, the next decade will be a tremendous growth opportunity for Indian capital markets.

The government, the regulators and the financial institutions have an important role to play in building a strong and robust capital market. The growth trajectory of a country's capital markets is significantly influenced by the actions of these stakeholders. The development of a good capital market in a country is dependent upon the availability of savings, proper organization of its constituent units and the width, depth and diversity of the financial system.

Pre –British Tradition

India has a centuries old trading tradition with Indian merchants trading with all the ancient empires from the days of the Indus Valley civilization. There is also significant evidence of several joint ownership entities on the lines of modern joint stock companies called *Srenis* from before the 8th century BC until the 10th century AD. The

Rig Veda makes reference to the *Pani* (akin to a partnership amongst traders for trade caravans) and the Mahabharata to the *Sreni*⁶².

The political disintegration that followed the collapse of the Mughal empire and the success of the British at the battle of Plassey in 1757 led to a splintered economic system (many now credit the quick pace of growth of the early British empire to the support of the business classes looking for a government to defend their interests⁶³) as unfortunately India entirely missed the global industrialization phase that began in the western world. The development of the British capital market has been credited by researchers for the success of the Industrial revolution.

British India Capital Market

Like most early colonizers the British were not focused on the all-round economic growth of India. Their main task was to make India complementary to Britain's own economy and the maintenance of political control.

The lack of formal capital channels (unlike in Europe where joint stock companies were then prevalent) prevented development of independent businesses. Moreover, small scale production by sole trading and partnership firms did not leave much scope for the emergence of an organized securities market. The British run firms and managing agencies that accounted for the greater part of industrial development in India, depended on the London Capital Market rather than on the Indian market. The members of the Bombay Chambers of Commerce in 1805 contained only one Indian firm JN Wadia & Sons & Co (Also the owners of Bombay Burmah Trading – India's second oldest listed company still trading today)⁶⁴

There was some trade in government securities, bank shares and the East Indian Company towards the close of the 18th century with newspapers providing price quotes⁶⁵. The trading in shares of banks and cotton presses started in the 1830s. Until 1850, brokers traded in bank shares and securities of the East India Company in Bombay under a sprawling banyan tree in front of the town hall. In 1850, the Companies Act introducing limited liability was enacted heralding the era of the modern joint stock company which propelled trading volumes. After India came under the direct rule of the British in 1858, capital started flowing in to new ventures. The American Civil War heightened the demand for cotton from India and the ensuing economic boom propelled the emergence of new companies for every conceivable purpose. Dozens of banks and

⁶² THE ECONOMIC HISTORY OF THE CORPORATE FORM IN ANCIENT INDIA By: Vikramaditya S. Khanna

⁶³ Indegenous Capital and Imperial expansion – Lakshmi Subramanian

⁶⁴ A financial chapter in the history of Bombay city D E Watcha (1910)

⁶⁵ Report on Regulation of Stock Market in India – PJ Thomas (1948)

financial companies as well as presses, developers, and trading firms were floated, most of which went bankrupt soon after.

A strong speculative boom seized the new markets in Bombay and between 1861 and 1865, a whole host of new ventures raised capital at a significant premium--on a paid up capital of some 30 crore they had a premium of nearly 38 crore⁶⁶. The Back Bay Reclamation share with Rs.5,000 paid up was traded at Rs.50,000 premium and the Colaba Land share at Rs.25,000 premium. However, the end of the American Civil War led to a collapse of the euphoria. Most of the new ventures collapsed taking with them several of the leading firms and banks including the Bank of Bombay. This led to the bankruptcy of several leading merchants and traders of the day including Jamsetji Jeejeebhoy and Premchand Roychand, the leading brokers of the day and also two of the founders of the Bombay Stock Exchange. This was the first of many speculative excesses to plague Indian capital markets over the years.

The ensuing depression was so severe that it paved the way for setting up a formal market. A group of five leading brokers led by Premchand Roychand organized an informal association, The Native Share and Stockbrokers Association, which in 1875 was formally organized as the Bombay Stock Exchange (BSE).

Though the stock exchanges were in operation and a clearing house was set up in 1921, there was no legislation for their regulation until the Bombay Securities Contracts Control Act was enacted in 1925. The series of speculative excesses in the stock markets in the 1900s led to the government enacting several guidelines and rules especially for forward delivery of shares. This remained deficient in many respects and a series of speculative boom and busts followed over the next decade leading to more regulation, especially of forward delivery trades, most often used by speculators. This distrust of forward trades still permeates the current regulatory system in India.

Independence and After (The Dark Ages)

Under the constitution which came into effect on January 26, 1950, stock exchanges and forward markets came under the exclusive authority of the central government. The Securities Contracts (Regulation) Act, 1956 (SCRA) was enacted to provide for direct and indirect control of virtually all aspects of securities trading and the running of stock exchanges and to prevent undesirable transactions in securities.

When the Constitution was framed, the founding fathers, influenced by Jawaharlal Nehru, Annie Besant and others, defined its basic economic and social goals along the

⁶⁶ A financial chapter in the history of Bombay city D E Watcha

lines of 'Fabian Socialism'. Priority shifted from private ownership to public control. The first amongst these actions was the nationalization of the Reserve Bank of India (RBI) in 1948. The creation of the State Bank of India (SBI) followed this, by taking over the Imperial Bank of India in 1956. In the same year the government also took a drastic action by rationalizing and merging as many as 245 life insurance companies into a state owned monolithic Life Insurance Corporation (LIC) of India. The nationalization process reached its peak in 1969 when the 14 major Commercial Banks were nationalized. Attempts were made to liberalize the economy in 1966 and 1985. The first attempt in 1966, after the first India- Pakistan war was reversed in 1967 after the currency devaluation of 1966. Thereafter, a stronger version of socialism was adopted. The second major attempt was in 1985 by Prime Minister Rajiv Gandhi. The process came to a halt in 1987, though a 1967 style reversal did not take place.

Capital Markets in the Early 1990s

The capital markets reforms in 1991 were preceded by an almost complete control of the state over the financial markets. Initial Public Offerings (IPO) was controlled through the Capital Issues Control Act. The Controller of Capital Issues (CCI) controlled the price and quantity of IPO and a lack of sufficient regulation led to trading practices that were short of transparency. The Reserve Bank of India (RBI) controlled the interest rates and the financial sector was replete with entry barriers, significantly restricting opportunities for the establishment of new banks, insurance companies, mutual funds and pension funds. The role of technology was limited and risk management procedures and prudential norms were weak.

India's economic reforms began in earnest in 1991 when the government faced with an exceptionally severe balance of payments crisis and an IMF mandated reform program, embarked on a program of short term macro-economic stabilization combined with a longer term program of comprehensive structural reforms. While earlier reforms in the eighties had started to liberalize some trade and investment restrictions, the new government took a more structural approach recognizing the need for a more systemic change. It reduced focus on government controls, encouraged greater involvement of the private and foreign sector and better integration with the world economy – as the FM's budget speech 1991-92 said, 'to increase the productivity of investment, to ensure that India's financial sector is rapidly modernized'⁶⁷

In its mid-term review of the reform process, the government stated: "Our overall strategy for broader financial sector reform is to make a wide choice of instruments accessible to the public and to producers. ... This requires a regulatory framework which

⁶⁷ India budget speeches 1991-1992, 1992-1993 and 1993-1994 – Dr Manmohan Singh

gives reasonable protection to investors without smothering the market with regulations. ... It requires the development of new markets such as security markets for public debt instruments and options, futures and forward markets for financial instruments and commodities.”⁶⁸

The Reform Process (1992 – 2002)

The Indian regulatory and supervisory framework of the securities market in India has been adequately strengthened through the legislative and administrative measures in the past two decades. Extensive capital market reforms were undertaken during the 1990s encompassing legislative, regulatory and institutional reforms. The capital market reforms were based on improving two fundamental aspects; first, the improvement in the legal and regulatory framework and second, the improvement in the institutional framework.

A key element of the reform strategy was building a strong independent market regulator; the Securities and Exchanges Board of India (SEBI) was created in 1992. The introduction of free pricing in the primary capital market has significantly deregulated the pricing control instituted by the erstwhile Controller of Capital Issues (CCI) regime. While, the issuers of securities can now raise capital without seeking consent from any authority relating to the pricing, however they are required to meet the SEBI guidelines for Disclosure and Investor Protection.

The establishment of National Stock Exchange (NSE) was one of the highlights of the reform process. The NSE is a state-of-the art exchange, with sophisticated technology to improve trading practices and reduce unethical dealings. It is supported by a strong legal framework and technological base to strengthen the governance structure. Another major developmental initiative was a nation-wide on-line fully-automated screen based trading system. Unlike earlier, all transactions are mandatorily settled through clearing houses and not directly between the members.

Furthermore, there was a move away from physical securities, with registration and trade of securities done via electronic bookkeeping rather than physical certificates. The trading and settlement cycles were gradually reduced to the current T+2. Listed companies are required to furnish unaudited financial results to the stock exchanges and publish them on a quarterly basis. To enhance the level of disclosure by the listed companies, SEBI amended the Listing Agreement to incorporate segment reporting, accounting for taxes on income, consolidated financial results, consolidated financial statements, related party disclosures and compliance with accounting standards.

⁶⁸ Discussion paper on Economic Reforms: Two Years After and the Tasks Ahead – Ministry of Finance (1993)

Uniform rolling settlement and same settlement cycles now create a true spot market. With the legal framework for derivatives trading being introduced derivatives trading started in a gradual manner with stock index futures in June 2000. Options and single stock futures were introduced in 2000-2001 and now India is one of the largest single stock futures markets in the world and its derivatives market is larger than the cash market.

Reforms the Second Decade (2003 – 2013)

Sophisticated risk management systems including real time exposure monitoring, disablement of broker terminals, VaR based margining etc were introduced as part of the reforms that took place between 2003 and 2013.. India also started screen based trading of government securities followed by Interest Rate Futures contracts in 2003. Additionally, India is one of the few countries to have started the Straight Through Processing (STP).

To improve the governance mechanism of stock exchanges by mandating demutualization and corporatization of stock exchanges and to protect the interest of investors in securities market the Securities Laws (Amendment) Ordinance was promulgated in October 2004. In 2007, a unified corporate bond reporting platform was introduced followed by a clearing and settlement platform. 2010 saw the launch of options and a Shariah compliant index. Cash settled interest rate futures were launched as recently as 2014.

Various measures taken over the last two decades or so have yielded considerable benefits to the market, as evidenced by the growth in number of market participants, growth in volumes in securities transactions, increasing globalization of the Indian market, reduction in transaction costs, and compliance with international standards. In terms of number of trades, NSE is the third largest exchange in the world.

However, some important issues continue to plague the Indian capital markets. The government continues to be a very large participant in the capital markets primarily due to the large and rising government deficit. Hence both the government and the public sector continue to be starved of capital. Also, the government and private sectors both crowd out most private borrowers as well as the regular offers for sale by the public sector, either via divestment of government holdings or fresh capital issuance. The large and mostly public owned banking system is constrained by capital as well as by regulatory mandate and is unable to accommodate the increasing demand for long gestation funds for infrastructure. Most retail saving options – insurance / provident/ retirement funds-- are risk averse by regulatory mandate and offer poor inflation adjusted returns. Driven by poor performance of scam tainted markets and lack of

sufficient investment options, the large private savings pool is increasingly diverted to nonfinancial assets, largely commodities and real estate. The reform process over the last two decades primarily focused on the banking framework and the equity markets. The bond markets remained largely a corollary of the banking sector developments and the increasing government deficits.

Debt Capital Markets – Review of Major Issues

A strong bond market is required to drive long term financing of infrastructure, housing and private sector development. The role of debt capital markets is vital for enhancing growth in wealth distribution and increasing availability of funds for infrastructure development. An efficient financial system needs to have sufficient capacity for diversification and mechanisms for risk-transfer. The debt capital markets in any economy are necessary both to generate liquidity as well as transfer risks in the financial system.

Debt Capital Market – Issues

A review of the current state of Indian debt capital markets reveals a number of limitations such as its small size relative to GDP, its narrow focus on AAA-rated bonds, the predominance of short term issuances, and limited risk transfer owing to limited trading activity. A root cause analysis of these limitations reveals several issues including regulation-induced bias towards sovereigns, clear loan arbitrage, as well as a buy and hold culture within banks, deep distortions introduced by taxation, limited product diversity in the debt markets especially for retail investors, inhibited access to debt markets for Non-Banking Finance Companies (NBFCs) induced by regulation, and a low appetite for higher risk debt instruments due to historical reasons such as a weak bankruptcy resolution regime.

Small Size of Market

A look at the ‘sources and uses of funds’ statement of Indian corporate sector yields important insights into the financing structure of Indian industry, an excessive reliance on internal financing, a surprisingly large role for banks, and a miniscule and stagnant bond market. At 66% of GDP, the debt capital markets in India remain small, with central and state government bonds accounting for more than 76% of its size, and corporate bonds for only 14%. Large issuers have had no choice but to rely almost exclusively on banks for their rupee borrowings thus entirely choking up bank lines and crowding out the “smaller but more natural” bank borrowers such as small and medium enterprises. On account of the loan-bond regulatory arbitrage, banks have chosen to use loans instead of bonds to offer these facilities and are thus unable to trade out of them.

Any asset creation through bank channels needs a significant amount of capital to be deployed on the bank's balance sheet. For high quality assets it is more efficient to let investors, including retail investors, insurance companies, pension funds, and mutual funds hold these assets directly without using the bank channel so that scarce bank capital can be preserved and bank financing not be monopolized by the largest companies in the system.

Lack of Investor Participation

Despite multiple endeavors by the government in the recent past to revive the market, neither investors nor issuers showed any tangible interest. Lack of liquidity and transparency are the key reasons for the lack of investor participation, including retail investors, in the corporate bond market. Liquidity in the bond market is driven by the volume of bonds offered by issuers in the primary market on an on-going basis as well as the circulation of bonds in the secondary market with active investor participation. Greater participation of investors reduces search costs of both buyers and sellers and eases liquidity problems leading to a lower discount of the bond. High issuance costs even via private placement and onerous public issuance documentation and marketing costs have kept the public issue market from taking off. Another reason why the market for corporate bonds did not take off earlier was large scale defaults that undermined the system and safeguards in place. Strong legal systems that reduce the incentive to default and also ensure faster resolution of bankruptcy are also preconditions for the emergence of a strong bond market.

Largely AAA Market

The Indian bond markets developed primarily as an AAA market. The distribution of corporate bonds issued by rating, reveals that the number of sub-investment grade issues is minimal and the proportion below AA was only 15.25% in 2013, indicative of investor appetite and high levels of risk aversion in the Indian bond markets. Even investment grade bonds below the AA category have had to pay a significant premium for issuance and have seen very little liquidity and very little issuance activity. In addition, capital market financing of areas such as infrastructure, project finance, structured finance, and securitized assets have seen very little activity.

Bias Towards Short Maturities

The corporate bond market also tends to be dominated by relatively short-term issuances, with bonds of over 10 year maturity accounting for less than ten percent. Significant investment in infrastructure sectors that created a bias towards very short maturities combined with the very small size of the bond market represents a significant

problem and has contributed directly to the inability of the country to meet its infrastructure needs. Infrastructure projects such as bridges, toll roads, airports, and utilities require the ability to offer level tariffs over 25 years and need fixed income instruments that have comparable maturities. While insurance companies and individual investors have a need to invest in such long maturities, both the supply and demand for such securities has been limited. The bond route makes this very feasible and also allows the issuance of even extremely long maturity bonds such as 30 year or 50 year bonds.

Banks Strong Regulatory Bias

Within India, regulation and practice, in a variety of direct and indirect ways, has propelled banks towards building large illiquid loan books and tiny bond books. The most important being the regulations that ensure that loans can be carried on the books of banks perpetually at acquisition costs with impairment being recognized only on a realized loss basis and that too with a considerable lag. Bonds on the other hand have to be marked to market or carried at Fair Value.

Banks Sovereign Bias

As banks are required to maintain a large share of assets in cash and government securities, a significant systemic bias exists in favor of gilts at the expense of corporate bonds. Government securities are also the only debt securities that are eligible to be held in the "held to maturity" book at acquisition cost. This also inhibits the development of an active secondary market by obviating the need to manage interest rate risk on government bond portfolios.

Derivatives – Risk Transfer

Firms with assets/business incomes of a particular type might want to have matching offset liabilities. Owing to market developments, financial institutions may find that they have built up unacceptably high exposures in their loan books, across multiple loans, to risk factors such as single entity exposure, market risks or asset liability mismatch. Instruments such as credit, interest rate and currency derivatives allow market risks to be transferred between participants without the need to trade the underlying assets and liabilities for which there may or may not be a market. Securitization and structured finance allow participants to trade aggregated bundles of credit instruments. It also allows the possibility that pre-determined levels of credit enhancements may be associated with these pooled portfolios so that there is a better match between the credit risk associated with the pool and the specific credit-risk-appetite of a particular investor. The absence of these risk transfer mechanisms make it

impossible for financial institutions to rebalance their portfolios using any mechanism other than changes in origination strategy, forcing them to respond only very slowly to changes in their balance sheet credit risk profiles and concentration risks.

Securitized Assets

The securitization markets has been growing steadily over the past seven years, owing to a strong and conducive regulatory environment. Recently, securitized debt instruments were listed for the first time, thus improving standards of transparency and reporting and widening the potential investor base. However, post facto claims by income tax authorities in October 2011, stating that the gross income of such SPVs was liable to tax, have effectively hampered the growth of the market

Non-Banking Finance Companies – Regulatory Bias

Debt capital markets access for Non-Banking Finance Companies (NBFCs) is severely inhibited by the regulatory structure governing this access and the negative investor sentiment this creates. For example all debentures issued by NBFCs, either through private placement or through public issue, must be fully secured. Furthermore, the benefits of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act are not applicable to Non-Banking Finance Companies (NBFCs) which makes debt instruments issued by NBFCs less attractive.

Capital Market Reforms – Unfinished Agenda

We will look at the continuing reform agenda in terms of reforms in the asset markets themselves, reforms in the institutional and regulatory framework, the inclusion agenda, small and medium enterprises, micro finance and most importantly reforms in the intermediation of retail savings. Given the small and hugely underdeveloped nature of the bond markets and the urgent need of reform especially given the large infrastructure funding requirements we will first take a look at some of the critical reforms needed in the debt capital markets

Debt Capital Market – The Reform Agenda

Bond-Loan Arbitrage

Considering the large position in the economy and significant Charter Premium they enjoy banks need to take the lead in boosting the corporate bond market. By removing the disincentives caused by the Loan-Bond Arbitrage significant fillip can be provided. Allowing banks to classify (and reclassify) bond and loan assets into a held-to-maturity

(HTM) or available-for-sale (AFS) bucket based on their declared intention rather than merely legal documentation will help remove the bias to avoid marking the asset to market. This will also allow banks to emerge as key market-makers in the bond markets while also ensuring that the price arbitrages between loans and bonds are eliminated and contributing bond market liquidity. Further an industry-wide standardized debenture trust deed templates could be developed that may also be used by banks for loans thus improving both tradability and fungibility of loans.

Sovereign Overhang

The overwhelming bias in bank investments towards government over corporate bonds is an issue. It is primarily driven by regulatory bias in terms of the preemption by government via SLR requirements and as well as the very high capital charges, even for top quality corporates is an issue. Therefore, there is an urgent need to gradually reduce the SLR requirements for the banking system so that more credit may be made available to the private sector and also to remove the automatic Held-to-Maturity protection available to these bonds to remove the inherent bias.

Credit Market Infrastructure

A strong credit infrastructure allows widespread credit information sharing, low-cost pledging and enforcement of collateral interests, and an efficient bankruptcy system, which allows for the renegotiation of un-payable financial claims while preserving the assets in their best use.

For credit markets to develop, it is necessary to know with a reasonable degree of certainty whether a fundamental credit event such as a bankruptcy, failure to pay or restructuring has occurred. One way of achieving this could be to recommend that independent trustees are required for all bonds as well as syndicated loan issuances. Any credit event could then be reported to industry bodies such as the Fixed Income and Money Market Dealers Association (FIMMDA) or credit bureaus that could disseminate this information amongst market participants. The credit information sharing system should be reformed to allow information collected from more sources, such as rental and utility payments, to be used in assessing credit histories. Credit information should also be made available to a wider group of users, with appropriate safeguards.

Credit derivatives are an important tool for risk management by banks and currently credit default swaps are only allowed in limited instruments such as debentures etc., and not bank loans. Given that bank balance sheets are almost entirely comprised of loans, credit default swaps could also be allowed on standardized syndicated bank loans for which public information is available. This will help kick-start the credit derivatives

markets and also incentivize standardization which in turn will help deepen the debt markets and help improve risk management practices not only of banks but also other market participants.

The credit recovery asymmetry in the market-- with only banks having access to the powers of the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act-- needs to be removed and similar rights extended to all institutional lenders. Further boost to the restructured debt market should also be provided by encouraging the entry of more ARCs, including those with foreign investors.

Structured Credits

The securitization market in India is still in its infancy. Given the importance of a well-developed securitization market in enabling risk splicing between various market participants it is important that a strong push be provided by clarifying the tax pass-through status of securitization SPVs, as originally intended by the regulators.

Because of the largely AAA nature of the demand oriented market that resulted from investor nervousness driven by information asymmetry, increasing the supply of structured AAA rated bonds by credit enhancements including partial guarantees to lower rated bonds would be an important step in improving the depth and activity in the markets. Following the example of the monoline guarantee companies in the US, institutions such as the National Housing Bank (NHB), National Bank for Agriculture and Rural Development (NABARD), and Small Industries Development Bank of India (SIDBI) could guarantee bond issuances by these entities or invest in junior tranches of securitizations instead of providing refinancing to housing finance companies and cooperative banks.

Primary Issuances

Private placements of bonds are expensive and public issues even more so. There is need to bring down issuance costs in order to balance the scales with bank loans. To drive costs down, industry associations such as Fixed Income and Money Market Dealers Association (FIMMDA) could develop standardized bond documentation.

With more than 98% of bond placements being private, availability of bonds for trading in secondary market is pre-empted by a handful of investors and limits price discovery in the secondary market. Encouraging public issue of bonds over private placement by incentivizing larger issuers say those issuing bonds for more than Rs. 4,000 Cr in a financial year to make public issue of bonds for at least 30% of their fund requirements would help increase the depth width of the bond market.

Arbitrage from Market Segmentation

It is important to avoid forced segmentation of the market and special rules that inhibit participation of banks, NRIs, FIIs, . Market participants should have the freedom to structure products according to market needs. The Bond Currency Derivatives Nexus requires full integration between interest rate derivatives and currency derivatives on one hand, and between interest rate derivatives and corporate bonds and credit derivatives on the other hand.

Foreign Participation

Steadily open up investment in the rupee corporate and government bond markets to foreign investors and any concerns on the currency management front can be addressed by encouraging greater outward investment by provident funds and insurance companies. Such diversification will make these retirement funds more stable (give them less exposure to more volatile Indian markets).

Lengthening the Bond issuances

Ultra-Long Maturity Bonds, such as the 25 year deep discount bonds and the recent 50 year Mahindra and Mahindra bond issue, have proved popular in the past despite the low coupon. A strong case can be made for high rated issuance of such long duration bonds to see if they can become tools to bring ultra-long maturity fixed income instruments into the market. The insurance sector has been an important source of low cost funds of long-term maturities all over the world. Given the long term and predictable nature of commitments of a pension fund or life insurer, long term corporate bond portfolios fit into an insurance or pension fund's requirements very well,. Such portfolios together with long term interest rate swaps can help for instance, the pension fund to achieve a much more accurate match to its pension payments. There is a need to channel large long-term savings managed by retirement fund organizations such as the Employees' Provident Fund Organization (EPFO) into corporate and infrastructure bond markets.

Funding Infrastructure

Infrastructure funding in India is the most pressing need due to the necessity for major development over the next decade and the precarious position of government finances. Traditionally governments have underwritten the major sources of risk in some infrastructure projects through various kinds of guarantees and income tax incentives are often provided to infrastructure projects or to the investors in such a project. There is a significant need for long gestation funds for infrastructure and possible sources for

such financing could be institutional, such as pension, provident and insurance funds that have the advantage of providing a better maturity match for infrastructure financing.

However in India, the investment patterns of these funds are highly regulated with a bias towards investment in government securities. There is a need to deregulate these long-term fund sources and formulate prudential norms for such financing. To begin with, participation of pension, provident funds etc. can be encouraged to a limited extent especially in projects with such government guarantees or other credit enhancements. Credit enhanced long gestation Infrastructure bonds would suit the investment profile of such retirement funds. Banks could also be permitted to float long gestation tax-free bonds to raise long-term resources specifically for financing of infrastructure projects. Corporate bond markets can work as effective buffers here. By borrowing from bond markets rather than from banks, these projects can achieve a better asset liability match, as well as reduce the risk exposure to the banking system.

Inclusive Capital Markets – Small and Medium Enterprises, Micro Finance and Self Help Groups Small and Medium Enterprises

Given their typically lower ratings and the lack of sufficient issuance history small and medium enterprises (SME) tend to be mostly absent from the corporate bond market. In order to develop a more inclusive market and to provide investors with greater access to new opportunities, SMEs need to be encouraged to issue bonds and raise funds from the debt market. Financial institutions focusing on SMEs like SIDBI could offer special Repo windows to market makers dealing with SME bonds with appropriate credit based haircuts. Waiver of stamp duties, listing charges and other regulatory exemptions would also help reduce the issuance costs making them more attractive.

Microfinance

The micro-finance sector has seen significant growth over the last decade and micro finance companies have raised monies from both the equity and debt capital markets. However misguided political intervention in one state led to a near collapse of the sector which continues to be plagued by insufficient regulation. There is an urgent need to pass and implement appropriate national regulations to prevent the reoccurrence of such events. This is also part of the broader inclusion agenda in the capital markets. Despite many misgivings micro finance securities were reasonably successful in the capital markets and also helped provide much needed market access to such institutions, while at the same time improving the quality of many of the investee entities.

Equity Market Reforms – Unfinished Agenda

The only element of Indian financial markets which has achieved immediacy, depth and resilience and has few restrictions on participation in both spot and derivatives markets is the equity market. As a consequence it has developed a distribution capability which reaches millions of market participants around the world, especially for large stocks. Competition between exchanges has helped improve technology and reduce costs.

Market Infrastructure and Regulatory Issues

Aggressive pricing of issues in the primary market has often been considered the bane of the equity markets. Using true auctions for primary market sale of securities could smooth out the process, removing irregularities and reducing the delay between the date of auction of a security and the date of trade. While significant advances have taken place in market risk management techniques, improved risk management at clearing corporations for full cross-margining and portfolio margining will help reduce capital inefficiencies. Global markets have moved towards algorithmic and high frequency trading, the removal of regulatory restrictions will go a long way in improving volumes and bringing India on the global platform.

Integrating regional exchanges with national exchanges will lead to deepening of the markets, leading to higher yields, diversified risk and improved efficiency. Ownership and governance of stock exchanges is another major area of concern and risks in this regard need to be addressed. This has seen more focus with the issues at the MCX recently.

Foreign Listing

The market for Indian depository receipts has really never taken off due to poor structure and tax issues. Making the tax regime friendly for issuers/investors of Indian depository receipts and removing the onerous restrictions on issuance and trading would go a long way in increasing participation. Lack of access for most institutional investors, significant tax disincentives and issues on portability of governing regulations have been stumbling blocks. Furthermore, India should gradually move to providing a forum for listing of common shares of foreign companies.

Professional Exchanges

A large market for specialized OTC products exists amongst professional investors, Encouraging multi asset 'professional' markets and exchanges with a higher order size that are restricted to sophisticated investors (based on net worth and financial knowledge) where more sophisticated products can be traded, will not only help add

depth to the current OTC market but also bring about much needed standardization to the products, making it suitable for a larger set of investors.

Encouraging Retail Financial Savings

There is an urgent need for reform in retail savings intermediation institutions. Currently most retail financial savings are routed to bank deposits, mutual funds, insurance saving products, and provident/retirement products with deposits having the lions share. As a result most retail financial savings do not offer sufficient inflation adjusted returns and most retirement products tend to be under exposed by regulatory mandate to equities and have little or no exposure to currencies, commodities, real estate or international exposures. It is hardly surprising that more than half of all private retail savings are directed to nonfinancial investments. Retail participation in the capital markets has long been an area of concern, given the low penetration of financial assets and the significant bias towards defined benefit products. The outbreak of a series of corruption scandals and aggressive pricing of IPOs is likely a major factor, with several public issues having very poor returns and many trading below issue prices. One of the daunting challenges before the Indian capital markets is expanding the investor base and providing them access to high quality financial services. With a population of more than a billion, a mere 1% of the population participates in capital markets, and of that only a fraction is active.

Mutual Funds

Mutual funds are probably the easiest and cheapest way for retail investors to participate in the equity markets, allowing AMC's the flexibility to charge fees to promote retail distribution. Given the significant competition in the industry, appropriate pricing will get determined by the markets. Further fillip can be provided to the industry by amending the existing tax regime to encourage domestic AMC's to manage foreign funds from India. If the taxation regime were to be amended to provide for "safe harbor" rules exempting foreign funds from Indian taxation (similar to Singapore), the asset management industry would grow exponentially.

Insurance/Retirement Products

Most Insurance saving products, pension funds and provident funds are rigidly mandated allowing minimal exposure to equity markets (currently under ten percent). Allowing higher investment by domestic institutional investors such as insurance companies, pension funds and provident funds in equity markets will not only boost the inflation adjusted returns of such products. But also go a long way to deepen and broaden the markets.

Governance Standards

Corporate governance issues have been on the forefront in India leading to significant investor concerns. The corporate objective of an institution may get diluted if insiders and controlling shareholders exercise undue pressure on its activities. The current issues between institutional investors and the management of Maruti Suzuki (one of India's largest automobile firms) being a case in point. Creating a special agency for rating corporate governance practices may provide a possible solution to the governance issues that have plagued the capital markets..

Access Products

Innovative investment products across different asset classes including operationalization of real estate MFs and REITs, currency ETFs, commodity funds as these are important emerging asset classes are well established globally and the inherent nature of these markets helps diversify risk

Commodity markets have traditionally been quite volatile. Internationally, there are different ways in which mutual funds invest in commodity markets. Domestically, gold is the only commodity where retail investors can participate. Presently, other investors such as FIIs, banks, etc. are not permitted to invest in the commodities markets. However, it is important to allow institutional investors to invest in commodity markets as they bring significant trading experience.

Reforms and the Regulator

While the over two decades of reforms have created a fairly sound regulatory framework, there are some deficiencies in the current regulatory system. The primary lesson of the financial crisis is not that foreign capital or financial markets are destabilizing, but that poor governance, poor risk management, asset liability mismatches, inadequate disclosure, excessive related party transactions, and murky bankruptcy laws, make an economic system prone to crisis.

Strengthening Regulators

Regulators tend to be overly conservative because their reward structure penalizes any failures on their watch far more than it penalizes lost growth. The paucity of skills among the regulator's operational staff relative those of the regulated, increases their caution. Such caution could actually exacerbate risks. Underdeveloped markets and strict regulations on participation are no guarantee that risks are contained; in fact they may create additional sources of risk.

Knowledge Upgrading

The staffing and management of regulatory institutions needs to be considerably strengthened. We need skilled regulators who encourage growth and innovation, while working harder to contain risks. Specifically, regulators should: (i) Acquire greater knowledge of modern financial products and markets; (ii) Offer greater clarity on what constitutes malpractice; (iii) Possess excellent investigation capabilities that result in high quality drafting of legal orders.

Innovation Friendly

Products that are proposed to be introduced in India (though well-established elsewhere in the world) take several years to get regulatory approval. India can create a more innovation friendly environment by speeding up the process whereby products are approved through focusing on concerns of systemic risk, fraud, contract enforcement, transparency and inappropriate sales practices. The threshold for allowing products on professional exchanges or over the counter markets should also be lower, so that experimentation can take place.

Focus on the Principles

There is an urgent need for a move from a rule based to a principle based regulatory framework, as rule based regulation or excessive regulatory micromanagement leads to a counter-productive interaction between the regulator and the regulated. A regulator that adopts a 'rule-based' approach will seek to prosecute every minor breach of a rule, irrespective of its import in the larger scheme of things. It may well be that the regulator's fear that an acquittal may result in a possible vigilance commission inquiry leads to this emphasis. By contrast, when adopting a 'principle-based' approach, a regulator may ignore a minor violation of positive law, so long as the spirit of the laws is retained.

Regulators at the highest level should not run the risk of having to face roving enquiries that second guess specific decisions with the benefit of hindsight. Regular interaction with parliament, where they explain how they are adhering to their mandate, should give them safe harbor against such enquiries. The recent CBI enquiries regarding former SEBI chairman for giving license to MCX is a case in point.

Conclusion

The course of India's nearly 200 year dalliance with capital markets has hardly run smooth, plagued with speculative excesses, poor governance and regulatory bias. The

IMF mandated reform program saw a spate of structural reforms in the early nineties and the process has continued since then, albeit slowly. Over the last two decades capital markets have come a long way from the rigidly controlled, government dominated past. However many of the planned reforms, a progressive regulatory framework, deeper and broader market with greater private and foreign participation, and reduced public sector presence, have a long way to go. Debt capital market reforms are essential for the country's infrastructure needs. Credit markets, structured funding and removal of regulatory induced biases especially in the banking and insurance/retirement sector are important issues. Migrating individual savings away from the physical asset bias is also important to increase retail participation. Improved savings products and access to alternative asset classes like commodity and real estate funds for investors is critical to achieving these goals.

5

India-US Defense Ties

Manoj Joshi, ORF

Since independence, the United States has loomed as a potential supplier of defense technology to India. However, there have been certain reasons that have prevented both the advanced technological power and the backward and poor nation from exploiting the obvious potential. During the Cold War, a major reason was their differing national goals, strategies, and the enormous asymmetry in their military and economic power. For the US, a nuclear armed Soviet Union was an existential threat and to this end the US created an alliance system which included Pakistan, thus alienating India. For India, economic development was the principal priority, as for national strategies—the US supported free trade and open markets, while India was “socialistic” and sought autarky.

From the outset India has sought strategic autonomy, which later manifested itself in a portentous clash of interests with the US over India’s desire to maintain a nuclear program outside the Nuclear Non-Proliferation Treaty. India’s unshakeable goal has been to have an independent defense industrial base. This is part of a larger vision of a “self-sufficient” India, which does not have to depend on any other country for anything.

Needless to say, despite great efforts India has failed to achieve this even in a sector as important as defense. It has not been able to develop even a rudimentary indigenous industry based on domestic R&D, nor has it been able to shake off its dependence on foreign technology despite massive efforts. It could neither reverse engineer products, nor “re-innovate” license produced equipment. India has had only limited progress in reforming the management of its national security system, so it lacks the higher

management institutions and personnel who can give direction to its efforts.⁶⁹ This has contributed to the problems in developing autonomy in this area.

Currently, India's defense industrial base comprises of eight government-owned defense public sector units, 39 ordnance factories and the numerous laboratories of the Defense Research and Development Organization. The defense sector employs in excess of 1.4 million workers and 30,000 scientists and engineers. The private sector is slowly entering the defense sector, but it hobbled by a playing field which is tilted against it in favor of the government-owned enterprises and by a tangle of regulations aimed at preserving the government monopoly.

The economic crisis of 1990-91, coinciding with the collapse of the Soviet Union, led to the Defense Research and Development Organization's (DRDO) ascendancy in the system after it made the commitment that India would enhance the indigenous content of its weapons systems from 30 percent to 70 percent by 2005. However, as of today, the proportion remains unchanged. India still imports 70 percent of its weapons systems and the technologies that go into its licensed manufactured systems.

India's difficulties with the United States and other western countries in the 1960s, its wars with China and Pakistan, and its failure to develop indigenous systems led to its relationship with the former Soviet Union. Today, Russia remains the most important supplier to the Indian armed forces since that time, despite the turbulence that hit the relationship in the wake of the collapse of the USSR. According to a recent SIPRI report, India's imports of major arms "increased by 111 percent between 2004-2008 and 2009-13, making it the world's largest importer." Russia supplied 75 percent of Indian arms imports, the USA 7 percent and Israel 6percent.⁷⁰

Since the late 1970s and early 1980s, India has looked at ways and means to diversify its weapons imports and strengthen its domestic defense industrial capabilities with varying results. To this end, it has undertaken license production and sought transfer of technology. In the late 1970s and early 1980s, New Delhi placed orders for the Anglo-French Jaguar strike aircraft, the French Mirage 2000, the German HDW Class 209 Type 1500 submarine, and the Swedish Bofors FH77B 155 mm artillery gun. Of these, India sought local production of the Jaguar, the HDW submarine and the Bofors gun. But scandals hit the last two projects which were abruptly terminated and in the process

⁶⁹ Stephen Cohen and Sunil Dasgupta, *Arming without aiming: India's military modernization* (New Delhi, Penguin, 2010) tells the whole sordid story. Indeed, the perspective of the book is essentially the same as that of this paper which concludes with a chapter titled "America and Indian rearmament."

⁷⁰ Siemon T Wezeman and Pieter Wezeman *Trends in International Arms Transfers 2013 SIPRI Factsheet* March 2014 p.6

India was the net loser, because it was not able to build on the transfer of technology elements of the deals, despite the fact that it had paid for them.

India also sought openings with the United States. However, American rules relating to arms exports, and more so, technology transfer have been quite strict since the 1970s, especially since India was also the target of US sanctions relating to nuclear and missile proliferation which also covered dual use technologies. Yet, in the 1960s, there were important strategic areas where the US assisted India, perhaps knowingly, or inadvertently. The first Indian rocket launch in 1964 was a result of India-US collaboration. In the 1970s it yielded the Satellite Instructional TV Experiment (SITE) a huge project in which NASA and ISRO were involved. The first generation of Indian National Satellite (INSAT) was built to Indian specifications by Ford Aerospace. The US also helped India to get its first nuclear reactor, the CIRUS and its first nuclear power station at Tarapur. Likewise, it provided training for Indian nuclear scientists through the Atoms for Peace Program.

Following the Indira Gandhi-Ronald Reagan meeting in 1982, India and the US began discussing arms exports for the first time and there was a proposal for India to acquire US 155 mm howitzers and TOW anti-tank missiles. However, little came of this, since both the US and Indian bureaucracies opposed the process for their own reasons. The two countries then sought to work out a Memorandum of Understanding to guide sensitive technology exports. But this process which required intense negotiation was only completed in December 1984 after Indira's death and the anointment of Rajiv Gandhi as prime minister. In this MoU, the two sides dealt with the issue of American concerns over the diversion of technology.

But a breakthrough of sorts was achieved in the Rajiv Gandhi era following visits by Fred Ikle the US Undersecretary of Defense for Policy, and later Caspar Weinberger, who became the first US Secretary of Defense to visit India in 1986. As a result of talks around greater Indo-US cooperation in the area of security and defense production, the US offered the GE 404 engine to India for the LCA program in 1987, and later, following Defense Secretary Frank Carlucci's visit, came on board with an offer of other technological assistance for the entire program. It also offered the Firefinder artillery location radar, which it has already provided to Pakistan. However, the continuing differences over US assistance to Pakistan and the support for Islamabad in the US Congress prevented the relationship from attaining its full potential.

Even as the Cold War ended, the two countries sought to work out a new relationship. The Indo-US Strategic Dialogue in the period 1989-1992 featured official and non-official participation. As part of this, the US Assistant Secretary of Defense Henry Rowen visited India in December of 1990, along with the Cincpac and other senior US

officials. Subsequently, a number of proposals for closer cooperation were made by Lt General Claude Kicklighter which led to the first Indo-US joint exercise in May of 1992.

However by the mid-1990s, the United States realized that while relations between the militaries of the two sides were proceeding well, the civilian Ministry of Defense was acting as a brake of sorts. After a number of high-level visits by senior civilian defense officials—US Defense Secretary William Perry and Undersecretary Walter Slocombe—the two sides concluded an Agreed Minute on Defense Relations signed by the two sides in January 1995. This, in turn, yielded the Defense Policy Group and the Joint Technical Group to supervise defense ties between the two countries. The DPG was set up to give policy level direction to defense cooperation and provide a forum for reviewing all issues and resolving the broader defense cooperation policy issues. Subsequently, it has been fleshed out by the addition of sub-groups.

The goal of the JTG was to examine the potential for cooperation in defense research and development. This arose from the discussions India had been having with the US on easing technology restrictions since the mid-1980s and the MoU of 1984. However, this fledgling cooperation was terminated by India's decision to test nuclear weapons in 1998. It was resumed through the Jaswant Singh and Strobe Talbott dialogue, and accelerated during the George W Bush administration.

A parallel stream developed in India's growing cooperation with the Israeli defense industry in the wake of the US-inspired break of the Chinese-Israeli relationship. The fact that many of the Israeli products featured US components implied tacit US acceptance that India would acquire certain force multiplier capabilities like the AWACS systems.

Indo-US Security Cooperation: The Bush years

Ever since 9/11, India and the US have had close security cooperation. New Delhi made it a point to offer US facilities to operate against the Taliban from its territory in 2001, but the Americans eventually persuaded Pakistan to take the necessary actions. In the case of Iraq, the two sides came close to seeing an Indian military commitment, but at the last minute, New Delhi demurred. The two countries initiated a politico-military dialogue, with the first event taking place in April 2002.⁷¹

This was part of a wide-ranging relationship which involved cooperation between the civil nuclear field, space and ballistic missile defense under the rubric of the Next Steps in Strategic Partnership (NSSP), which established a framework of mutual undertakings

⁷¹ <http://www.mea.gov.in/press-releases.htm?dtl/13419/Joint+Statement+IndiaUs+PoliticoMilitary+Dialogue>

to move the relationship forward. India made its export control and end use verification procedures for dual use items compatible with US requirements, the US lifted some export restrictions on India's civil nuclear and space programs. In addition, the US and India said they would cooperate with India on ballistic missile defense with the unstated US commitment to supplying Patriot missiles should India wish to acquire it.

During Operation Enduring Freedom, India provided an OPV to escort US vessels through the straits of Malacca in 2002.⁷² Subsequently, however, the Indian side missed out on the opportunity to participate in the CTF-150 and I51 because of bureaucratic delays on the Indian side. On the other hand, until recently, the US opposed India's military involvement in Afghanistan.⁷³

Clearly, there was much greater political congruence between the two sides. This was reflected in the visit of US Secretary of State Condoleezza Rice to India in March 2005 and developments thereafter when three senior "to help India become a major world power in the twenty-first century." They added significantly, "we understand fully the implications, including military implications, of that statement."⁷⁴

The outcome of these discussions and the concurrent talks on the NSSP was the Indo-US Nuclear Deal which was announced in July 2005, although work continued on it through the next few years. During this period, the US signaled the removal of the sanctions regime that had been established against India on account of its refusal to sign the Nuclear Non-Proliferation Treaty. During President Obama's 2010 visit, the US also committed itself to help get India membership in four key arms control cartels—the Nuclear Suppliers Group, the Missile Technology Control Regime, the Wassenaar Arrangement and the Australia Group.

New Framework Agreement for India-US Defense Cooperation

Parallel to this, and, indeed, as a prelude to the Prime Minister's visit to Washington DC where the Indo-US nuclear deal was announced, the "New Framework Agreement for the India-US Defense Relationship" was signed on June 28, 2005 between the US Defense Secretary Donald Rumsfeld and his Indian counterpart, Defense Minister Pranab Mukherjee. This laid out the road map for a comprehensive relationship based on defense industry cooperation, sales of major US combat equipment, and combined military exercises defense production, procurement and R&D over the next ten years. It

⁷² <http://hindu.com/2002/04/23/stories/2002042302911100.htm>

⁷³ Personal communication with senior naval officer. See also Andrew C Winner "India: Dominance, Balance, or Predominance in the Indian Ocean?" in John Carafano and Andrea J Dew eds *Deep Currents and Rising Tides: The Indian Ocean and International Security*, (New Delhi, Cambridge University Press, 2013) pp 127-8.

⁷⁴ Ashley J Tellis, *India as a New Global Power: An action agenda for the United States*, (Washington DC, Carnegie Endowment for International Peace, 2005) p.9

clearly laid out the ambitious scope of the agreement when it stated that “This defense relationship will support, and will be an element of, the broader US-India strategic partnership.”⁷⁵

- Conduct joint and combined exercises and exchanges;
- Collaborate in multinational operations if it is in the common interest;
- Strengthen capabilities of militaries to promote security and defeat terrorism;
- Promote regional and global peace and stability;
- Enhance capabilities to combat the proliferation of weapons of mass destruction;
- Expand collaboration relating to missile defense;
- Strengthen abilities to react to disaster situations;
- Assist in building worldwide capacity to conduct successful peacekeeping operations.
- Conduct exchanges on defense strategy and defense transformation;
- Increase exchanges in intelligence; and
- Continue strategic-level discussions by senior leadership from their respective defense ministries to develop mutual understanding, shared objectives and common approaches.

Just how ambitious it was is brought out by Article 4 of the “New Framework”, which spells out what India and the US agreed to: The most significant section for our purposes was sections (f) and (g). The former noted that the two defense establishments would, “expand two-way defense trade between our countries. The United States and India will work to conclude defense transactions, not solely as ends in and of themselves, but as a means to strengthen our countries' security, reinforce our strategic partnership, achieve greater interaction between our armed forces, and build greater understanding between our defense establishments.”

Section (g) said that opportunities for “technology transfer, collaboration, co-production and research and development” would take place in the context of defense trade “and a framework of technology security safeguards.”

Under Article 6 of the New Framework, the institutionalized framework for cooperation was further strengthened with the establishment of Defense Procurement and Production Group and the Defense Joint Working Group, under the comprehensive bilateral mechanism of the Defense Policy Group.

⁷⁵ <http://idsa.in/resources/documents/Ind-US-Def-Rel-28.06.05>. For the context of the agreement as seen through Wikileaks see <http://www.thehindu.com/news/the-india-cables/us-cables-show-grand-calculations-underlying-2005-defence-framework/article1576796.ece>

A year later, in 2006, the two sides also inked a U.S.-India Maritime Security Cooperation Agreement, which committed both countries to “comprehensive cooperation” in protecting the free flow of commerce and addressing a wide array of threats to maritime security, including piracy and the illicit trafficking of weapons of mass destruction and related materials.

In this heady period, spurred on by the rhetoric of the leadership on both sides, expectations, especially on the US side grew enormously. On one hand, the Pentagon sought a push for the Access and Cross Servicing Agreement (ACSA) and even thought of pushing the Cooperative Security Locations or CSL with India. This is a military facility in a host nation with prepositioned US equipment. Neither of these ideas really had a chance of flying in India, given its resistance to any suggestion that it was a military ally of the US.⁷⁶ Another manifestation of this was the US move to offer the F-16 and FA-18 to take part in the Medium Multirole Combat Aircraft (MMRCA) bid. Until it was “deselected” in 2011, the US actually thought that their aircraft had a chance against competitors, which were a generation ahead in terms of technology. The failure of the bid marks the point from which the US began to display a greater degree of realism in its dealings with India.

Arms Acquisitions

From the mid-2000s, arms sales from the US to India boomed. In great measure this was because of the delayed modernization of the Indian armed forces, but also because of the growing ties between the two countries, as well as India’s economic growth that permitted it to contemplate buying the more expensive American equipment. Various estimates are given about the Indian requirement for importing weapons systems; none are accurate since India follows a somewhat ad hoc system of acquisition where the availability of money decides the purchase, rather than any systematic planning. For example, India had no provision for a mountain strike corps which could cost anywhere up to \$10 billion in its Long Term Integrated Perspective Plan for 2012-2027, yet in 2013, the government approved setting it up.

There are a number of other deals which have been dragging along for some time. The main reason why they have not been signed appears to be India’s fiscal difficulties, as well as procedural issues which dog India’s defense procurement machinery. These include the roughly \$700 million deal for the M777 155 mm ultralight howitzer for deployment in the mountain areas, 22 Boeing AH-64D Apache attack helicopters for the Air Force and some 15 heavy lift Boeing CH-47F Chinook helicopters. It will be seen that most of these deals relate to outright purchase of equipment. There seems to be little

⁷⁶ Ibid

accommodation of India's long-standing need for co-development or joint development of defense equipment. This was brought out by the Joint Declaration following Prime Minister Manmohan Singh to Washington DC in September 2013 which spoke of future, rather than any current cooperation.

Weapon	Function	Number ordered	Price/Sale route	Year of delivery/status
AN/TPQ37 Firefinder	Arery location	12	\$142-190 million FMS	2006-7
LM 2500	Gas Turbine for Vikrant aircraft carrier	4	Not available	Not available
F404	Turbofan for LCA	17	\$105 million	Not available
Austin	USS Trenton assault landing ship	1	\$48 million FMS	2007
S6 Seaking	Helicopter	6	\$39 million FMS	2007
C130J Hercules	Transport aircraft for special forces	6	Approx \$1 billion FMS	2010-2011
C-17A Globemaster	Heavy transport	10	\$ 4.1 billion	Deliveries beginning 2013
P8A Poseidon	ASW aircraft	8	\$ 2 billion (offsets 30 percent) FMS	Delivery beginning 2013

Table 1: Major US Defense Sales to India Since 2001

(Congressional Research Service "India-US Security Relations: Current Engagement November 13, 2012")

The Joint Declaration statement noted the need of the two sides to view each other as closest partners and to:

- Work to improve licensing processes
- Protect each other's sensitive technology and information.
- Address process-related difficulties in defense trade, technology transfer and collaboration.
- Identify specific opportunities for cooperative and collaborative projects in advanced defense technologies and systems, within the next year.⁷⁷

This is at a time when the Indo-Russian supersonic Brahmos anti-ship and land attack missile had already begun deployment, and an Indo-Russian joint development program for the fifth generation fighter is also underway. India has also arrived at a significant agreement with Israel to develop the Barak 2 surface to air missile system.

⁷⁷ <http://www.thehindu.com/news/national/india-us-to-remove-hurdles-to-defence-ties/article5180164.ece>

Assessing Military Ties

The latest summit-level Indo-US statement sums up the Indo-US situation on bilateral collaboration between the two countries. Of course, behind it lie a slew of other issues such as that of the processes through which India's defense ministry handles these issues, in particular, its failure to provide the private sector a level playing field in the area of defense industrial production. But at the same time, it also revealed that there were several larger issues that needed to be dealt with.

According to the Congressional Research Service, arms sales in the US are "heavily regulated by Washington's strategic and national security considerations." Within these parameters, the US tries to improve bilateral military-to-military ties by seeking to enhance "interoperability" through the operation of similar systems. The US goal is to increase military-to-military contact through training, common usage, and generally aid the process of enhancing military cooperation.

But another US goal is to protect its advanced defense technology from countries like China and Russia. The US remains a leading military power and in many areas its systems are a generation ahead of what its competitors and rivals can field. So, the US seeks to regulate the use of its equipment and monitor its end use.⁷⁸ A third US goal is to enhance the logistic ability of its own forces which operate on a global scale. The US has important interests in the Indian Ocean and would like to access Indian facilities for its forces. These issues have dogged the military-to-military relationship in the past decade.

There are two interoperability agreements, the Communication Interoperability and Security Memorandum of Agreement (CISMOA) and the Basic Cooperation and Exchange Agreement (BECVA) for geospatial cooperation which India refuses to sign. New Delhi has agreed to a restrictive End Use Monitoring Agreement (EUMA) which limits the type of advanced technology that the US will share. Without a CISMOA and BECA, the US cannot transfer advanced communication and guidance technologies. Likewise, India is leery of signing the Logistics Support Agreement (LSA) which is technically reciprocal, but would essentially enable the US armed forces to use Indian facilities for maintenance, servicing, communications, refueling and medical care. However, India has on occasion provided these facilities to the US on a case-by-case basis.

But the situation is not static. A key role in this has been played by former Deputy Secretary for Defense Ashton Carter and what is called the Defense Technology Initiative. The aim of the DTI which was shaped by discussions between Carter and

⁷⁸ Congressional Research Service, "Indo-US Security Relations: Current Engagement" November 13, 2012 p 21

Indian National Security Adviser, Shivshankar Menon, is to overcome the obstacles that have now become so clear.

As Carter himself explained, the Americans saw the DTI initially as focused on promoting trade through co-production and co-development, but the Indian side viewed it as a means of promoting indigenization and technology transfer. As part of the DTI, the US gave India a white paper explaining to India where it falls in the complicated US export control system, even while insisting that they would be flexible regarding any Indian requests.⁷⁹

India, too, needs a comparable effort in simplifying its defense procurement procedure which has, in any case been modified several times in the past decade. But it first needs a wider restructuring and reform of its defense budgeting procedures which will free the death grip of state-owned public sector units and ordnance factories on the defense industrial sector and enable the private sector to take a more active role in defense related R&D and manufacturing. Further, the government needs to revisit the 26 percent limit it has placed on foreign direct investment (FDI) in the defense sector. Though, there is a clause permitting it to go up to 49 percent, this is only a special dispensation.

The Indian defense industry cannot function in an autarkic fashion because its size is simply not sufficient to sustain a domestic industry. In other words, its products must find export markets if its defense manufacturing companies are to be profitable. To this end, not only must its companies become part of global supply chains, but also form commercial alliances which can share development costs and profits. Recommendations in this direction have been made by the Task Force on National Security chaired by former Ambassador to the US, Naresh Chandra, as well as a committee on defense modernization and self-reliance headed by Ravindra Gupta. Both reports were given to the government in 2012, but have yet to see the light of the day.

Indo-US Relations: The Larger Picture

Looked at in the perspective of the past sixty years, the Indo-US relationship is flourishing. Despite being a late starter and all the procedural entanglements of the bureaucracies in both countries, the US has emerged as a major arms seller to India. The institutional framework--with the DPG on one hand, and the DTI on the other--to promote the relationship has become more robust. The Indian military has more frequent exercises with its US counterparts than those of any other country. Despite the

⁷⁹ Remarks by Deputy Secretary Ashton B Carter on the US-India Defense Partnership to the Center for American Progress, September 30, 2013 www.defense.gov/transcripts/transcript.aspx?transcriptid=5313

Indian refusal to sign the “foundational” most Indian defense organizations have been removed from the US Department of Commerce Entity List and 99 percent of Indian requests are approved by the US Commerce and State Department. Efforts such as the DTI seek to break the residual resistance to deeper cooperation.

Even so, the defense trade relationship of the two countries must be viewed from the specific perspectives of the two countries. From India’s point of view acquiring sophisticated US-made systems make sense for several reasons. First, they cement ties between India and the world’s most powerful country, the US. Second, India often accesses systems and technologies which often do not have equivalents elsewhere. A third reason has also become important— India obtained several items of equipment under the FMS program which, since they are government to government, ensured that they were corruption free, a major consideration in a country which has seen a slew of corruption scandals, especially in the defense procurement sector.

From the US point of view, besides the intrinsic value of the sales to US companies, arms trade with India is a means of developing close ties with a country that is viewed as being important for maintaining the balance of power in Asia in the face of rising China. These ties also serve subsidiary US goals of non-proliferation and maintaining sea lane security in a region from the Malacca Straits to the Persian Gulf. India remains an important partner in the fight against violent Islamic extremism

But from the time of the Cold War, we have seen how their differing world views created obstacles for their relationship with each other. A huge asymmetry in their respective national power remains. India has achieved a great deal in the last 50 years—become self-sufficient in food, the dominant South Asian economic and military power—but the US primacy in the world has not quite dimmed, notwithstanding the rise of China.

Likewise, there remains a difference in their respective world views and what they seek from their relationship with each other. Pakistan remains an irritant in the Indo-US relationship. In the early 1990s, there was some relief in New Delhi as the US distanced itself from Islamabad. But soon it became apparent that Pakistan held invaluable leverage in the form of control over key militant groups fighting the US in Afghanistan, as well as control of the logistical lines to supply their forces in Afghanistan. This is a situation that could well continue in the coming years.

Many observers see the US overtures to India as part of their effort to balance Chinese power. However, Indian observers note that the United States and China have dense multi-layered ties based on their close economic relations and the fact that they are both permanent members of the UN Security Council. In November 2009, President Barack Obama stirred fears in India when in a joint statement following a visit to Beijing, he

suggested that the US and China could cooperate in maintaining peace and stability in South Asia. This hearkened back to another instance in 1992, when President George HW Bush proposed that the US, China and Russia oversee a nuclear pact between India and Pakistan.⁸⁰

Early in Obama's presidency, many influential Americans, such as Henry Kissinger and Zbigniew Brezezinski had advocated the idea of G-2, a group of two, China and the US who can jointly lead the world in addressing issues relating to climate change, financial crises, proliferation issues and the numerous long-standing headaches like the Israel-Palestine dispute.⁸¹ The G2 notion remains a residual concern in India, notwithstanding Beijing's somewhat brash behavior in recent years.

The Depsang Plains intrusion by the PLA in Ladakh in April-May 2013 raised fears that Beijing's assertive posture was now spilling over to the Sino-Indian border. Beijing and New Delhi have moved to assuage fears and have worked out yet another agreement to keep peace on their disputed frontier. But, as India's economy stumbles, the gap between the two gets wider. This has implications for India's military modernization plans which are already delayed by a decade.

The one thing that both countries have in common is their sense of exceptionalism. The US, the global hegemon since 1945, is exceptional, but exceptionalism is a thread that runs through American history. No doubt, Americans find it surprising that the Indians, too, think they are unique.⁸² There is, of course, a real issue here. All the principal United States military-to-military ties involving arms or technology transfer are with its allies of the North Atlantic Treaty Organization, or Japan, South Korea and Australia. These ties are governed by history and treaty. In these relationships, the US is a net security provider. But this is not the kind of relationship that India has had with the US, except for a brief and embarrassing period in 1962. The much stronger, nuclear armed and confident India of today is certainly not looking for this kind of a relationship with the US at this juncture. Essentially, it seeks US equipment to build up the quality of its military capabilities with a view of shoring up its strategic autonomy.

But just as there is a history in the relationships that the US has with its allies, so is there a history between India and the US, and it is this which plays an important part in the current strategic relationship and the direction in which it will evolve. This history shows that there are great convergences between the two great democracies, but there

⁸⁰ <http://mjoshi.blogspot.in/2009/11/obama-kowtows-in-beijing.html>

⁸¹ Elizabeth C Economy and Adam Segal, "The G2 Mirage: Why the United States and China are not ready to upgrade ties," Foreign Affairs May-June 2009 <http://www.foreignaffairs.com/articles/64996/elizabeth-c-economy-and-adam-segal/the-g-2-mirage>

⁸² See Cohen and Dasgupta, p. 177 and 183 as well.

also have been great divergences of a structural nature, some of which remain. As of now, there appears to be no major clash of interest between them—such as the ones between Iran, or China, and the US. At the bottom of it all, is the real substance of their relationship based on hard-headed calculation and realism. India wants to use the US to raise its geopolitical profile and push economic growth, while the US sees a role for India in shaping a world in which it retains its primacy.

6

Building toward a Partnership: The India-U.S. Defense Trade Relationship

Roger Zakheim

A recent article in the *Financial Times* highlighted the prominence of India-U.S. defense trade in terms of trade flows in 2013. The article noted that the United States was India's largest defense trading partner in 2013, replacing Russia who has historically been the top arms supplier to India.⁸³ Additionally, referencing a study conducted by IHS Inc., the article noted that India became the largest foreign buyer of U.S. weapons in 2013. These developments capture quantitatively the results of a series of events and initiatives over the past approximately ten years that have led to a closer defense relationship between India and United States, and reflect India's westward drift in security affairs. However, the approximately \$2 billion in U.S. defense equipment sales to India in 2013 will likely lead policymakers and outside observers to the specious conclusion that the United States is India's most important defense trading partner. It is not necessarily so. What the 2013 data reveals is simply a very good year for U.S. defense trade with India. Those who expect the coming years to match or exceed the 2013 levels fail to understand the cycle of India's defense procurement, as well as the many variables that will determine the nature of the India-U.S. defense relationship, and by extension the levels of defense trade between the two countries.

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⁸³ Gill Plimmer & Victor Mallet, *India becomes biggest foreign buyer of US weapons*, *Financial Times* (Feb. 24, 2014), available at <http://www.ft.com/intl/cms/s/0/ded3be9a-9c81-11e3-b535-00144feab7de.html>.

This paper will review the current state of India-U.S. defense security cooperation from the perspective of the U.S., noting how the relationship has moved beyond the merely transactional and is approaching -- though by no means reached -- a defense partnership. To be sure, a true defense partnership requires more than trade in defense articles, and many hurdles remain. Such a partnership depends on continued progress on at least three levels: political, military and policy. This paper will offer a snapshot of how the defense relationship is progressing on each of these tracks, and will identify the challenges and opportunities in each. The research conducted for this paper indicates that for the United States, a defense partnership with India is a strategic priority that will only increase in importance in the decades ahead. This has as much to do with the geopolitics of the region, as it does with India itself. There is consensus that the shared democratic values and growing economic linkages between the two countries provides a strong foundation for the defense relationship, but for the U.S. security establishment, it is also the developments in Asia writ large that drive its interest in and attention to India. While there are many hurdles along the path to such a partnership -- be it historical, political, bureaucratic or cultural -- the strategic trajectory of U.S. national security will continue to prioritize defense security cooperation with India.

In addition to surveying the literature on this subject, many of the arguments and recommendations in this article are informed by extensive conversations with current and former policymakers, industry participants and others who contributed to or are working to build the India-U.S. defense partnership.

India-U.S. Defense Trade in Context

In the past decade, U.S. defense sales and ties to India have increased significantly. Since the signing of the New Framework for the U.S.-India Defense Relationship by the Minister of Defense of India Pranab Mukherjee and the Secretary of Defense of the United States Donald Rumsfeld in June 2005, U.S. defense sales to India have grown from almost nothing to in the range of \$9 billion in total.⁸⁴ Indeed, India has purchased several significant military platforms from U.S. companies in recent years, including Boeing's C-17 Globemaster III aircraft and P-8I maritime patrol aircraft and Lockheed Martin's C-130J Super Hercules transport aircraft.

The India-U.S. defense relationship and by extension, defense trade, is not purely a function of the growth in the bilateral security relationship. India's rapid economic rise, not to mention China's economic growth and increased security spending and tensions with Pakistan, have resulted in an Indian defense policy that prioritizes investment, acquisition and modernization. Thus, in addition to its purchases from the U.S., India's

⁸⁴ See, e.g., *Brief on India-U.S. Relations*, Embassy of India, Washington, D.C., available at <https://www.indianembassy.org/pages.php?id=41>.

defense market overall has grown significantly in recent years. One remarkable statistic that captures this change in behavior is that government capital spending on defense quadrupled from \$3 billion in 2000 to \$12.2 billion in 2010.⁸⁵ Accordingly, from 2000 to 2010, India was the sixth-biggest spender on defense worldwide.⁸⁶ The Stockholm International Peace Research Institute (SIPRI) reports that India was the largest importer of major weapons in 2009-2013 and its imports increased by 111 percent between 2004-2008 and 2009-2013.⁸⁷ In 2009-2013, India's arms imports accounted for 14 percent of international arms imports, with Russia supplying 75 percent, the United States supplying 7 percent and Israel supplying 6 percent.⁸⁸

These trends are generally expected to continue in the future. The data on India's defense budget and equipment needs as well as its strategic interests indicate continued near-term growth in this sector. India has proposed a budget for defense spending for the financial year beginning April 1, 2014 of 2.24 trillion rupees (approximately \$36.3 billion), which represents an increase of approximately 10 percent over the prior year.⁸⁹ While the budget proposal is subject to change after the general elections, approximately \$14.93 billion has been allocated for weapon and equipment procurement in the 2014-2015 fiscal year, although the percentage increase for new weapon procurement is lower than the previous year.⁹⁰ Analysts predict that India's spending will likely reach approximately \$150 billion in total by 2017 and expect that India's defense market will continue its strong growth trajectory through 2020.⁹¹

At the heart of these plans and predictions is India's need to replace its aging Soviet-era arsenal. India has ambitious plans to "buy new fighter aircraft, maritime patrol aircraft, infantry combat vehicles, helicopters, assault rifles, underwater submarines and tanks."⁹² In the next two decades, the Indian Air Force plans to purchase more than 800 fighter aircraft.⁹³ While the U.S. is not sourcing India's fighter aircraft,⁹⁴ some of India's

⁸⁵ Brajesh Chhibber & Rajat Dhawan, *A Bright Future for India's Defense Industry?*, McKinsey & Company, McKinsey on Government, No. 8, 45 (Spring 2013).

⁸⁶ *Id.*

⁸⁷ Siemon T. Wezeman & Pieter D. Wezeman, *Trends in International Arms Transfers, 2013*, Stockholm International Peace Research Institute, SIPRI Fact Sheet, 6 (Mar. 2014), available at <http://books.sipri.org/files/FS/SIPRIFS1403.pdf>.

⁸⁸ *Id.*

⁸⁹ Vivek Raghuvanshi, *India Proposes 10% Budget Increase; 3.3% Boost for Procurement*, Defense News (Feb. 17, 2014), available at <http://www.defensenews.com/article/20140217/DEFREG03/302170025/India-Proposes-10-Budget-Increase-3-3-Boost-Procurement>.

⁹⁰ *Id.*

⁹¹ Brajesh Chhibber & Rajat Dhawan, *A Bright Future for India's Defense Industry?*, McKinsey & Company, McKinsey on Government, No. 8, 47-48 (Spring 2013).

⁹² Rama Lakshmi, *U.S. Defense Firms Trying to Find Bigger Foothold in India*, Washington Post (Sept. 1, 2012), available at http://www.washingtonpost.com/world/asia_pacific/us-defense-firms-trying-to-find-bigger-foothold-in-india/2012/09/01/b5a11082-f1d2-11e1-b74c-84ed55e0300b_story.html.

⁹³ Sunjoy Joshi et al., *Beyond the Plateau in U.S.-India Relations*, The Heritage Foundation and the Observer Research Foundation, Special Report, No. 132, 14 (Apr. 26, 2013).

other aircraft needs are being satisfied by U.S. companies. The U.S. is completing contracts with India for the sale of Boeing's C-17 and P-8I aircraft and Lockheed Martin's C-130J aircraft.⁹⁵ Additional aircraft that India intends to purchase from the United States include Boeing Apache attack helicopters worth approximately \$1.2 billion and Chinook heavy-lift helicopters worth approximately \$830 million.⁹⁶ Despite indicators pointing to significant opportunities and growth, prospects in the market are tempered by delays in signing new contracts and bureaucratic and financial hurdles, among others.

While India has had to rely on overseas defense companies to modernize its defense capabilities, its domestic industrial base is nevertheless large and active. State-owned companies dominate the defense sector, however, the presence of the private sector is increasing. Three Indian entities, all government owned, rank among SIPRI's 2012 top 100 arms-producing and military services companies in the world excluding China: Hindustan Aeronautics Limited (HAL), Ordnance Factories, and Bharat Electronics Limited.⁹⁷ In the private sector, Indian companies involved in this sector include Tata Group, Mahindra Group, Reliance Industries, Larsen and Toubro and Kirloskar Group. As this paper will discuss below, an important variable that will determine the depth of the U.S.-India relationship will be the extent to which the U.S. defense industry can partner with India's state-owned entities or find companies in India's private sector to modernize and build India's defense industrial base.

The Politics of the India-U.S. Military Relationship

The recent memory of U.S. sanctions against India for its nuclear tests, as well as U.S. foreign policy particularly with respect to Pakistan and Iran, remain an undercurrent in the U.S.-India defense relationship. The history and dynamics are not insurmountable, however. The thorny past seems only to slow, but not stop, the pursuit of a close and long-term partnership with the United States. While recent history colors the perception of some Indian defense officials in terms of U.S. reliability in supplying equipment, this is no longer the rule. The combination of shared democratic values, nearly a decade of

⁹⁴ The U.S. would like to meet India's fighter aircraft needs. Boeing and Lockheed Martin's failed bids in the medium multirole combat aircraft (MMRCA) competition provides important lessons for the India-U.S. defense trade relationship and is discussed later in this paper.

⁹⁵ Sunjoy Joshi et al., *Beyond the Plateau in U.S.-India Relations*, The Heritage Foundation and the Observer Research Foundation, Special Report, No. 132, 14 (Apr. 26, 2013).

⁹⁶ *Id.*; Raghuvanshi, Vivek Raghuvanshi, *India Proposes 10% Budget Increase; 3.3% Boost for Procurement*, Defense News (Feb. 17, 2014), available at <http://www.defensenews.com/article/20140217/DEFREG03/302170025/India-Proposes-10-Budget-Increase-3-3-Boost-Procurement>.

⁹⁷ *SIPRI Top 100 Arms-producing and Military Services Companies in the World Excluding China, 2012*, Stockholm International Peace Research Institute, available at http://www.sipri.org/research/armaments/production/Top100/2012#_edn12.

growth in U.S.-India security cooperation, and a common view of the security challenges facing Asia have led many in political circles in the U.S. to conclude that the U.S. and India are destined to have an increasingly strong security relationship. As former U.S. Deputy Defense Secretary Ashton B. Carter explained,

Though we may not always share identical policy prescriptions, we do share a common set of values and objectives. These include a commitment to democratic governance and human rights; to free and open commerce; to a just international order that emphasizes rights and responsibilities of nations and fidelity to the rule of law; to open access by all to the shared domains of sea, air, space, and now cyberspace; and to the principle of resolving conflict without the use of force.⁹⁸

Despite common interests and values, domestic politics inevitably influence both sides. In India, domestic policies and in particular, the influence of regional parties with different interests than the national government, can impact the prioritization of issues such as national security, foreign policy, and global engagement.⁹⁹ For the United States, attention to Iraq, Afghanistan and Pakistan, as well as dealing with the global economic crisis, has, at times, left comparatively less availability to focus on building relations with India.¹⁰⁰ Similarly, India's non-aligned status and the United States' impatience at the amount of time required to achieve a security partnership, has required each side to adjust to the other's political culture. The recent diplomatic flare up over the handling of an Indian consular official's alleged violation of U.S. laws, including visa fraud, exposed how quickly the warmth of the political relationship can freeze.¹⁰¹ Though the politics of the U.S.-India relationship needs persistent attention and management, as discussed in this paper, there remains fertile ground for policymakers to strengthen the bilateral security relationship.

The Strategic Foundation for India-U.S. Defense Cooperation

Perhaps the hallmark of the Obama Administration's foreign policy is the so-called "Asia rebalance" or "pivot." Though officially billed as a concept that shifts U.S. political and economic emphasis to Asia, security has been a critical component of the rebalance. In fact, much of the U.S. Department of Defense's recent presence, posture and technology

⁹⁸ Ashton B. Carter, *Super Hercules in the Himalayas*, Foreign Policy (Nov. 20, 2013).

⁹⁹ S. Amer Latif with Nicholas Lombardo, *U.S.-India Defense Trade: Opportunities for Deepening the Partnership*, Center for Strategic & International Studies, 30-31.

¹⁰⁰ *See id.* at 31.

¹⁰¹ It is notable, however, that despite political tensions over the arrest of Indian consular official, the business side of the defense relationship continued. In fact, an example cited by military and industry leaders demonstrating the resilience of the defense relationship is that amidst the controversy surrounding the arrest of the Indian consular official, the Indian and U.S. Air Force proceeded with the planned sale of Lockheed Martin's C-130J aircraft.

investment decisions have been tethered to the Administration's shift to Asia. The Pentagon's most recent defense strategy lists the Asia-Pacific before any other region in the world in its discussion of how the Pentagon will seek to build global security. By 2020, 60 percent of U.S. Navy assets will be stationed in the Pacific¹⁰² and as the U.S. concludes operations in Afghanistan by the end of 2014, many of those forces will redeploy to the Asian theatre. This shift, of course, is driven by China's emergence in the region. Over the past decade, China's increasing investment in its military, which has averaged approximately 10 percent a year over the same period, has been the justification, if not the impetus for, many of the U.S. military's highest priorities and war fighting concepts.¹⁰³ These programmatic and planning activities have over the years filtered into the Pentagon's most important strategic documents, most notably the 2010 and 2014 Quadrennial Defense Reviews and the 2012 Defense Strategic Guidance.¹⁰⁴

To be sure, increased presence in Australia, the rotation of ships in Singapore, and the deepening of forward deployed capabilities in Japan and South Korea are the most oft cited examples of the U.S. military's push east. And while the New Framework for the U.S.-India Defense Relationship predates the Asia shift, it would be a mistake not to see the U.S.-India security relationship in the context of the rebalance. In fact, the Pentagon has been explicit in citing the deepening of U.S.-India defense cooperation as part and parcel of the shift to Asia. As the United States exits Afghanistan, the reliance on Pakistan for support in the war will lessen, and the United States will have an even freer hand in engaging India without apprehensions over the U.S. relationship with Pakistan. It is this context of security developments in South Asia that explains why President Obama chose to highlight the defense relationship when Prime Minister Manmohan Singh visited Washington in September 2013, issuing a Fact Sheet stating that the "U.S.-India defense relationship remains a major pillar of the strategic partnership between our two countries."¹⁰⁵

What makes India complex for the U.S. is that the nature of the defense relationship is atypical of other U.S. security relationships. India maintains its non-aligned status and

¹⁰² *Quadrennial Defense Review*, U.S. Department of Defense, 34 (Mar. 2014), available at http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf.

¹⁰³ From technologies that counter anti-access/aerial denial capabilities, deploying increased stealth technology, electronic warfare capabilities, next generation fighters and bombers to a new air-sea battle doctrine, the U.S. military has been looking to the Pacific as it imagines what a future battlefield may look like.

¹⁰⁴ See *Quadrennial Defense Review Report*, U.S. Department of Defense (Feb. 2010), available at http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf; *Quadrennial Defense Review*, U.S. Department of Defense (Mar. 2014), available at http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf; *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense*, U.S. Department of Defense (Jan. 2012), available at http://www.defense.gov/news/defense_strategic_guidance.pdf.

¹⁰⁵ *Fact Sheet: The United States and India – Strategic and Global Partners*, The White House (Sept. 27, 2013), available at <http://www.whitehouse.gov/the-press-office/2013/09/27/fact-sheet-united-states-and-india-strategic-and-global-partners>.

is careful about becoming too closely aligned with key partners. Additionally, the U.S.-India defense relationship is only a decade old and other features of the relationship are unique. As a result, instead of establishing bases, forward deploying military capabilities or providing security assistance, in those cases where countries need financial support, the U.S. had had to find other avenues of cooperation with India.

Military-to-military cooperation in the form of exchanges and joint exercises is a natural area of opportunity, provided the cooperation does not run afoul of India's non-aligned prerogatives. India's annual military exercises with the United States outnumber those it holds with any other country, with more than 50 annual military exercises.¹⁰⁶ This year, India will participate in U.S. Pacific Command's most important regional exercise, the Rim of the Pacific (RIMPAC) exercise, and the India-U.S. executive steering group plans to increase military-to-military ties through joint combat exercises, doctrinal and operational exchanges. Not only does the military relationship deepen the security relationship in its own right, but it also is key to advancing defense trade. For example, the recent boost in U.S.-India defense trade is, in part, due to the remarkable success India enjoyed in using U.S. platforms, such as the C-130 aircraft, for humanitarian assistance and disaster recovery operations.

While the U.S.-India military-to-military relationship has grown, the emphasis and heart of the relationship resides with defense trade and technology transfer. Notably, the Joint Declaration on Defense Cooperation that was released during Prime Minister Singh's visit to Washington in 2013 is entirely focused on breaking down barriers in defense trade. The statement provides both countries' political endorsement for increasing efforts to promote defense technology transfer, trade, research, co-development and co-production for defense articles and services, the core features of what has evolved into the India-U.S. Defense Trade and Technology Initiative or DTTI.¹⁰⁷ While this paper evaluates some of the successes of and prospects for stronger DTTI, it is worth noting how this initiative is quite different from the typical U.S. approach to arms sales. Unlike many consumers of U.S. defense products, particularly those in the Middle East, India is actively pursuing development of indigenous defense industrial capabilities. For example, while India will need to procure advanced anti-tank missiles for its military, its ultimate goal is to produce the next generation anti-tank indigenously. For India, one of the objectives in its trade relationship is to obtain top tier technology from its suppliers. This explains why U.S. officials emphasize their commitment to India's military modernization and declare that India's modernization is a top priority in U.S. export considerations.

¹⁰⁶ Karl F. Inderfurth, *Foreword to S. Amer Latif with Nicholas Lombardo, U.S.-India Defense Trade: Opportunities for Deepening the Partnership*, Center for Strategic & International Studies, v (June 2012).

¹⁰⁷ *U.S.-India Joint Declaration on Defense Cooperation*, The White House (Sept. 27, 2013), available at <http://www.whitehouse.gov/the-press-office/2013/09/27/us-india-joint-declaration-defense-cooperation>.

Addressing the Policy Hurdles Facing U.S.-India Defense Trade

Having the blessings of political leaders is a necessary but not sufficient condition for deepening U.S.-India defense cooperation. Relevant policies and regulations on both sides need to be conducive to building a partnership. Up to now, it has been left to policymakers to take advantage of the political atmosphere and shape new forms of cooperation and break through bureaucratic roadblocks in the defense relationship. However, as has been pointed out, “significant sections of the vast bureaucracies in both countries remain tied to default positions toward the other that are not conducive to a deeper bilateral partnership.”¹⁰⁸ Furthermore, as former Deputy Secretary Carter has explained, certain limits in the relationship are “due to different approaches to defense trade and military technology during the Cold War that left us with two very different post-Cold War defense procurement systems.”¹⁰⁹ India prioritized indigenous defense goods and frowned upon importing technology that imposed limits on its use while the U.S. system was designed to safeguard technology from everyone but its closest allies.¹¹⁰

These historical differences in policies and related regulations present significant challenges for U.S. companies looking to the Indian defense market. India’s procurement process, offset requirements and foreign direct investment policies -- all of which are consistent with India’s interest in developing its indigenous capabilities -- are often cited as factors affecting foreign firms’ ability and interest in investing in India’s defense sector. For example, foreign firms find it difficult to determine India’s acquisition needs because the Indian government lacks a strategic acquisition plan and request for proposal (RFP) process.¹¹¹ Additionally, India’s defense procurement policy requires that “30 percent of the value of all defense deals that exceed 300 crore rupees [3 billion rupees] and are classified in the Buy (Global) category will be channeled into direct offsets.”¹¹² However, successfully discharging offset obligations is not an easy task due to, among other things, lack of guidance from the Indian government and lack of capacity in the Indian defense sector.¹¹³ Furthermore, foreign direct investment in the defense sector is capped at 26 percent and this can be seen as an impediment. “The current foreign-direct-investment policy does allow for a higher ownership percentage, to be determined on a case-by-case basis; however, most recent proposals have been

¹⁰⁸ Sunjoy Joshi et al., *Beyond the Plateau in U.S.-India Relations*, The Heritage Foundation and the Observer Research Foundation, Special Report, No. 132, 2 (Apr. 26, 2013).

¹⁰⁹ Ashton B. Carter, *Super Hercules in the Himalayas*, Foreign Policy (Nov. 20, 2013).

¹¹⁰ *Id.*

¹¹¹ S. Amer Latif with Nicholas Lombardo, *U.S.-India Defense Trade: Opportunities for Deepening the Partnership*, Center for Strategic & International Studies, 32 (June 2012).

¹¹² *Id.* at 40 (footnote omitted).

¹¹³ *Id.*

denied.”¹¹⁴ On the U.S. side, restrictions on exports of what the U.S. considers to be sensitive technology and items can also impact the ability of U.S. firms to compete in India. Even with progress in areas such as co-development and co-production, the policy and regulatory hurdles that exist make it difficult for U.S. firms to compete and find worthwhile opportunities, especially those that can be justified to shareholders.

In light of this, DTTI, which resulted from recent efforts by Deputy Secretary Carter and Indian National Security Advisor Shivshankar Menon, seems promising. DTTI provides a framework for advancing defense cooperation and charges each country to push beyond the status quo in four key areas: co-production and co-development; collaboration in science and technology; foreign military sales; and reforms to U.S. trade control systems.¹¹⁵ DTTI has not solved some of the perennial impediments to defense trade with India, such as caps on foreign direct investment and offset policies and practices, but it is changing the discussion. While it is too early to tell whether DTTI will succeed in cutting through impediments to expanding the trade relationship, it is worthwhile to review some of the early progress and successes and outline ongoing challenges.

Co-Production and Co-Development

A lasting and deep defense relationship will require U.S. investment in India’s defense industry. Incentivizing and promoting co-production and co-development have the twin benefit of modernizing India’s domestic defense-manufacturing base,¹¹⁶ as well as providing U.S. defense firms opportunities for profitable investment in India. The strategic underpinning of these efforts explains why other than India, the U.S. has reserved such close collaboration for allies such as the U.K. and Australia.

In connection with their third bilateral summit, in September 2013, President Obama and Prime Minister Singh endorsed the Joint Declaration on Defense Cooperation “as a means of enhancing their partnership in defense technology transfer, joint research, co-development, and co-production.”¹¹⁷ Noting that the two countries share common security interests, the Joint Declaration on Defense Cooperation stated that the United States and India “place each other at the same level as their closest partners” and that

¹¹⁴ Brajesh Chhibber & Rajat Dhawan, *A Bright Future for India’s Defense Industry?*, McKinsey & Company, McKinsey on Government, No. 8, 53 (Spring 2013).

¹¹⁵ See *Remarks by Deputy Secretary Carter on the U.S.-India Defense Partnership at the Center for American Progress* (Sept. 30, 2013), available at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=5313>.

¹¹⁶ S. Amer Latif, *U.S.-India Military Engagement: Steady as They Go*, Center for Strategic and International Studies, 31 (Dec. 2012) (“Military engagements are supported to a degree by the civilian Indian policymakers, but the overwhelming primary objective is developing coproduction and codevelopment arrangements for strengthening its own defense industrial base.”).

¹¹⁷ *U.S.-India Joint Statement*, The White House (Sept. 27, 2013) available at <http://www.whitehouse.gov/the-press-office/2013/09/27/us-india-joint-statement>.

“[t]his principle will apply with respect to defense technology transfer, trade, research, co-development and co-production for defense articles and services, including the most advanced and sophisticated technology.”¹¹⁸ While it is hard to argue against the win-win promise of co-development and co-production, there have been only a few test cases of co-production and fewer examples of co-development. Examples of U.S.-India co-production include joint manufacture of spare parts for transport aircraft between Tata Group and Lockheed Martin and Sikorsky; manufacture of parts for S-92® helicopter cabins by Tata Advanced Systems Limited (TASL) and Sikorsky; and TASL also is involved in a joint venture with Lockheed Martin Aero Frame Corporation to manufacture aero structures.¹¹⁹ U.S. defense officials are interested in more co-production projects, but recognize that successful projects need to emerge from industry and market demand, not from artificial, government-imposed projects. Other countries are engaged in co-production arrangements with India, such as Russia (including for the Brahmos missile, the Multi-Role Transport Aircraft, and the fifth-generation fighter aircraft¹²⁰). India also has co-development projects with Israel and France for different missile systems.¹²¹

Co-production, while a positive development, is certainly not a panacea for the challenges of doing business with the Indian defense ministry. Multiple U.S. defense industry executives have found that partnering with non-state-owned defense companies, such as Tata, has not made penetrating the India defense bureaucracy any easier. While U.S. policymakers and industry leaders expect that co-production arrangements will lead to more opportunities for defense trade with India, the business decision to co-produce is not tied to any defense trade quid pro quo. For example, Lockheed Martin and Tata’s co-production of airframe components for the global supply chain of the C-130Js has no formal linkage with Lockheed’s sale of the C-130s to India. While it is reasonable to expect the joint venture between Lockheed Martin and Tata will yield Lockheed offset credits for its C-130 sales to the Indian military, the potential benefit does not seem to be a factor in the business case for co-production.

While co-production between U.S. and Indian companies is underway, there appear to be fewer examples of co-development. For India, co-development is a key tool to generating a cutting edge indigenous defense workforce and industrial capacity. Thus, Indian officials tend to emphasize the need for real technological collaboration. For the

¹¹⁸ *U.S.-India Joint Declaration on Defense Cooperation*, The White House (Sept. 27, 2013) available at <http://www.whitehouse.gov/the-press-office/2013/09/27/us-india-joint-declaration-defense-cooperation>.

¹¹⁹ Sudesh Rani, *Indo-US Defence Technology Cooperation*, National Maritime Foundation (Feb. 28, 2013), available at <http://www.maritimeindia.org/article/indo-us-defence-technology-cooperation.html>.

¹²⁰ S. Amer Latif with Nicholas Lombardo, *U.S.-India Defense Trade: Opportunities for Deepening the Partnership*, Center for Strategic & International Studies, 16 (June 2012).

¹²¹ Sushil K. Singh, *India Welcomes U.S. Partnership on Defense Cooperation*, AsiaPacific Defense Forum (Oct. 9, 2013), available at http://apdforum.com/en_GB/article/rmiap/articles/online/features/2013/10/09/us-india-defense.

U.S., co-development is not simply a business proposition; rather, it is seen as the primary way to strengthen the U.S.-India defense relationship. However, providing India with greater know-how raises a host of issues for policymakers and industry alike. As has been pointed out, these include concerns about sacrificing the technological advantage held by the U.S.; hesitance to provide know-how and sensitive technologies that companies have developed for commercial profit; and challenges in partnering with the Indian defense industrial base due to its limited capacity for collaboration and therefore, minimal return benefits.¹²² The challenge is finding a project that satisfies each side's policy and business prerogatives.

Notwithstanding these challenges, there remains interest in co-developing the new Javelin missile. The U.S. overcame its initial objections that a Javelin sale would alter the military balance in the region and have come to embrace the proposal. With the exception of one component of the Javelin system, the U.S. Department of Defense has cleared sharing Javelin's technology with India. This is a significant step forward: overcoming the technology sharing hurdle will go a long way to satisfying India's objective of filling its technology gaps. However, Indian and U.S. policymakers are hesitant to prematurely endorse the potential co-development of the Javelin as a success and seem uncertain about the prospects for other co-development cases to emerge. Like co-production, for co-development to succeed, projects cannot be invented from within government and imposed on industry. It is up to the industry to pursue opportunities and develop a business case; the government's role should be limited to encouraging, facilitating, and, perhaps, incentivizing development.

Collaboration in Science and Technology

A less developed feature of DTTI is collaboration in science and technology (S&T). As part of this effort, the 2011 Report to Congress on U.S.-India Security Cooperation noted that "acquisition and technology cooperation between India and the United States has been primarily in the exchange of science and technology (S&T) information and collaboration in S&T projects. Some areas of current cooperation include power and energy, micro-aerial vehicles, situational awareness, energetics, and human effectiveness."¹²³ Additionally, in 2011, India's Defense Research and Development Organization (DRDO) and the U.S. Naval Postgraduate School established an educational exchange program and joint research project program and are exploring

¹²² S. Amer Latif with Nicholas Lombardo, *U.S.-India Defense Trade: Opportunities for Deepening the Partnership*, Center for Strategic & International Studies, 38-39 (June 2012).

¹²³ *Report to Congress on U.S.-India Security Cooperation*, U.S. Department of Defense (Nov. 2011), available at http://www.defense.gov/pubs/pdfs/20111101_NDAA_Report_on_US_India_Security_Cooperation.pdf.

additional areas for collaboration.¹²⁴ Additionally and more broadly, according to the U.S. Department of Defense, the “progress that has been made in armaments cooperation between the United States and India is notable, especially when compared to similar relationships with other countries, and given the relatively short time that the U.S.-India defense relationship has been developing.”¹²⁵

Despite claims of progress and promises to fund innovative S&T projects there does not seem to be significant activity taking place. To be sure, it will take time for the DRDO and U.S. Department of Defense’s labs to develop a cultural familiarity that will pave the way to future collaboration. At this stage, however, there appears to be room for much more S&T collaboration.

Adjusting Export Controls

Another component of DTTI is the emphasis on easing U.S. trade controls. U.S. policymakers have signaled a willingness to absorb the “risk” of India not signing traditional defense technology agreements in favor of the strategic benefit of closer cooperation with India. The U.S. policy on technology transfer to India is no longer a presumptive no, and the U.S. has acknowledged that its system needs to be improved. As Deputy Secretary Carter has said, “[w]e have an export control system to prevent high-end technology from getting to states that shouldn’t have it, but our system can be confusing, rigid, and controls too many items for the wrong reasons. We know we need to improve it.”¹²⁶ In some areas there has been tangible progress. For example, boilerplate documents normally viewed as a precursor to defense trade were not required in the C-17 and C-130 aircraft sales. This demonstrated flexibility and bought goodwill by working around Indian reluctance to sign defense agreements such as the Logistics Support Agreement (LSA), the Communications Interoperability and Security Memorandum of Agreement (CISMOA), and the Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA).

A significant demonstration of U.S. responsiveness also came in 2011 when the U.S. removed nine Indian space and defense-related organizations from the Commerce Department’s Entity List, including subsidiaries of DRDO and the Indian Space Research Organization. Not only did this decision demonstrate the U.S. was willing to

¹²⁴ See *id.*; Amanda D. Stein, *NPS Explores Joint Research, Education Programs with India’s Peer Defense Institutions*, Naval Postgraduate School, available at <http://www.nps.edu/About/News/NPS-Explores-Joint-Research-Education-Programs-with-Indias-Peer-Defense-Institutions.html>.

¹²⁵ *Report to Congress on U.S.-India Security Cooperation*, U.S. Department of Defense (Nov. 2011), available at http://www.defense.gov/pubs/pdfs/20111101_NDAA_Report_on_US_India_Security_Cooperation.pdf.

¹²⁶ Ashton B. Carter, *Remarks to the Confederation of Indian Industry: “Towards a Joint Vision for U.S.-India Defense Cooperation”*, U.S. Department of Defense (July 23, 2012), available at <http://www.defense.gov/Speeches/Speech.aspx?SpeechID=1710>.

dispense with historical differences in favor of future opportunity, but it also provided concomitant benefit by opening the door for co-development opportunities. According to a White House fact sheet, removal of the Indian organizations from the Entity List “is expected to facilitate trade and cooperation in civil space and defense and enable the two governments to focus on addressing other outstanding barriers that hinder expanded bilateral high technology trade.”¹²⁷

The lingering question remains whether pursuing a more flexible export controls stance with respect to India will continue, and whether the steps that have already been taken are enough to trigger more trade activity and increase cooperation. One of the views put forward as to why the U.S. entrants in the MMRCA competition were not selected was because of concerns over U.S. trade controls.¹²⁸ While this could have been a factor, there seems to be a number of reasons why there was not a winning U.S. bid, including: the U.S. fighters were not as capable as the non-U.S. options; the U.S. fighters were not competitive on cost; having two U.S. fighters in the competition limited the scope and breadth of U.S. government advocacy; and, India was not interested in procuring the same fighter as Pakistan. Nevertheless, while the U.S. loss in the MMRCA competition may not have been the result of perceived restrictions imposed by the U.S. export control system, absent a “return” on the investment the U.S. has made to accommodate more defense sales to India, the pro-reform momentum within the bureaucracy may begin to cease.

Foreign Military Sales

Another example where U.S. policymakers have challenged their respective bureaucracies to adjust their standard procedures is in the management of the U.S. Foreign Military Sales (FMS) program. Foremost is that the U.S. is reforming its own procedures so U.S. companies can provide timely responses to Indian RFPs. Instead of having to wait for U.S. government approval for technology release prior to responding to an RFP, the U.S. will provide anticipatory reviews to allow companies to respond in a timely manner. This departure from standard procedures will certainly allow U.S. companies to enter more competitions.

FMS proposals s face a challenge because pricing is often not competitive with other bidders. The 3.5 percent administrative fee can be quite significant when the RFP is valued at over \$1 billion. Though the Pentagon has stressed the benefits of the FMS system, such as the built-in sustainment and maintenance, the reliability and on time

¹²⁷ *Fact Sheet: U.S.-India Partnership on Export Controls and Non-Proliferation*, The White House, available at http://www.whitehouse.gov/sites/default/files/india-factsheets/India-US_Agreement_on_Export_Controls.pdf.

¹²⁸ Ashley J. Tellis, *Decoding India's MMRCA Decision*, Force, 9 (June 2011), available at http://carnegieendowment.org/files/Decoding_Indias_MMRCA_Decision.pdf.

delivery of the platform, it is often not enough to compensate for the difference in cost. One approach to cut the cost is by pursuing hybrid sales where the proposal is part FMS and part direct commercial sale, thus reducing the administrative fee. There seems to have been some success with FMS sales since in 2011, India was the second largest FMS customer.

Anti-Corruption Efforts

A final point worth noting and a significant issue impacting defense trade with India is the risk of corruption. While corruption in the defense sector is certainly not limited to India, a number of factors make India a higher-risk market than other countries. This includes the dominance of state-owned companies, the nature of India's defense procurement procedure, and foreign direct investment restrictions resulting in non-Indian companies having minority ownership and thus less control over practices and compliance procedures in their joint ventures. A number of recent probes have implicated non-Indian companies, with some companies blacklisted based on claims of improper practices in the process of defense procurement.¹²⁹

Given the political sensitivities associated with discussing corruption in defense trade, U.S. policymakers rarely raise the issue with their Indian counterparts. For U.S. industry, the business and reputational risk associated with a corruption inquiry militates towards business practices that eschew any appearance of impropriety. To be clear, concerns about corruption do not seem to impact *whether* companies choose to do business in India, but it does impact *how* they do business. For example, U.S. companies seem to have a clear preference for carrying out defense sales through the FMS system, on the grounds that the government-run process which painstakingly accounts for every cent of the sale inoculates companies from allegations of corruption. Similarly, many U.S. businesses do not employ agents or consultants due to the risk of being held responsible for their conduct. While these practices often slow the pace of transactions and limit business development opportunities, it seems to be the price businesses are willing to pay to reduce risks of a corruption scandal. It remains to be seen whether these specific approaches to avoiding allegations of corruption will ultimately help or hinder U.S. companies seeking to expand defense trade with India; policymakers and industry leaders would be wise to monitor how this impacts the relationship.

¹²⁹ See, e.g., *India Opts Not to Blacklist AgustaWestland*, Defense News (Jan. 2, 2013), available at <http://www.defensenews.com/article/20140102/DEFREG03/301020011/India-Opts-Not-Blacklist-AgustaWestland>; *Corruption Investigations Mean Indian Defence Sector Deals Risk Delay or Cancellation*, IHS Jane's Country Risk Daily Report (Mar. 3, 2014), available at <http://www.janes.com/article/34823/corruption-investigations-mean-indian-defence-sector-deals-risk-delay-or-cancellation>.

The Way Forward for Increased U.S.-India Defense Trade

India and the U.S. have made the strategic decision to pursue a defense partnership. Political leaders on both sides have charged their respective militaries, bureaucracies and industries to give this bold objective operational meaning. The last decade has reinforced the strategic rationale for the partnership. As China's regional influence grows and the U.S. ends the war in Afghanistan, the U.S. and India will continue to look to each other for opportunities to shape and reinforce regional stability.

But the efforts of the past ten years have also revealed the complexity of achieving this goal. For the U.S., many of the normal routes of security cooperation -- be it presence, forward deployed capabilities or defense sales -- are either not appropriate or insufficient for a defense relationship with India. Simply procuring U.S. defense systems will not differentiate the U.S. from India's other trading partners, such as Russia.

A true partnership requires a departure from transactional sales, and necessitates building a cooperative relationship that allows both India's military and industrial base to modernize. Significantly, the U.S. has made the policy decision to invest in both aspects of this modernization. Conceptually, DTTI does an effective job of capturing the requisite components of this partnership and it provides the blueprint for implementation. To date, however, DTTI's implementation has been uneven. While the U.S. has reduced some export control related barriers to defense trade -- an accomplishment in its own right -- it remains to be seen whether this will translate into sustained increases in U.S. defense sales to India. Efforts to incentivize co-production have seen some success, while co-development initiatives remain stuck. The other elements of the initiative are only now underway.

Like any other initiative aimed at pushing bureaucracies outside of their normal way of doing business, this effort will require persistent attention. Absent such focus, the respective bureaucracies will maintain the status quo, divert their attention to other priorities, or, worse, revert to the old way of doing business. With the Indian election and new leadership in the Pentagon,¹³⁰ it is uncertain where this initiative will rank relative to other priorities. If each side does not have a senior policymaker pushing for the relationship, the pace of the progress will certainly slow and the quality of the partnership will suffer. Like any other relationship, commitments need to be followed by action. The next stage in the U.S.-India defense relationship will require a cadre of leaders focused on implementation. We no longer need designers and architects leading this effort. The India-U.S. defense partnership needs a leadership made of project managers who know how to build off a plan.

¹³⁰ As of this writing, Deputy Secretary Carter's successor, Bob Work, is still awaiting U.S. Senate confirmation.

7

Energy Sector in India: The Challenges

Nitin Zamre

The fact that India will need a huge quantum of energy to meet the growing needs of its population over the coming decades cannot be overemphasized. Over the past two decades, India has demonstrated that it is capable of getting its act together, which has enabled its economy to grow at a near double digit rate of growth. A young population with aspirations to continue on a high growth trajectory certainly will put huge pressure on India to not only find new energy resources but also ultimately deliver these resources to the diverse consumers.

Indian policy makers are well aware of the challenges associated with this task – the need to find new and diverse energy resources, sustainability of these resources, energy security and also import dependence. All these aspects have been listed and debated in various policy papers and documents of the Government of India and its agencies.

India's approach to address the challenge of meeting its energy needs has been multipronged. On the demand side, it has the National Mission for Enhanced Energy Efficiency which outlines the need to reduce the energy intensity of the economy and covers the entire gamut of standard & labelling of appliances (the star rating) to industrial energy consumption (the Perform- Achieve – Trade scheme). On the supply side it has been able to step up its power generation capacities--both conventional and renewable--considerably. It has also been able to attract investments in the refining capacity while its record on two fronts - investments in exploiting domestic resources and ensuring the last mile delivery to the consumer – has been dismal. This approach has worked in part, but has resulted in the current situation whereby power generation plants are lying idle (for want of evacuation network or for want of fuel) in some parts of the country and consumers using the most expensive fuel to generate electricity to meet their demand in absence of a sufficient grid power.

This situation highlights some of the governance challenges that India currently faces and must address if it seriously wants to meet its growing energy needs. Some of the critical challenges the country is facing are listed below:

- Planning for ‘energy’ rather than specific types of energy (power, oil & gas, coal, renewable etc.)
- Recognizing that no energy is more expensive than having ‘no energy’ and that it is therefore critical to evaluate the supply options carefully. If government fails to ensure delivery of energy supply, the consumer is likely to access a sub-optimal energy supply
- Creating sustainable market structures. It must have faith in effective functioning of competitive markets and hence must focus on creating such markets rather than trying to artificially control markets.
- Nothing works better than competition in improving quality of service
- Monopolies are inefficient by nature and need to be abolished. India has seen the benefits in power generation and the telecom sector
- Demand-supply should provide effective economic signals for investments in the energy chain
- Price shock is an effective tool to attract investment in energy supplies as well as controlling the demand
- Subsidies can only take you so far and will only create fragile markets with recurring problems of economic failures
- Learn from other countries and sort out the mess in domestic resources and get private investments to exploit these resources. There is ample evidence around the world of what works and what doesn’t for energy markets in the long term

A commitment to address these challenges will determine how soon and efficiently India will be able to meet its growing energy demand. Its energy governance approach will need to address these issues head on if it wants to make long lasting sustainable changes.

However, if there is one area which appears to be the most important, it is creation of sustainable robust markets for energy. Given the history of how energy markets have functioned in India over the last 3-4 decades, consumers and policy makers have heavily depended on a strong ‘cost plus’ approach to energy pricing and a service by monopolies/oligopolies to deliver energy. This has led to the market not providing ‘economic’ signals to the supply chain. Another important aspect that is absent in the discussions is the importance of sustainable, competitive markets in improving energy security. Let’s look at the dimensions of energy security and India’s governance challenges in that context.

Global Energy Markets

The last decade has seen unprecedented changes in the global energy markets. Rising energy demand from developing economies, supplies not keeping pace with the rising demand, and the increasing role played by the national oil companies ('Resource Nationalism') were the few highlights. All of this played a role in increasing the degree of volatility in energy prices. The energy prices in the global markets consistently breached newer peaks during the last decade. And it looks unlikely that we will ever see energy prices going back to the levels seen at the beginning of the century.

Energy markets in developing economies like India have been the most affected because of these changes. Developing economies (barring a few exceptions where the countries have been resource rich and hence exporting) have traditionally had 'nascent' energy markets typically characterized by the presence of monopolies, controlled prices (typically lower than market), high level of government intervention in functioning of markets etc. These markets have also generally faced supply shortages as the monopolies have been unable to ramp up domestic supplies to keep pace with the rising demand and have had to depend on imports. Therefore the rising global prices and the volatility have affected these economies the most. Energy security has thus assumed highest importance globally over the last five to six years, featuring as the top priority item on governments' agenda.

Energy Security

There are various dimensions to defining and achieving energy security. A common definition of energy security is the ability to deliver energy to consumers in an uninterrupted manner at reasonable prices.

Some of the most common tactics deployed worldwide include a diversity of sources and demand side management (DSM) through energy efficiency. Diversity of sources in terms of both geographical nature as well as types of resources leads to an increase in energy security. Investing in technologies which are less energy intensive also leads to energy security as it reduces the requirement of energy per unit of output. Having sufficient storage for energy also provides security as it enables consumers deal with disruptions in supply chains. All these measures have been well understood and tried globally. However, there is one aspect of energy security which has been poorly understood and hence generally less frequently deployed globally.

Role of Market Reforms in Achieving Energy Security

A critical aspect which is generally overlooked by developing markets is the market structure itself. An attractive market which provides equal opportunity to diverse suppliers, choice of supply to consumers, has no or very low entry barriers and most importantly, is able to support market prices for energy which will always score higher on the energy security aspect. It will become the market of choice for suppliers and hence will also have better ability to negotiate with them.

While the Indian energy market has focused on addressing the diversity and types of supplies, it has still not shown enough progress towards becoming the market of choice for suppliers. As a nation, India's energy markets continue to suffer due to its hesitant approach to freeing the prices of energy commodity and letting competitive markets develop.

Let's look at India's natural gas and coal markets. The gas market showed promise of getting more domestic supplies when government introduced the New Exploration and Licensing Policy (NELP) in late 1990s. In the first few rounds, the market participants freely determined the prices. For example – in late 1990s, NELP gas was being sold at US\$3.5 per MMBtu while the regulated gas was being sold at less than US\$ 1 per MMBtu. This led to rush for participation by private parties- both domestic and international – bringing in capital, the latest technology, and best management and project management practices. Within five to six years of introducing NELP, India had its largest gas discovery in more than 25 years in the form of KG D-6. However, things then changed and government intervened in finalizing the price of this large gas find. This intervention sent a signal to the investors that government will continue to have a major say in deciding the price of gas. Therefore the Indian gas market unfortunately started coming lower in the order of investment priority for most of the international firms. While globally, governments always have legal ownership of energy resources, in developed markets, they allow discovery of price through market forces and stay away from any intervention. This gives confidence to investors that they have to take only the market risk and not the risk of government intervention, unlike in India.

The North American Natural Gas Market - How Free Markets Respond to Security Challenges

The North American gas market has been a classic example of how markets benefit from open market policies. This market saw controlled low prices leading to a demand bubble (in the mid 70s), freeing up of the prices leading to prices shooting up seven times in a span of two years (late 70s) but then leading to a huge increase in resource base and low prices in the long term. For almost 20 years, gas prices in North America were among

the lowest in the world. However that low price resulted in lower investment in upstream supplies and prices started rising steadily towards the beginning of the first decade of this century.

By 2004-05, the gas prices increased beyond \$10/MMBtu, an all-time high. Industry responded by setting up LNG import terminals. With prices in double digits, North America became the dream market for LNG exporters. LNG suppliers invested heavily in setting up liquefaction facilities dedicated for the US markets. However, the high prices of gas also elicited strong response from the domestic upstream oil & gas industry.

In a most spectacular response to rising prices in 2004-06, this market trebled its resource base of unconventional gas due to the technological innovation triggered by high prices. The North American gas market, which was worried about large dependence on LNG imports and its implications to its energy security, is now sitting pretty with huge gas resources! It is expected to become a major exporter of LNG and probably change the dynamics of the global LNG market.

The Indian coal market is a step behind the natural gas market. It has very little market discovered prices (e-auctions being the only exception), has monopoly suppliers, the government dictates prices and production is generally inefficient. Attempts to increase coal production by allocating captive coal blocks have not seen much success. While most of the blocks have been allocated recently and hence will take time to start producing, the basic hurdle remains that most of those allotted coal block are not in the business of mining, let alone coal mining. They don't have access to the best mining practices and technology, etc. The difficulty in getting contractors and partners is leading to delay in captive coal production that the economy can't afford. The only option then will be imports and there are forecasts that India may have to import close to 200 million tons per annum after the next 5 years! Furthermore, this level of import will no doubt help to push up the international prices.

To push India's coal production upward dramatically what India needs are policies that are able to attract the best talent, practices and technologies as it did initially in oil and gas through NELP. India needs to get investment from core coal mining players. These players will get interested only when they see a free market – the freedom to price coal and freedom to sell coal. It will also be an opportunity to get multiple players in the domestic market and create a competitive market. This will certainly benefit everyone in the long term.

While India's obsession with keeping prices low for domestic resources may help it meet socialistic goals in the short term, they will definitely hurt in the long term and badly. If

such policies continue, India will continue to import at higher prices. In the long term, this will mean India as a nation will support investments and innovation in exporting countries and will lose the opportunity to support the same in its own domestic energy industry. It may be argued that price is not the only aspect of market that ensures energy security but there is no doubt that it is one of the most important aspects. Given the stage at which India's energy markets are, pricing reforms may be the most critical step to achieve energy security for the long term.

This was just an illustration of how the absence of competitive markets is hurting the coal and natural gas sector in India. The story is more or less the same in all components of the energy sector. These challenges are not easy to deal with as they form the very basis of how these sectors have been governed over the years and hence require a mind-set change, however clichéd that may sound. Now is therefore the time to bite the proverbial bullet. The silver lining is that India itself has seen success from similar policies in other sectors so hopefully the policy makers will be able to derive comfort and conviction in the functioning of competitive markets and their long term benefits.

8

Skill Development in India: Navigating the Labyrinth

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The multiple narratives of India of being the largest democracy, its story of economic transformation and demographic dividends, its importance in the peace, security, and stability of South Asia have been at the center stage of most global discussions; in recent times, the narratives around socio-political and economic realities of India and their global relevance has gained momentum. Nearly 65% population under the age of 35 is undereducated and underemployed and the urban-rural divide is sharper than ever. Additional issues include the equity and growth imbalance, challenges of poverty, security and non-traditional threats, which are witnessing a sharp rise.

The impact of these challenges is evident on the large-scale fragmentation of ideas, priorities, perceptions and aspirations. The principle of federalism as enshrined in the Constitution is being increasingly challenged. Lack of a clear mandate by the people in successive elections for the national parliament, as well as provincial assemblies, has created roadblocks in the reform process. For example several crucial reform bills in Parliament, like bills on Land Acquisition, Pension Reforms, Food Security, Goods and Services Tax, Direct Tax Code and other important issues, are either pending or have been shelved due to a lack of consensus, colloquially dubbed by the country's intelligentsia as policy paralysis.

The country has achieved much in the last two decades: transforming into the 3rd largest economy in the world in terms of its purchasing power parity, after USA and China; quadrupling of per capita income; shifting of the competitive advantage of the country from agriculture and low-cost manufacturing to affordable global services; and rising internal consumption. All this, however, still eludes more than half of the country's population.

India Social Indicators			
Indicators	2001	2011	Source
Human Development Index (HDI)	0.461	0.547	Rank 134 out of 187 countries
Total Population (in Billions)	1.028	1.210	UNDP Factsheet
Sex Ratio (females per 1000 males)	933	940	UNDP Factsheet
Child Sex Ratio (females per 1000 males)	927	914	UNDP Factsheet
Literacy Rate (%)	64.8	74.04	UNDP Factsheet
Female Literacy Rate (%)	53.7	65.46	UNDP Factsheet
% Children in Std. V who can read Std.II text		46.8	ASER 2012
% Children in Std. V who can do division in math		24.8	ASER 2012
Indicators	2004	2005	Source
Poverty Headcount ratio (%)	37.2	29.80	UNDP Factsheet
Total number of poor (in Millions)	407.22	354.68	UNDP Factsheet
Infant Mortality Rate	57	44.0	Census 2011
Deaths per 100 due to malaria	0.1	0.06	UNDP Factsheet
Mortality due to TB per 100000 population	23	26.0	UNDP Factsheet
Maternal Mortality Ratio (MMR) (per 1,00,000 live births)	254	212.0	UNDP Factsheet
Institutional Delivery		72.9	UNICEF 2009
	2004	2008	Source
HIV Prevalence among pregnant woman aged 15-24 (%)	0.86	0.48	UNDP Factsheet
Prevalence of underweight children under 3 years of age (%)	42.7	40.4	UNDP Factsheet
Women with BMI below normal		35.6	NFHS 2005-06

Table 1: Social Indicators – India

According to the World Bank¹³¹ there are nearly 400 million poor in India. These estimates are based on people living on less than \$1.25 a day in 2010. According to that World Bank report, India alone accounts for 33% of the world's poor, - almost equal to that of Sub-Saharan Africa, which includes over 40 countries. Even if we consider the official Government of India figures on this matter, the share of India's poor is about 25% (the highest of any country) - a situation which is without doubt alarming and a major challenge.

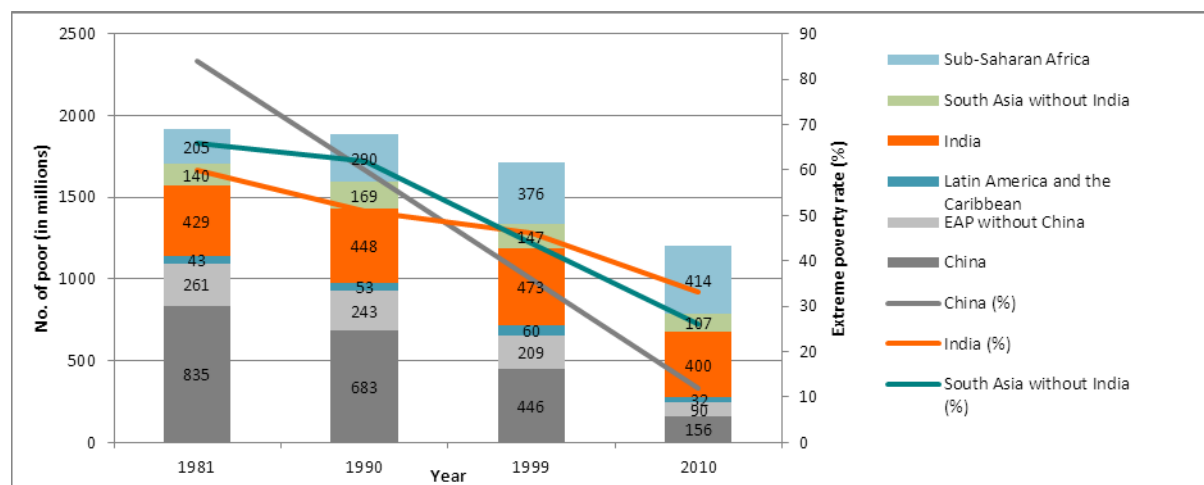


Figure 1: Poverty Rates Worldwide
(World Bank)

Of the total labor force of 475 million in India nearly 92% is in the form of informal employment¹³² in the unorganized sector (agriculture, building and construction, textiles, retail trade, logistics and transportation) with very low levels of education. India has just a 2% trained workforce as compared to Germany (75%), UK (68%), and South Korea (96%). There are approximately 15 million new entrants into the workforce in India every year; however the net enrollment in vocational education is only 3.5 million per year, as compared to 11 million in China and 11.3 million in USA. A large portion of the informal workforce is not engaged in what the ILO calls 'Decent Work', but find work in exploitative and vulnerable conditions as they find employment through informal means such as word-of-mouth references, contractors, and the like. In the absence of any bargaining power, basic freedom and mainstreaming opportunities, the vicious cycle of poverty and disadvantage gets compounded through low levels of education. Only 30 million (less than 10%) of the labor force is estimated to be in the organized sector.

¹³¹ http://www.worldbank.org/content/dam/Worldbank/document/State_of_the_poor_paper_April17.pdf

¹³² Defined as "those working without any social security benefits in unorganized sector consisting of private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers"

Nearly 54% of the population is still engaged in agriculture contributing less than 15% to the GDP. Their low consumption, low education, poor access to health and energy and the growing rate of farmer suicides – estimated at about 200,000 in the last 12 years – present a picture of despair. The growth rate of the agriculture sector continues to stutter and has not even crossed the targeted 4% in the XIth Plan Period (2007-2012). The manufacturing sector on the other hand employs nearly 21% of the labor force where the contribution to GDP also remains low at about 17-18%. The “Shining India” picture however gets created through the services sector which just employs 25% of the labor force but contributes over 65% to national GDP.

Skill Development and Training – Government Efforts

Even though the education infrastructure of India may be better than the infrastructure of many big countries with nearly 1.3 million schools (237 million students), over 46,000 colleges (20 million students), and nearly 53,000 vocational training centres (10 million students), the labor force of the country has less than 10% graduates, only 32% have completed primary education and 16% reported completing secondary education (NSSO 2011-12). Further, the poor quality outputs and learning levels are a cause of grave concern.

According to a study (Mehta & Kapoor, 2007), the skills of the labor market are shallow because of poor quality graduates from the higher education systems. Another study (Unni & Sarkar, 2012) discusses the growing gap between the available and required skills for the development process in India. The lack of opportunities during economic slowdown may be a temporary phenomenon but lack of skills and education necessary to perform in a labor market could prove disastrous in the long-run.

The canvass of education and employment has been historically widespread with multiple agencies like National Skill Development Agency (NSDA), National Skill Development Corporation (NSDC), DGET, MHRD and various other ministries, industries and industrial associations, NGOs, as well as the donor community, all pooling their resources and information to achieve skill targets in different ways. Even with this complex scenario, at any one time India is training almost 10 million people in employment-related skills and aspires to reach the target of 500 million. The large number of agencies, ministries, policies and mandates present a complicated picture yet at the same time bolsters confidence in the extent to which government initiatives can create access and reach.

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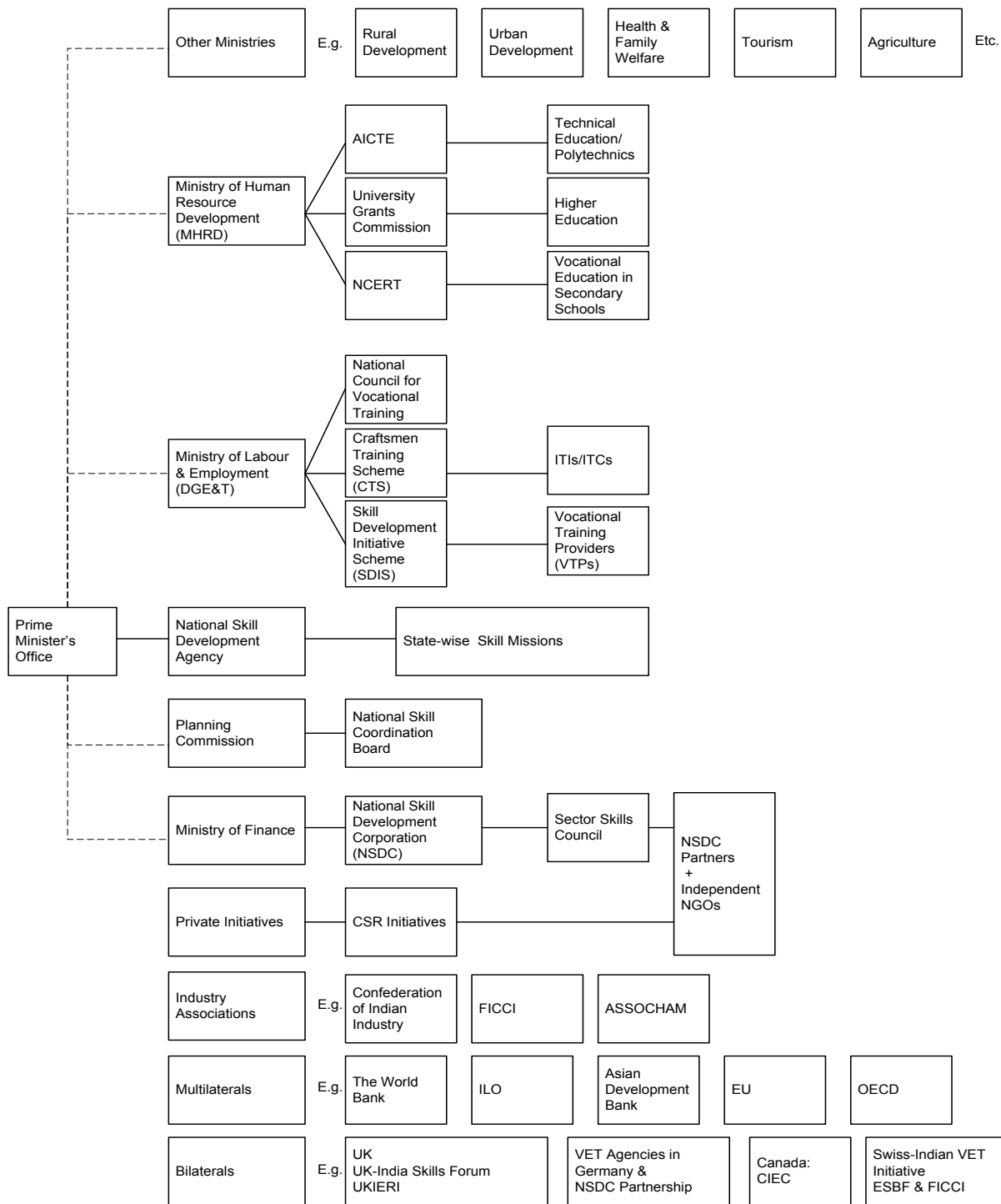


Figure 2: Government departments and other agency skill development initiatives
(Team Analysis, ORF)

Even though the scale can be achieved by government, there are added issues of quality and relevance:

- **Poor Mobility in skill development programs-** The majority of TVET programs are terminal in nature as there are no clear entry requirements and progression routes for vertical mobility. The certificates, diplomas, degrees and professional degrees have no linkages between them. For example, a school based vocational education course is hardly recognized by polytechnics and the pass-outs of the Modular Employable Scheme find no acceptance in higher education institutions. This leads to a lack of esteem for vocational education programs.
- **No system of Recognizing Prior Learning (RPL)-** A majority of workers in the unorganized sector have lower levels of literacy, since they leave school at various stages of education. They face difficulty in returning to schools or training institutions to improve their skills, since the education or TVET system does not allow them to do so. A lack of certification of existing skills disadvantages the worker in the labor market and constrains labor mobility between jobs;
- **Large variation across institutions-** Due to the multiplicity of guiding frameworks, there are variations in the levels and standards of courses and programs offered by various boards and institutions. There is a lack of uniformity in terms of duration, entry requirements and nomenclature of qualification across institutions. For example, in plumbing, the duration for the face-to-face mode certificate course in plumbing/sanitary hardware fitter/plumber ranges from two years to one year to six months to four month programs. There are also the open learning system courses which offers one year, six month, and three month programs. The entry requirements range from Standard VIII to Standard X to ITI pass. The private sector training institutions offer vocational education and training according to their own plan and curriculum;
- **Outdated content and poorly trained instructors-** Across industries, there is a growing demand for cognitive skills involving understanding, interpretation, analysis, problem solving, collaboration and communication. Unfortunately, existing programs with archaic technical curriculum are hardly addressing these needs. Teaching and testing routine skills is restricting the economy from moving up the value chain of production. Further, many teachers/ instructors are ill-equipped to handle the demands of the industry including updated knowledge, new technology and awareness of changing market requirements. Teacher training (professional development) is taking different forms, including centrally organized programs (the places are limited), in-house seminars and mentoring

discussion groups. Only in some cases, industry is involved in training instructors (on-site and at Vocational Training Providers' workshops).

- **Complex apprenticeship system-** Apprenticeship programs in India are governed by complex and burdensome rules and regulations. There are strict norms on permissions, trades permitted, training duration, stipend levels, apprentice/employee ratio, and training facilities. As a consequence, India has less than 300,000 formal apprentices. In addition, companies hire cheap labor under the guise of an apprenticeship program;
- **Inconsistent accreditation systems-** The credibility of the Indian accreditation system has generally been low, despite the fact that there have been a number of formal accreditation systems in existence. (The Central Board of Secondary Education, the Council for the Indian School Certificate Examinations and state boards in school education, the University Grants Commission in higher education, the All India Council for Technical Education (AICTE) in technical education domains and the National Council for Vocational Training and Ministry of Human Resource Development in vocational education. In addition, there are independent agencies such as the Medical Council of India, the Nursing Council, the Bar Council, and the Institute of Chartered Accountants which have their own accreditation systems and charters¹³³).

Since accreditation is not mandatory in India, it makes the private sector and NGO skill training providers (including the National Skills Development Corporation partners) design certificates that may not be recognized by established accreditation agencies, such as the University Grants Commission (UGC), or AICTE. For example, according to MHRD, out of the 33,000 colleges and 600 universities, fewer than 5,000 colleges and 200 universities have volunteered for accreditation through the National Assessment and Accreditation Council (NAAC), which has been in operation for nearly 20 years. Similarly, the National Board of Accreditation (NBA) has been the accrediting agency under the AICTE and has been able to accredit only some 2,000 courses out of 20,000. The accreditation of institutions versus accreditation of courses being handled by two different agencies damages the credibility of the accrediting agencies. A large number of new institutions which are less than five years old are not even eligible for accreditation and, therefore, there is no benchmark available for ascertaining the quality of learning in these institutions. If the quality is poor, the institution remains untracked for five years and impacts the lives of hundreds of students. If the quality is good, the excellence remains elusive with regard to gaining formal recognition.

¹³³Sub-Committee on "Improvement in accreditation and certification system", http://planningcommission.nic.in/reports/genrep/index.php?repts=rep_csa.htm

In order to respond to needs of quality and standardization, nearly 28 Sector Skill Councils (SSCs)¹³⁴ have been set-up through NSDC support and are in the process of preparing national occupational standards, qualifications packs and assessment tools for each of their sectors. Many of these have already started accrediting private TVET¹³⁵ programs. The acceptability of their standards in the government system is not yet clear because DGET under MoLE has recently (January 2014) announced setting up of 25 sector-wise Mentor Councils for NCVT courses in ITIs. The core groups for 11 Mentor Councils have already been formed. In addition, the National Institute of Electronics and Information Technology (NIELIT), (earlier called the DOEACC Society), and the Quality Council of India sub-bodies, such as the National Accreditation Board of Education and Training (NABET) and the National Board for Hospitals and Healthcare Providers (NABH), have accreditation and standards agendas in IT, education and healthcare.

However, on December 2013, the Government of India created the National Skills Qualification Framework (NSQF) which succeeds the earlier National Vocational Education Qualifications Framework (NVEQF) and supersedes any other qualification framework and standards. The NSQF organizes qualifications according to levels of knowledge, skills and aptitude. These levels are defined in terms of learning outcomes which the learner must possess regardless of whether they were acquired through formal, non-formal, or informal learning. It is a nationally integrated education and competency based skill framework that will provide multiple pathways-- horizontal as well as vertical-- both within vocational education and vocational training and among vocational education, vocational training, general education and technical education, thus linking one level of learning to another higher level. This will make it simpler to acquire desired competency levels, transit to the job market, and at an opportune time, return to acquire additional skills to further upgrade competencies. The NSQF would require such regulatory institutions (e.g. UGC, AICTE, NCVT, Technical and School Boards etc.) to define each of the their entry and exit parameters in terms of competencies ascribable to that level of the NSQF so that vertical progression in the vocational education could be strengthened.

Skill Development and Training – Private Sector Efforts

A number of large corporations, for-profit institutions, voluntary organizations and NGOs have started working in the area of human development and training – out of approximately 10,000 Industrial Training Institutes (ITIs), nearly 7300 are private. The National Skills Development Council (NSDC) was formed under the National Skill Development Policy of 2009 to catalyse and coordinate skill development through the

¹³⁴ as on 1st December 2013

¹³⁵ Technical and Vocational Education & Training

private training sector. In addition to promoting skill development education by providing loans to private sector and NGOs, some of the recent initiatives of NSDC are:

Udaan:

Under the Special Industry Initiative of the Prime Minister, the NSDC and Ministry of Home Affairs have been mandated to work with the corporate sector in bringing about a positive change in the employment and skills space of Jammu and Kashmir. The Special Industry Initiative, known as “Udaan”, targets the youth of J&K, specifically graduates and postgraduates, who are seeking global and local opportunities. Udaan thereby aims to provide skills to 40,000 youth over a period of 5 years in high growth sectors.

Skill Gap Studies:

To support its various initiatives, NSDC looks at creating an enabling environment by developing a robust research base for acquiring skills. To that end, it conducts studies to understand the geographical and sector wise skill requirements and on various subjects that can influence and enable the training environment in India.

Sector Skills Councils (SSC):

SSCs strive to complement the existing vocational education system for the Industry Sector in meeting the requirements of quality trained manpower across all levels of the value chain of the industry. SSCs complement the existing vocational education system through conducting research, improving the delivery mechanism, and building quality assurance.

Business Plan Competitions:

In an attempt to encourage young entrepreneurs to be a part of business opportunities in India, NSDC organizes business plan competitions, such as the Vocational Skills Enterprise Plan Competition, to encourage innovative and implementable business solutions that contribute to the development of a sustainable vocational skills ecosystem in India.

Star Scheme:

The objective of this scheme is to encourage skill development in Indian youth by providing monetary rewards for successful completion of approved training programs. Specifically, the scheme aims to encourage standardization in the certification process,

create a skills registry and t; and increase productivity of the existing workforce and align the training and certification to the needs of the country.

In addition to the NSDC partners, and various industry initiatives, like that of Larsen & Toubro's Construction Skills Training Institute (CSTI) which imparts training in different trades like formwork carpentry, masonry (brickwork), bar bending etc. there are non-profit organizations like, Self Employed Women's Association (SEWA), which has established the Karmika School for Construction Workers (KSCW), and provides training in similar trades as CSTI. This institute caters specifically for women in the industry.

Even government initiatives like The "*Hunar Se Rozgar*" initiative of the Ministry of Tourism, or the "*Aajeevika*" program of the Ministry of Rural Development engage private sector training providers and NGOs to implement their programs. Also, the efforts of industry associations such as CII, FICCI, ASSOCHAM also have an impact in the skill development landscape. For example, CII provides support to the upgrading of 1396 ITIs by taking responsibility for 237 ITIs and deploying 138 industry members, FICCI organises regular seminars and promotes publications in skill development while ASSOCHAM has been training close to 10,000 persons in major states.

Foreign partnerships are an important way to bring in new perspectives, new models, flexible funding, high quality research, best practices and to develop individual and institutional capacities to deliver large scale programs. Even though global experience may not provide a solution to all the challenges facing India, it presents an array of options that could be contextualized to Indian conditions and realities.

The International Labor Organization (ILO) collaborates with MoLE, by supporting the multi-stakeholder preparation and technical processes of the National Policy on Skills Development (NPSD). The World Bank provided financial assistance of about \$280 million for the Vocational Training Improvement Project (VTIP) to upgrade 400 ITIs through training of the instructors, systemic reforms and innovations. The EU provided 6.5 million Euros for the Skill Development Initiative Scheme.

Multilateral agencies also promote high-quality research and consulting. Agencies such as CIEC, Federal Institute for Vocational Education and Training, Germany, and the Australia India Education Council, are forging public and private partnerships on curriculum development, training, financing, research, faculty development, and student exchange. The British Council is working in a joint project with CII and City and Guilds to facilitate creation of SSCs and deliver skills training across the manufacturing, agro-processing and tourism sectors and to provide linkages to employment. It is also delivering a program on English language skills for employability. iMove (Federal

Ministry of Education and Research, Germany) signed an MoU with NSDC to cooperate in skills development with the specific objectives of knowledge transfer, institutional collaborations and fostering private sector initiatives. The Rhine-Main Chamber of Skilled Crafts, Germany, signed an MoU to support 100 Multi Skilled Schools through the identification of skills and competencies, preparation of course curriculum, testing and certification and train the trainee programs. German Technical Cooperation, Gesellschaft für Internationale Zusammenarbeit (GIZ) has entered into technical collaboration with the Government of Karnataka, to establish model Multi Skills Development Centres offering advance technology training courses.

Not all private initiatives are in the form of training. There are other roles concerning the private sector which influence training and education. These include: Research and Advocacy: Sector Skill Councils, the Confederation of Indian Industry (CII), Federation of Indian Chambers of Commerce and Industry (FICCI), the Associated Chambers of Commerce and Industry of India (ASSOCHAM), and the United Nations Conference on Trade and Development (UNCTAD), etc. Monitoring and Evaluation: ICRA Management Consulting Services (IMaCS), Educational Resource Unit (ERU) Consulting, Consulting Firms such as Ernst and Young (EY), PricewaterhouseCoopers (PwC), etc. Awareness Building and Communication: United Nations International Fund for Agricultural Development (UN-IFAD), Clinton Fellowship, American India Foundation (AIF), UN-Training and Fellowships etc. Support Services: market scan, fund raising, curriculum development, the training of trainers, technology integration, job placement/counselling, student assessment and certification, program auditing and social rating etc.: For example, EduComp, Oxfam, Tiruchirappalli Regional Engineering College, Science and Technology Entrepreneurs Park (TREC STEP) Academy, Kangan Institute, AIF, All India Teachers Vocational Training Institute, UNESCAP Asian and Pacific Centre for Transfer of Technology (UNESCAP- APCTT), NIIT Yuva Jyoti – Synchronous Learning Technology, AIF-Digital Equalizer Program, Justrajgar TM online employment exchange by We The People, Institute of Leadership Entrepreneurships and Development (ILEAD), Digital Empowerment Foundation, Micro Credit Rating International Limited (M-CRIL), SSC Domain Partners etc.

Opportunities and Scope for Participation in the Skill Development Landscape

According to the NSDC, the highest demand for the services sector is expected to be generated by subsectors such as construction, transportation, hospitality and the Banking and Financial Services Industry (BFSI). In the industry sector, the highest labor demand is expected to be generated by the automobile, textile and food processing subsectors. These high priority sectors could be major contributors to the overall job addition of about 13 to 15 million per annum, summarized in Table 2.

Sector	Skills/Qualification	Yearly Requirement in Million
Building, Construction & Real Estate Services	Minimally Educated	2.717
Health Care and Service Industry	Nurses	0.659
Organised Retail	Food & Grocery	0.626
Auto & Automotive Sector	Drivers	0.362
Food & Processing Sector	Break & Bakery	0.322
Transportation, Logistics, Warehousing & Packaging	Warehouse Workers	0.317
Banking and Financial Service Sector	Sales & Marketing	0.235
Organised Retail	Consumer Durables, Home Appliances	0.199
Media and Entertainment Industry	Television and Films	0.195
Textile Industry	Sericulture	0.164
Furniture and Furnishing	Stitching, Sewing, Stuffing, Threading	0.153
Education and Skill Development Sector	Teachers in School Education	0.149
Furniture and Furnishing II	Carpenters	0.135
Leather and Leather Goods Industry	Flaying and Curing	0.133
Food and Processing Sector	Meat & Poultry Processing	0.13

Table 2: Yearly Requirement of Skills in Different Industries
(NSDC,2011)

	Employment	Incremental Labor Requirements 2022	Sector Wise Skilling Target (in millions)	Opportunities for Bus. Investment
Construction	44,283	84,906,006	84	High
Transportation & Storage	19,835	21,442,856	4	Medium
Auto & Auto Components	16,893	54,468,526	65	Medium
Textile & Clothing	15,024	31,048,625	48	Low
Food Processing	7,907	19,158,421	10	Low
Organized Retail	323	23,760,499	102	High
IT & ITES	1,024	4,960,093	86	High

Table 3: Incremental Labor Requirements 2022
(NSDC,2011)

By 2022, the demand for skilled labor is expected to increase significantly. The highest incremental labor demand is expected to be generated in the construction, automobile, textiles and transportation subsectors. Organized retail is also expected to grow rapidly.

Together, these subsectors are expected to generate demand for over 282 million skilled workers by 2022. (Table 3)

The work of the private sector brings unique value in the form of reach, commitment and efficiency. Similarly, the engagement of many private sector companies in development work has brought in good management practices, well trained professionals and the ability to adapt quickly to the changing market scenario. The unique value can be in the form of:

Reach and Access: They reach populations and geographical regions including areas affected by left-wing-extremism that are out of the reach of most other stakeholders. They also reach out to the vulnerable groups of the population and represent their voices and needs in mainstream society, economy and public policy.

Flexibility, Efficiency and Diversity: In the absence of any complex operational procedures, the operations in private sector set-ups are much easier, decision making is faster and the adaptability is high. This leads to efficient delivery of programs and addresses the diverse needs of its beneficiaries. For example, a teacher in a community is just not a teacher, she is also a counsel and guide to other community matters, she is the link to the outside world, she is a problem solver and so on.

Commitment and Accountability: NGOs and private sector CSR are generally born out of the commitment of the donor/ funder or a social market failure which brings together committed individuals to support a cause. Owing to its very nature, the accountability of NGOs towards its stakeholders is very high as there are no distinct lines between “us” and “them”. Cost effectiveness: Due to limited resources, most of the private sector or NGO programs are designed in a way to be cost effective and provide value for money. They may deliver the programs free of charge or provide heavy subsidies as many government programs do, but when compared on a cost-benefit scale, NGO programs deliver better value than traditional programs run by government institutions.

The private sector could work in greater coordination with the government so that both sectors complement each other's efforts. Corporations can actively participate in industry led skill development initiatives by channelizing funds allocated for corporate social responsibility and supporting government's skill development policies. The industry can therefore be directly instrumental in aligning the existing skills development infrastructure with the market demand and by addressing its own specific skill demands. There are ample opportunities in functions other than direct training in areas like research and advocacy, monitoring and evaluation, awareness building and communication and support services such as the training of trainers, technology integration, job placement/counselling, student assessment and certification etc. The

main sectors that are likely to be attractive for foreign investments are construction, healthcare, finance, logistics and maritime, urban infrastructure, retail, hospitality, engineering and automotive goods.

The path for skill development in India cannot be managed by domestic players alone. It has to take the best practices of both international private players and public entities. In this endeavor, India must look at all major economies and the practices they employ to help skill development realize its potential.

The United States and India can collaborate in a number of ways to strengthen the Indian educational and training systems. The successes of the US system of community college and vocational training programs can be contextualized and replicated in India. Community colleges in the US provide young students and workers with varied educational program without the technicalities of pursuing conventional four year programs. These shorter two-year programs provide comprehensive practical knowledge mixed with only relevant theoretical information. It allows the young workforce, those not cut out for or unable to attend traditional higher education streams to obtain a degree and join the workforce faster. Vocational training programs in the US, like ITT Technical institute provide hands-on education in areas that are in demand in the market. These market oriented courses allow students to attain a qualifications and skills that are required immediately. Thus the first avenue of collaboration between India and the US would be a joint initiative to promote community college and vocational technical education in India, similar to the current US model. It will give skill seekers an alternate means of attaining these skills rather than following traditional paths. Linkages between US programs and institutions will greatly help India set up its own system. Additionally, the presence of these skill providers will give credibility to jobs and qualifications, often considered a taboo in Indian society.

It would also be worthwhile to explore and study the way United States provides support to all sections of society who want to gain skills and training. The education system in the US, unlike that of India, allows for not only young market entrants, but also those who wish to make mid-career changes. This gives the workforce opportunities to be constantly and consistently updated with relevant and needed skills. Furthermore, while these skills are not only required by industry, professional certificates are also recognized by the industry as a quality alternative to traditional degrees. The second avenue of partnership between India and US could be the transfer of technology that allows India to expand its skill development target. Innovation and technology have long furthered learning and skill development in the United States. The avenue of collaboration could promote the use and adaptation of technology used for skill development in the US to that in India, allowing the country to not only expand its skill development target but to achieve it as easily and quickly as possible.

Perceivably, the most gainful collaboration between the two countries would be to facilitate skill transfer in various sectors between the two countries. Skill transfer will allow workers in both India and the United States to be part of a level playing field, thus allowing and facilitation mobility of skilled workers across borders. Currently this practice is common for doctors from India. Medical students and established doctors from India have not only been accepted, but sought in hospitals and clinics across the United States. If such a practice can be expanded to other sectors such as construction and infrastructure, health workers, hospitality and so on, the availability of skilled labor at an established standard would be immense, as would be the benefit to both countries. To achieve this, accreditation partnerships between skill certifiers in India and USA would have to be generated but more importantly closer ties and links will have to be formulated between sector skill councils in India and similar agencies in the USA.

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