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# Changing the Indian Economy

## Renewal, Reform and Revival

Edited by  
Rama P. Kanungo, Chris Rowley and Anurag N. Banerjee



# **Changing the Indian Economy**

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## PREFACE

India has witnessed a series of unprecedented socioeconomic changes over the past 5 years that have morphed the Indian economic landscape. India is using reformist economic processes for its renewal and growth, and the Indian economy has currently experienced a series of reforms and renewed several existing frameworks. Reformed financial planning for financial literacy via digital finance, the implementation of international statutory accounting and banking standards and financial transparency leading to the professionalism of the Indian financial sector are many facets of such changes. India has undertaken several socioeconomic liberalisations including demonetisation, digital-payment systems and a unified taxation system. However, the ability of these benefits to reach the less privileged in India remains elusive. In addition, the gap between industrialised countries and emerging countries (i.e. India) is one of the key challenges facing the Indian government.

Under renewed economic initiatives, effective resource allocation and parsimonious governance could improve the economic growth of India. Despite several economic measures, the process of renewal has not been fully achieved in India. There are several underlying factors that have contributed to the lack of fulfilment of certain aspects of reform and renewal. Beyond the historic trends of governmental reforms, it is not clear what differences these reforms bring. How could the government balance these changes to optimise reforms? The trends in the Indian economy and the timeliness of the government's response to these changes remains inconclusive. The recent government has demonstrated overreaching efforts to reform and renew the economic system; however, these reforms are not making desired changes at the ground level.

This book discusses the current scene and elucidates how different measures of reform have affected the diverse aspects of the Indian economy. The book recounts how India has a strong potential to grow amidst the diverse economic reforms and changing governance.

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## CHAPTER 1

# Political Economy of Resources and Infrastructure in India

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### 1 PROBLEMS WITH LAND ACQUISITION

Obtaining land for infrastructure or for the building industry is a real problem and can slow down growth. Table 1.1 shows that India lags behind other South Asian countries (with similar levels of economic development), not only in terms of per capita income but also with respect to other key development indicators such as electricity, water and sanitation. In India, obtaining land for infrastructure and the building industry remains a thorny issue.

Analysis by TMP Systems found that out of 73,000 commercial projects across eight different countries, over 93% of projects were inhabited. When analysing 262 land tenure cases in 30 countries, the study found consistent material impacts of unclear land rights obstructing the building of new infrastructures, including dams, roads, ports and electricity supplies.<sup>a</sup> Therefore obtaining land with a clear title is an issue.

The story is no different in India. With limited government resources, there is a need for public–private partnerships (PPPs) to develop world-class infrastructure and service sector operations. The provision of hassle-free and cheap land to private companies for developing infrastructure is an essential component for this to happen. Investment risks posed by insecure and unclear land rights are responsible for holding back investment in infrastructure. At the other extreme, farmers and human rights activists complain that they are on the receiving end, with middlemen cornering the bulk of the profit.

<sup>a</sup> For more on this see: <https://news.mongabay.com/2015/10/failure-to-engage-local-communities-is-costinginvestors-big-money-according-to-a-new-analysis/>.

**Table 1.1** Income and Infrastructural Indicators

Indicator	India	South Asia	Lower Middle Income Countries
GNI per capita, Atlas method (current USD) in 2016	1670	1611	2077.69
Access to electricity (% of population) in 2014	79.16	80.05	79.53
Access to improved water source (% of population) in 2015	94.1	92.37	89.18
Access to improved sanitation facilities (% of population) in 2015	39.6	44.77	52.22
Electricity Power Consumption (kWh per capita) in 2014	805.59	707.55	769.05

Source: World Development Indicators (2017), World Bank.

## 2 IMPACT ON INDUSTRY

A study examining 1660 judgements delivered in the Punjab and Haryana High Court between 2009 and 2011 demonstrated how farmers are deprived (Singh, 2012). The study showed that the average government compensation was approximately one-fourth of the market value of the land. Moreover, most of the land procured for building infrastructure was used for commercial purposes [i.e. real estate and special economic zones (SEZs)]. Developers from Noida (Uttar Pradesh) and Gurgaon (Haryana) in the National Capital Region (NCR) have made fortunes. For example, in 2006, approximately 5000 farmers from five villages received a notice that the Haryana Urban Development Authority would be acquiring 638 acres of their land. The land was acquired in 2009, and the farmers received compensation of INR 16 lakhs per acre, an amount they felt was far below the market price. Sales of land in the same area in 2015 fetched up to INR 22

crore per acre. The farmers are now demanding that they are fairly compensated, as much of the reason for the skyrocketing land price is the development of commercial and residential properties in the region.<sup>b</sup>

A report from the Comptroller and Auditor General of India provided an account of the misuse of land in Special Economic Zone (SEZ). It concludes that 'land appears to be the most crucial and attractive component of the scheme. Out of 45,635.63 ha of land notified in the country for SEZ purposes, operations commenced in only 28,488.49 ha of land'.<sup>c</sup> It also added that '5402.22 ha of land was de-notified and diverted for commercial purposes in several cases'. Many tracts of these lands were acquired invoking the 'public purpose' clause, which is used for developing infrastructure. Data from the Ministry of Statistics and Programme Implementation show that more than 82% of projects suffered delays. This was true even under the 1894 Land Acquisition Act, which contained a notorious 'urgency clause' that permitted land acquisition without any scrutiny or hindrance.

Perhaps to invoke transparency and to ensure that the farmers got the right price, the government introduced the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (LARR) Act (2013). This was an amendment to the original Land Acquisition Act (1894). The LARR Act, which was passed on 29 August 2013, stated that to procure land to establish a private industry, consent must be taken from 80% of landowners and people on government assigned land<sup>d</sup>; however, the consent of people who depend on the land for their livelihood is not required. For PPP projects, consent must be taken from 70% of landowners and people on government assigned land. The government retains the ownership of land in PPP projects. The time limit for acquiring land was set to 1 year. Provisions were added to ensure that speculators who purchase land at a low price do not benefit. Tenants living off sharecropping above a certain period also receive compensation.

<sup>b</sup> Namrata Kohli (2015). NCR farmers claiming back their land, demanding compensation. Hindustan Times. Available at: <http://www.hindustantimes.com/india/ncr-farmers-claiming-back-their-land-demanding-compensation/story-RCq75b69r7QXKHtdfOw2RO.html>.

<sup>c</sup> Comptroller and Auditor General of India (2014), Report Number 21, Government of India, New Delhi. Available at: [http://www.cag.gov.in/sites/default/files/audit\\_report\\_files/Union\\_Performance\\_Dept\\_Revenue\\_Indirect\\_Taxes\\_Special\\_Economic\\_Zones\\_SEZs\\_21\\_2014\\_chapter\\_8.pdf](http://www.cag.gov.in/sites/default/files/audit_report_files/Union_Performance_Dept_Revenue_Indirect_Taxes_Special_Economic_Zones_SEZs_21_2014_chapter_8.pdf).

<sup>d</sup> Land Acquisition, Rehabilitation and Resettlement Bill, 77-2011 (LARR, 2011). Available at: <http://164.100.24.219/BillsTexts/LSBillTexts/asintroduced/land%20acquisition%2077%20of%202011.pdf>.



It is the compensation that is important for farmers. Policies for releasing agricultural land for nonagricultural purposes should be designed in a fashion that allows farmers to remain as stakeholders. Farmers do not want to give away land as it provides them with collateral and helps to sustain their income. The land acquisition process cannot be left to the market as the transaction costs would be much higher, particularly when the buyer has to negotiate with numerous small-scale sellers and land records are spotty. However, it should not be left to the government either, as the price the government offers is arbitrary and may not reflect the true price. The government also acquires land citing a public purpose and subsequently transfers it to their partner companies. Postacquisition companies use the land for real estate and other commercial purposes and make huge profits. Examples including the housing projects under PPPs for the Taj and the Ganga expressway projects and hospitality projects associated with Delhi and Mumbai airports. The price often increases to more than the market price because of third-party intervention, such as land brokers with strong political connections. These land brokers typically procure land in bulk before the start of the project. Therefore even if the farmers willingly gave their land to the government or land brokers before the start of the project, they may start to feel agitated when they discover that the price of the land skyrocketed after the start of the project. This agitation was seen in farmers in Greater Noida, Uttar Pradesh, in May 2011. Those who willingly gave land began to feel left out or cheated as the price of land increased several-fold upon completion of the Yamuna Expressway (connecting Delhi and Agra).

Given how the land market operates in India, the market price is not an adequate anchor for compensation nor an efficient use of scarce resources, notwithstanding its pro-poor reference. Bardhan (2011) put forward the concept of an independent quasi-judicial regulatory authority to oversee land acquisitions.<sup>e</sup> Many parts of the economy (i.e. telecom and the stock markets) already have established regulatory provisions. Land is an economic sector that could benefit from a quasi-judicial body. Land transfer, administration of compensation and settlement must be handled by a quasi-judicial authority that is independent of political influence but subject to periodic legislative review. According to Ghatak and Ghosh (2011), this problem can

<sup>e</sup> Land Acquisition: Currently A Major Stumbling Block for Development Policy. In: Development Outreach, World Bank. Available at: <http://eml.berkeley.edu/~webfac/bardhan/papers/WBILand%20Acquisition.pdf>.

be solved through land auction, which covers both the project area and surrounding farmland. If properly implemented, this procedure will allow farmers to choose compensation as either cash or land and to determine their own price instead of leaving it to the government.

The bottom line is that farmers must be made stakeholders to prevent agitation and to allow the procurement of land without any trouble. Farmers can be given some land in developed form (permission to build); for instance, one political leader in Uttar Pradesh, Mayawati, has promised to give 13% of land in developed form. Another method is to offer jobs, which is something what the Chief Minister of Gujarat, Narendra Modi, is promising. For example, if a factory is built on the procured land, one member of the family will get a job in the factory.

### **3 IMPACT ON THE POWER SECTOR**

Energy demand in India is growing at a rapid rate, rising from 450 million tonnes of oil equivalent (toe) in 2000 to 900 million toe in 2015. This is expected to increase further to 1500 million toe in 2030. India also consumes approximately 1100 billion units of electricity every year. Residential and commercial buildings consume around 37% of total electricity consumption. A total of 1 billion m<sup>2</sup> of new commercial buildings are expected to be added by 2030.

It is noteworthy that the power sector was the first infrastructure sector that saw opening up to private participation and yet it is the sector that has encountered the greatest difficulty. Private investment in the power sector has fallen substantially short of expectations. The basic strategy was to invite private participation in the generation segment, with independent power projects (IPPs) expected to sell power to the State Electricity Boards (SEBs). However, the reluctance of state governments to tackle the basic issues of power theft and inadequate tariffs led to the bankruptcy of SEBs and prevented the financial closure of IPPs. Attempts to bypass these basic problems through stratagems such as escrow arrangements and central government guarantees have also not worked. In addition, the protracted and acrimonious negotiations over the Dabhol power project in Maharashtra highlighted the political risks of IPPs and are sufficient to put off any new investment. This has led to the current issues related to land acquisition.

The problem with obtaining land for building power plants persists to date. In January 2017, violent protests erupted in the South 24 Pargana district of West Bengal, India. Villagers were opposed to the Power

Grid Corporation of India Limited (PGCIL) building a power substation in their area. PGCIL stated that they wanted to construct a 400/220 kV gas-insulated substation to supply power from Farakka in West Bengal to Kahalgaon in Bihar; however, the locals told a different story. They alleged that the land has previously been forcibly obtained by one faction of the All India Trinamool Congress (TMC), which is the ruling party in West Bengal. This group, whose leader is Arabul Islam, had already sold these forcibly-acquired lands to real estate developers. When the PGCIL attempted to build a power substation at the behest of the state government, it became a member of this fall-out group that was instigating the villagers to go against the state.<sup>f</sup> In fact, the present Member of Parliament for the region, Abdur Rajjak Molla, shares an acrimonious relationship with Arabul Islam which makes things worse. To save face, TMC party bosses told the media that the problems with land acquisition in the region had nothing to do with the internal feud between TMC workers but happened with support from the Maoist group.

### 3.1 Impact of Mining

When it comes to mining, the government needs land for rehabilitation. The problem has been that of rehabilitation of the tribes and villagers. India has an abundance of minerals, especially iron ore, bauxite, mica and coal. India is the third largest producer of iron ore, the fifth largest producer of bauxite and one of the largest producers of mica in the world. It has been alleged that the mining companies do not appropriately compensate local communities. This is an example of the resource curse, where capital-intensive mining companies, whose primary objective is exporting, have little or no obligation to the local community.<sup>g</sup> In fact, mining is not performed efficiently by these companies, which has led to a natural resource deficit. In addition to importing two-thirds of its required oil, India is projected to overtake China as the world's largest coal importer in the next decade, even though China's coal consumption is currently over six-fold higher than India's. India has also slipped from being the third largest iron ore exporter to being at risk of becoming a net importer. India was also, until recently, the world's largest consumer and importer of gold. It is important to realise that

<sup>f</sup>The Telegraph (2017). Bhangar on boil again. Available at: [https://www.telegraphindia.com/1170513/jsp/bengal/story\\_151340.jsp](https://www.telegraphindia.com/1170513/jsp/bengal/story_151340.jsp).

<sup>g</sup>The resource curse (also known as the paradox of plenty) refers to the failure of many resource-rich countries to benefit fully from their natural resource wealth and for governments in these countries to respond effectively to public welfare needs.

this natural-resource deficit is the primary source of the macroeconomic vulnerabilities that the country is grappling with. There are several problems that the government (both central and state) are trying to identify and solve.

India is losing natural resources inspite of having several progressive laws relating to forest lands, and tribal communities and their lands. There is the Forest Right Act (2006) and the Provisions of the Panchayats (Extension to Scheduled Areas) Act, which was enacted by the Government of India (GOI) to ensure self-governance through traditional Gram Sabhas for individuals living in the Scheduled Areas of India. However, there are allegations that these laws are not properly implemented, and that tribal communities are not consulted as to whether they would like to voluntarily give up their lands to the mining communities. This has led to social unrest and the government occasionally rejecting the requests of mining companies. For example, the GOI blocked Vedanta's bid to build a mine in Orissa in 2010 after considering the interests of the 8000-strong Dongria Kondh community. The Dongria Kondh's determination to protect the Niyamgiri Hills from Vedanta paid off, despite the state government being complicit in the USD 2 billion project. The community campaigned against the mining project for almost a decade amidst alleged intimidation by paramilitary police and local goons. The GOI and the supreme court bucked the trend of siding with the industry and defended the rights of the Dongria Kondh community to their lands and livelihoods. The decision of the environment ministry to block Vedanta should serve as a warning to any company intent on extracting resources from tribal land without the informed consent of members.<sup>h</sup> The message is that if these progressive laws are implemented in spirit then tribal rights and environments can be protected. It is necessary to take a holistic approach to understanding the costs (ecological and the human cost of displacement) and benefits (profitability of the mining companies) of the projects related to mining and extraction. The impacts of India's resource curse could be lessened if the government approached existing laws as a means to achieve a just, democratic and ecologically-informed conversation.

In a recent landmark judgement, the Supreme Court of India imposed penalties of approximately INR 25,000 crores on illegal mining.<sup>i</sup> Two aspects of the verdict stand out: first, the verdict takes environmental law enforcement by the government and the judicial authority to a new high,

<sup>h</sup> <https://www.theguardian.com/global-development/poverty-matters/2014/jan/14/india-rejection-vedanta-mine-victory-tribal-rights>.

<sup>i</sup> For more on this see: <http://judicialreforms.org/100-penalty-orissas-illegal-mining-sc-landmark-case/>.

which is a very strong deterrent against such practices in the future; and second, the court ordered heavy expenditure for the welfare of tribal people in affected areas.

Conventionally, mining was only deemed to be illegal if ores were extracted without a mining lease. Under the mining law, the penalty was equal to the entire output from such an operation. However, once the lease was obtained, even if the mining operation ravaged forests, made the air unbreathable, degraded the environment and produced thousands of crores of profit, the penalty under the environment law was a laughable INR 50,000. This provided businesses with a strong incentive to start mining without waiting for green clearances (Table 1.2). However, under this current Supreme Court order, extracting minerals without the necessary green clearance should be deemed illegal, not just under the environmental law but also under the mining law that imposes back-breaking penalties for default. This means that even if a mining lease is obtained, any extraction without forestry and environmental clearance is illegal and the state must recover the value of the entire output from the defaulter: this is a welcome move.

The Supreme Court judgement resulted in a 19% decrease in mining in Orissa, from 221 mines in 2009–10 to 179 mines in 2013–14. However, the judgement has generally been good for the Indian mining industry, which increased by 21% over the same period. Table 1.3 and Fig. 1.1 show that the better-governed states have shown increased mining activities. The regression between the governance index and the growth rate of mining activities shows that there is a significant positive correlation between governance and mining. This indicates that governance of the mining sector has a direct impact on the investment in resource-rich states. Investors monitor the governance of the mining sector in each state and reward better performance

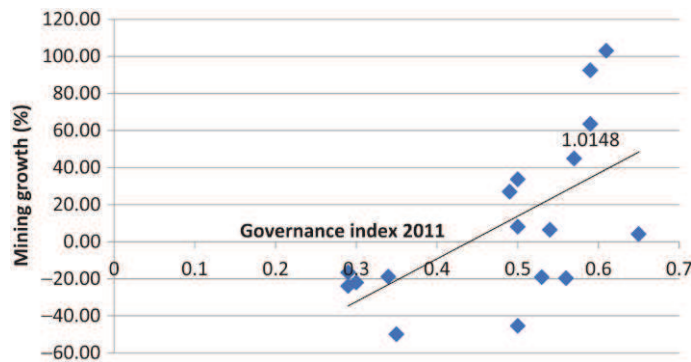
**Table 1.2** Investment in subsectors of the Indian economy

Subsector	Project count	Total investment (USD million)
Water and sewerage	16	624
Natural gas	5	1,015
Airports	7	5,111
Railways	8	7,826
Ports	39	8,745
Roads	388	73,606
ICT	37	100,231
Electricity	381	143,476

Source: [www.worldbank.org](http://www.worldbank.org) data from 2016.

**Table 1.3** Governance and mining activities in Indian states

State	Total mineral mines		Growth rate (%)	Governance index 2011
	2009-10	2013-14		
Andhra Pradesh	456	660	44.74	0.57
Arunachal Pradesh	1	1		
Assam	11	6	-45.45	0.5
Bihar	6	5	-16.67	0.29
Chhattisgarh	152	203	33.55	0.5
Goa	75	69	-8.00	
Gujarat	446	464	4.04	0.65
Haryana	0	1		0.58
Himachal Pradesh	26	21	-19.23	0.53
Jammu & Kashmir	11	7	-36.36	
Jharkhand	299	233	-22.07	0.3
Karnataka	233	187	-19.74	0.56
Kerala	30	49	63.33	0.59
Madhya Pradesh	287	364	26.83	0.49
Maharashtra	158	168	6.33	0.54
Manipur	0	0		
Meghalaya	9	14	55.56	
Odisha	221	179	-19.00	0.34
Rajasthan	289	556	92.39	0.59
Sikkim	0	0		0.31
Tamil Nadu	175	355	102.86	0.61
Uttar Pradesh	25	19	-24.00	0.29
Uttarakhand	34	17	-50.00	0.35
West Bengal	112	121	8.04	0.5
<b>Total</b>	<b>3056</b>	<b>3699</b>	<b>21.08</b>	



**Figure 1.1** Growth rate of mining versus good governance in 2010-14.

with a lower cost of capital by lowering the risk. This shows that well-managed mining projects offer an opportunity to transform resource wealth into sustainable development in India.

### 3.2 Impact on Connectivity

Obtaining land has also been a problem for expanding physical infrastructure. India's transport sector is large and diverse and caters to the needs of 1.3 billion people. In 2017, the sector contributed approximately 6.5% of the nation's gross domestic product (GDP), with road transportation contributing the largest share. Good physical connectivity in urban and rural areas is essential for economic growth. Since the early 1990s, India's growing economy has witnessed a rise in demand for transport infrastructure and services (Table 1.4). For example, in 1990–92 there was only one private sector road project; however, this rose to 31 projects during 2014–16. There was no investment in ports and railways during 1991–92, but by 2014–16 this had risen to three new private sector investments in ports and one in the railway.

In the infrastructure space, it is a challenge to build urban infrastructure. Urban and rural India face a transport crisis that is characterised by high levels of congestion, noise, pollution, traffic-related fatalities and injuries that far exceed other developed countries. The main concern with developing a public transport system had been the disproportionate influence of personal vehicle manufacturers in cooperation with the newly emerging middle class.

In the case of the rural sector, which is constitutionally under the state governments, the GOI started the Pradhan Mantri Gram Sadak Yojana (PMGSY) as a one-time measure to reduce rural connectivity problems. However, there still appears to be a gap between road construction targets and actual completion of the work (Table 1.5). It also indicates that governance at the state level plays a role in the completion of projects despite the financial burden being shouldered by the GOI (Fig. 1.2). Thus the sector has not been able to keep pace with the rising demands and is

**Table 1.4** Growth in the number of private infrastructure projects in India

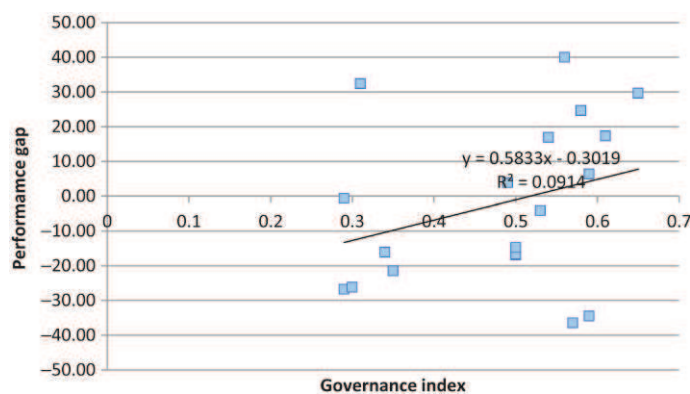
Sector	Projects reaching financial closure	
	1990–92	2014–16
Electricity	3	60
Ports	0	3
Railways	0	1
Roads	1	31
Water and sewerage	0	2

**Table 1.5** Rural roads between 2000–16 under PMGSY

State	Target length (km)	Completed length (km)	Governance index	Performance gap (%)
Andhra Pradesh	2,1695.30	1,3786.57	0.57	-36.45
Arunachal Pradesh	5,252.38	5,782.95		10.10
Assam	1,9848.00	16,500.33	0.5	-16.87
Bihar	60,123.00	44,027.05	0.29	-26.77
Chhattisgarh	32,632.00	27,180.51	0.5	-16.71
Goa	57.42	155.33		170.52
Gujarat	9,657.83	12,522.63	0.65	29.66
Haryana	4,464.86	5,567.01	0.58	24.69
Himachal Pradesh	13,206.40	12,662.26	0.53	-4.12
Jammu And Kashmir	12,433.60	7,344.08		-40.93
Jharkhand	21,818.07	16,112.35	0.3	-26.15
Karnataka	13,238.40	18,533.50	0.56	40.00
Kerala	4,457.23	2,917.81	0.59	-34.54
Madhya Pradesh	64,825.00	67,346.63	0.49	3.89
Maharashtra	21,916.33	25,619.22	0.54	16.90
Manipur	4,460.61	5,671.46		27.15
Meghalaya	1,985.96	1,596.17		-19.63
Mizoram	2,355.87	2,643.16		12.19
Nagaland	2,682.55	3,483.87		29.87
Odisha	49,384.00	41,426.94	0.34	-16.11
Punjab	7,210.99	7,669.72	0.59	6.36
Rajasthan	47,438.00	62,803.72	0.31	32.39
Sikkim	2,554.91	3,289.72		28.76
Tamil Nadu	12,110.58	14,213.28	0.61	17.36
Tripura	5,091.41	3,973.61		-21.95
Uttar Pradesh	50,944.00	50,610.64	0.29	-0.65
Uttarakhand	10,316.03	8,101.82	0.35	-21.46
West Bengal	27,584.21	23,511.31	0.5	-14.77
Telangana	1,725.00	9,962.00		477.51
<b>Total</b>	<b>531455.94</b>	<b>515015.65</b>		<b>96.9</b>

PMGSY, Pradhan Mantri Gram Sadak Yojana.

Source: <http://omms.nic.in/>.



**Figure 1.2** Performance gap in constructing rural roads and governance.



proving to be a drag on the economy. Major improvements in the sector are required to support the country's continued economic growth and to reduce poverty.

The quality of highways will improve substantially in the coming years. The government has made rapid progress in implementing the National Highway Development Project. There have been some efficiency gains in ports through the privatisation of port services and berths. The telecom sector has perhaps seen the most significant development, as greater clarity in regulatory and policy environments has accelerated activities and expanded coverage. Several private operators are already active in this market and are raising funds through bond financing. Tariffs in the telecom sector have reduced thanks to deregulation, competition and technology. In no sector of the economy have prices fallen as fast as in the telecom sector.

India has a coastline spanning 7516.6 km, comprising 5422.6 km of mainland coastline and 2094 km of island territory coastline (the Andaman Islands, Nicobar Islands and Lakshadweep). Nine states and two union territories<sup>j</sup> have access to the sea; however, despite the huge potential, there are only 13 major ports and 200 notified minor and intermediate ports. According to the Ministry of Shipping, approximately 95% and 70% of India's trade by volume and value, respectively, goes through river and sea routes.

The biggest problem in the freight industry is that the government has not been able to modernise the main ports due to pressures from unions. As a result, the ports in India are manually operated and this has a direct effect on efficiency. Political pressure, lack of independence, lack of incentives, excessive bureaucracy and hierarchical rigidity contribute to the state of the ports in India. However, despite the labour problems at ports, [Wu and Lin \(2008\)](#) found that the freight industry was more competitive than the rest of the transportation industry. Their Data Envelopment Analysis (DEA) analysis suggested that, among the ports examined in industrialised countries, the efficiency of the container port in India was second only to the US port of Los Angeles.

The Indian railway is the fourth largest rail network. It had an established route length of 66,687 km in 2016 and is divided into broad, metre and narrow gauges. The total planned investment during 2007–15 was approximately USD 53.85 billion.

<sup>j</sup> Nine states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal) and two union territories (Daman & Diu and Puducherry).

#### 4 PROBLEMS WITH WATER RESOURCES

In 2002, the Coca-Cola Company was accused of devastating the livelihood resources of tribes, the landless Dalit and small and marginal farmers in Plachimada, Kerala. The Kerala Ground Water Board confirmed the depletion of groundwater. The increased economic activity in India after liberalisation has contributed towards the declining water levels. The drying of open wells has been observed throughout India and, along with pumping and the utilisation of water by industry, has caused prolonged droughts. This is a classic case of clashing interests between forces of economic development, social marginalisation and environmental concerns.

Table 1.6 shows that India is not generally considered to be a water-deficit country. The problem is mostly related to the distribution of water between the various stakeholders. The question is how to decide who gets to utilise the water resources and how? India has historically never relied on the pricing of water as a resource, and local communities did not pay to access water for agricultural or household use; however, a problem develops when a large external consumer moves in and competes for these resources.

From the perspective of positive economics, one must look at the costs and benefits that pollution (i.e. groundwater depletion) imposes on society. If Coca-Cola depletes water, the costs include sustaining any livelihoods (i.e. farming and fishing) that are water dependent, whereas the benefits include any employment, profit and income generated by the company. It

**Table 1.6** Overview of water resources of India

Water resource at a glance	Quantity (Millimetres)	%
Annual precipitation (including snowfall)	4,000	100
Precipitation during monsoon season	3,000	75
Evaporation and soil water	2,131	53.3
Average annual potential flow in rivers	1,869	46.7
Estimated utilisable water resources	1,123	28.1
Surface water	690	17.3
Replenishable groundwater	433	10.8
Storage created from utilisable water	253.381	22.52
Storage (under construction) of utilisable water	50.737	4.5

is important to note that part of this corporate income is also passed on to the government in the form of tax. If the gains outweigh the costs, then pollution is good for society.

Going back to the Coca-Cola example, one can think of a number of solutions to tackle the problem of pollution: (1) tell Coca-Cola to reduce production, (2) build canals for the residents living in near the plant to supplement the lost groundwater, and (3) relocate all residents in the neighbourhood and using the land solely for producing Coca-Cola.

In this scenario, interest groups apparently suggested the third option; however, would this really be the optimum solution? True, there would be lower groundwater depletion. However, society would lose if the cost of the factory shutting exceeded the cost of building a new canal to bring water to the region. This is also true for the third option, if the cost of relocation was less than the loss from shutting the Coca-Cola plant, then the efficiency lies in relocating those living in the neighbourhood rather than closing the factory. This idea was first propounded by Ronald Coase and is known as Coase Theorem in economics; however, Coase Theorem has some limitations related to transaction costs and the free-rider problem. If anyone in the neighbourhood wants compensation from Coca-Cola, they must negotiate with the company or with the government to build supply-side infrastructure in the form of a canal. The negotiation will cost that person both time and money; however, if they are successful all the neighbourhood will benefit. Therefore no one in the neighbourhood wants to be the negotiator, and this is the free-rider problem.

The government can help here; however, people should be more eager to inhabit a less-polluted environment. Although developed nations consume more fossil fuel, their major cities enjoy a much cleaner environment than in India. In the United States, all factories are located on the outskirts of cities. American consumers are willing to pay higher prices (in the form of taxes) for having clean cities, and hence the US government has no problems implementing a strict environmental policy.

In addition to the market solution, the GOI envisaged the idea of inter-linking the major perennial rivers from the north of India to the seasonal rivers in the south of India through its nodal National Water Development Agency. In theory, a river-linking project will not only prevent the colossal water wastage by mitigating against flood and detaining flowing surface water and the erosion of topsoil during rainy seasons but will also ensure availability of water to drier areas, thus simultaneously combating both flood and drought.

Two major projects have been undertaken: the first linking the Godavari and Krishna rivers in Andhra Pradesh and the second project linking the Ken and Betwa rivers in Madhya Pradesh and Uttar Pradesh, respectively. The projects were completed in September 2016 and December 2016, respectively. The GOI has projected that the water need in 2050 will be approximately 1450 km<sup>3</sup>, which will amount to a deficit of 327 km<sup>3</sup>. The interlinking projects will provide an additional 200 km<sup>3</sup> of water, thus reducing the estimated deficit to 127 km<sup>3</sup>. The project is expected to create around 87 million acres of irrigated land and will generate 34,000 MW of hydropower; however, half a million people are likely to be displaced in the process. Therefore although the USD 168 billion projects to interlink rivers is finally underway, it will still not be sufficient to alleviate the deficit and will create internal displacement. Several geoscientists and environmentalists have warned that the project is imprudent and dangerous, especially since there is little clarity on the ultimate impact of such a massive undertaking.

#### 4.1 PPPs and the Financial Sector

It is generally accepted that PPPs are a useful and essential mode of infrastructure and public service delivery. Although PPPs are not a universal solution to structural problems in governance and public goods, governments are using them to develop a quantum of their country's infrastructure. In the context of this objective, governments provide substantive roles for one of the PPPs to provide clear services as a means of investing the private sector in the operational efficiency and supply of public goods.

India has witnessed considerable growth in PPPs in the last 15 years, increasing the outlay from USD 629 million to USD 16,363 million. India has emerged as one of the leading PPP markets in the world due to several policies and institutional initiatives taken by the central and state governments.

In 1990–92, there were three projects by Reliance ADA Group, Infrastructure Leasing & Financial Services of India and Synergic Resources Corporation of United States of America. During 2014–16 the top three sponsors were

The growing PPP trends, especially over the last 20 years (Table 1.7), justify the need for an elaborated policy framework that defines the principles for implementing a larger number of projects in different sectors to complement the inclusive growth spectrum of the nation. The national PPP policy seeks to facilitate this expansion in the use of the PPP approach, where necessary, in a consistent and effective manner. As a result, the GOI has set up a website dedicated to the PPP infrastructure projects to provide PPP structural toolkits (Table 1.8).

**Table 1.7** Growth of investment in PPP in India

Sector	Investment in projects by sector (USD million)	
	1990–92	2014–16
Electricity	627	5,895
Ports	0	1,103
Railways	0	80
Roads	2	5,705
Water and sewerage	0	19

PPP, Private public partnership.

Source: [www.worldbank.org](http://www.worldbank.org)

**Table 1.8** Top 10 sponsors of PPP during 2014–16

Project	Country	Investment (USD million)
Reliance Communications Limited	India	29,001
Bharti Airtel Limited	India	23,879
Vodafone Essar	India	17,053
Idea Cellular	India	11,284
Tata Teleservices Limited	India	7,538
NTPC Limited	India	5,992
Shyam Telelink Ltd.	India	5,313
Mundra Ultra Mega Power Plant	India	4,200
Sasan Ultra Mega Power Plant	India	3,986
Jindal Tamnar Power Plant Phase I and II	India	3,983

The GOI endeavoured to build an enabling legal frame and financial work in the road sector. GOI has accorded the status of an industry via Section 18 (1) (12) of the Infrastructure Act. The GOI initially permitted automatic approval for foreign equity participation of up to 74% for construction and the maintenance of highways, roads and tunnels. Foreign equity participation up to 100%, subject to a ceiling of USD 300 million, was permitted following a subsequent revision. Although the GOI has been clear about the financial requirements of the PPP model, it has been hampered by a lack of financial deepening of the economy.

For the financial sector, one of the peculiarities of India's macroeconomic development has been the disproportionate weight of physical savings. Even as the aggregate savings rate reached 37% in 2008, nearly 40% of this was savings in physical assets. The financial savings of the household sector account for approximately 8% of the GDP. While a low level of financial savings reflects a lack of deepening of financial markets, its coexistence with

high aggregate savings reflects the lack of a formal link between physical assets and financial markets. The two have operated in isolation not only as investment classes but across income categories and investor types.

It is in this context that the move by the Securities and Exchange Board of India to establish the Real Estate Investment Trusts (REITs) must be seen. A REIT is a listed entity that owns and manages a portfolio of income-generating real estate assets across sectors. The establishment of REITs, for which the global market is approximately USD 850 billion, will go a long way to restoring the balance between savings in physical and financial assets.

In the case of coal, which India has in abundance, mining is hampered by monopolistic Coal India, which cannot mine coal fast enough for the growing economy. The demand for coal is increasing at a much higher rate (around 8.5%) than growth in the Indian economy (around 6.5%). The spillover of these shortages has resulted in significant electricity shortages in India that pose a grave threat to the country's economic growth. Given the inefficiency of the sector, the GOI plans to raise coal output in the country by introducing a PPP model in the sector. Private and foreign mining companies say that they would participate in the coal mining projects if the government provides them with more ownership rights. These mining companies are waiting to see if the PPP model offers more than just a mine developer-cum-operator (MDO) role. According to the MDO model that is currently in use at Coal India, private parties are just contractors that are paid a fixed fee for every tonne of coal mined (<http://www.powertoday.in/>). The most critical deficit facing the economy is the natural resource deficit. Besides importing two-thirds of its oil requirement, India is projected to overtake China as the world's largest coal importer in the next decade, even though China's coal consumption is currently six-fold higher than that of India.

Table 1.3 shows that only three port projects were under consideration during 2014–16, with an investment of USD 1103 million. Although this is a significant increase from 1990 to 1992, the opportunity and potential for the expansion of coastal connectivity is enormous. The GOI has realised this potential and introduced financial initiatives under Section 80 IA, where investors are offered a 100% rebate on income tax for 10 consecutive years in the first 20 years of a port-related project. Guidelines were issued by the GOI to enable major ports to establish joint ventures with foreign ports, minor ports and private companies. These guidelines also encouraged state governments to provide initiatives for minor ports.

Indian Railways (IR) undertook USD 80 million worth of PPP projects during 2014–16 (Table 1.7). Over the years the IR has gone through various PPP projects including laying new lines, doubling the existing lines, enhancing port connectivity and electrifying its network. India's first 'private' railway station, Habibganj, has recently been developed near Bhopal under a PPP model where the private firm was given a concession to develop vacant lands near the Habibganj station. For the purpose of using vacant railway land, IR completed most of the work related to the digitisation of the land record (i.e. details of the acquisition, area, usage and land plans) using the Land Management Module. This also helped IR to keep digitised details of vacant plots of land measuring more than 1 acre and to chalk out the blueprint for monetisation of its vacant land in the same spirit of private development at Habibganj station.

## 5 CONCLUSION

Land and water are two important resources that are essential for economic development. Although India's economy is fast growing, it ranks lowly among other similar economies in terms of its developmental indicators. Reasons for this may be a lack of both physical and social infrastructure. This chapter has demonstrated how land and water are important resources, yet how they are frequently misused. This has important repercussions not only on more uniform development but also on the distribution of income. Lack of transparency in the allocation of land and crony capitalism may lead to an inefficient use of resources. The Supreme Court of India has recently become cognizant of these facts and implemented stringent laws to prevent the misuse of land and water resources.

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